13th

SCBTII

Sustainable Collaboration in Business,
Technology, Information and Innovation

Telkom University

Recover Together, Recover Stronger:
Challenges and Opportunities Toward Sustainable Digital Economy

PROCEEDING

BOOK 2022

Organized By

Fakultas Ekonomi & Bisnis
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Telkom University

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SCBTII 2022

"RECOVER TOGETHER, RECOVER STRONGER: CHALLENGES AND OPPORTUNITIES TOWARD SUSTAINABLE DIGITAL ECONOMY"

Economic growth is expected to slow down in various developed and developing countries as the Covid-19 epidemic spreads, owing to the decline of globalization and the rise of digitalization and financial risk. To deal with the global economic slowdown and to address different economic issues, the government of Indonesia implemented an economic transformation agenda. At the same time, the business sector must be able to develop a long-term competitive edge. Companies must seek a long-term competitive edge by synergizing management capabilities, technological competence, and innovation strategies to respond to external trends and events.
Sustainable Collaboration in Business, Information and Innovation (SCBTII) 2022 is an international conference that brings together academics, professionals, entrepreneurs, researchers, learners, and other associated groups from all over the world that is interested in theories, as well as practices in the field of the digital economy for global competitiveness.

With the Theme: "Recover Together, Recover Stronger: Challenges and Opportunities Toward Sustainable Digital Economy", we are pleased to announce that His Excellency Erick Thohir (Minister of State-Owned Enterprises Republic of Indonesia) and distinguished colleagues Prof. Hussain Rammal (The University of Adelaide – Australia), Prof. Hitoshi Mitomo (Waseda University – Japan), Dr. Tan Cheng Ling (Universiti Sains Malaysia), Dr. Krishnadas Nanath (Middlesex University – Dubai) and Dr. Andry Alamsyah (Telkom University, Indonesia) will be speaking at the conference as keynote speakers.

This conference provides opportunities for both presenters and participants to exchange new ideas and experiences, build research relationships, and find global partners for future collaboration in order to successfully and effectively respond to social and technological development challenges.

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PREFACE

Economic growth is expected to slow down in various developed and developing countries as the Covid-19 epidemic spreads, owing to the decline of globalization and the rise of digitalization and financial risk. To deal with the global economic slowdown and to address different economic issues, the government of Indonesia implemented an economic transformation agenda. At the same time, the business sector must be able to develop a long-term competitive edge. In other words, companies must seek a long-term competitive edge by synergizing management capabilities, technological competence, and innovation strategies to respond to external trends and events.

Sustainable Collaboration in Business, Information and Innovation (SCBTII) 2022 is an international conference that brings together academics, professionals, entrepreneurs, researchers, learners, and other associated groups from all over the world interested in theories, as well as practices in the field of the digital economy for global competitiveness.

The theme of SCBTII 2022 is: "Recover Together, Recover Stronger: Challenges and Opportunities Toward Sustainable Digital Economy", which was attended by Mrs. Loto Srinaita Ginting, Special Advisor on Finance and SME Development, Ministry of State-Owned Enterprises of the Republic of Indonesia and distinguished colleagues as the speakers.

This conference has provided opportunities for presenters and participants to exchange new ideas and experiences, build research relationships, and find global partners for future collaboration successfully and effectively respond to social and technological development challenges. Thank you very much to the respected presenters and all the participants of SCBTII 2022. Please participate again in SCBTII next year.

Yuhana Astuti, S.Si.,S.E., M.T., M.Agr., Ph.D

The 13th SCBTII 2022 Chairperson

SPEAKERS

Prof. Hussain Rammal
Professor of International Business in Adelaide Business School The
University of Adelaide - Australia

Prof. Hitoshi Mitomo
Professor of Telecommunications Economics and Policy in Graduate School of
Asia-Pacific Studies. Waseda University – Japan

Dr. Tan Cheng Ling
Associate Professor in Graduate School of Business, Universiti Sains
Malaysia

Dr. Krishnadas Nanath
Associate Professor in School of Science and Technology Middlesex University – Dubai

Dr. Andry Alamsyah
Associate Professor in School of Economics and Business, Telkom University - Indonesia

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32. Muhammad Azhari, S.E., M.B.A

TOPICS OF CALL FOR PAPERS

Digital-Based Management

Big Data and Data Sciences

Data Mining

E-Business

E-Government

E-Governance

Internet of Things

 ICT for Society

Human Computer Interaction

Operations and Quality Management

Performance Management

Green Marketing

Consumer Behavior

Finance and Corporate Governance

Corporate Finance

Capital Market and Investment

Financial Technology

Market Discipline

Behavioural Finance

International Finance

Risk Management

Market Microstructure

Business Ethics

Corporate Social Responsibility Sustainability

Islamic Finance

Strategy, Entrepreneurship, Economics

Economics and Policy Studies

Start Up and Small Business Development

Human Capital and Talent Development

Knowledge Management

Strategic Management and Decision Making

Innovation Management

Accounting

Financial Accounting

Accounting Information System

Managerial Accounting

Capital Market

Public Sector Accounting

Islamic Accounting in banking

Social Accounting

TABLE OF CONTENTS

RUNDOWN OF SCBTII 2022 (ONLINE CONFERENCE)
Wednesday, July 27th, 2022

Time (GMT +7)	Activities	Person in Charge
08.00 - 09.00	Open Registration and Protocol Preparation	Floor Manager 1: Tarandika Tantra, MM
09.00 - 09.10	Greetings	MC: Mediany Kriseka Putri, MAB
09.10 – 09.20	Indonesia Raya & Mars Telkom University	Host and Co-Host Floor Manager 2: Sri Rahayu, M.Ak.
09.20 - 09.30	Opening Remarks from Chairwoman	Yuhana Astuti, Ph.D
09.30 – 09.40	Opening Speeches and Opening Ceremonial	Rector of Telkom University: Prof. Adiwijaya
09.40 – 09.45	Greeting and Announcing Keynote Speaker's CV	MC: Mediany Kriseka Putri, MAB
09.45 – 10.05	Keynote Speech	Loto Srinaita Ginting (Special Advisor on Finance and SME Development, Ministry of State-Owned Enterprises of Republic of Indonesia)
10.05 – 10.10	Greeting from Dean of Faculty of Economics & Business Telkom University	Dr. Ratri Wahyuningtyas
10.10 – 10.15	Photo Session	MC: Mediany Kriseka Putri, MAB
		Logistic, Publication, Documentation Division
10.15 – 10.25	Opening Plenary Session and Announcing the Moderator	MC: Mediany Kriseka Putri, MAB
		Moderator: Heppy Millanyani, Ph.D
10.25 - 10.45		Speaker 1: Prof. Hussain Rammal (The University of Adelaide, Australia)
10.45 – 11.05	1st Panel Discussion of Invited Speakers	Speaker 2: Dr. Tan Cheng Ling (Universiti Sains Malaysia, Malaysia)
11.05 – 11.25		Speaker 3: Dr. Andry Alamsyah (Telkom University, Indonesia)
11.25 – 11.55	1st Panel Discussion (Q&A)	Moderator & Invited Speakers
11.55 – 12.05	Certificate of appreciation and photo session for Speakers & Moderator	Dr. Ratri Wahyuningtyas
		Logistic, Publication, Documentation Division
12.05 – 12.15	Closing	MC: Mediany Kriseka Putri, MAB
12.15 – 13.00	Lunch Break	-
Parallel Session Schedule		
13.00 – 15.30	Presentations of Parallel Session	Call for Paper & Program Division
End of Parallel Session (Participants Join The Plenary Room)		
15.30 - 15.40	MC Open The 2nd Plenary Session	MC: Mediany Kriseka Putri, MAB

		Moderator: Dr. Fetty Poerwitasary
15.40 - 16.00	2nd Panel Discussion of Invited Speakers	Speaker 4: Prof. Hitoshi Mitomo (Waseda University, Japan)
16.00 - 16.20		Speaker 5: Dr. Krishnadas Nanath (Middlesex University, Dubai)
16.20 – 16.40	2nd Panel Discussion (Q&A)	Moderator & Invited Speakers
16.40 – 16.50	Certificate of Appreciation and Photo Session for Speakers & Moderator	MC: Mediany Kriseka Putri, MAB & Dr. Ratri Wahyuningtyas
16.50 - 17.00	Closing speech from Dean	
17.00 – 17.15	Announcement of Best Papers & Closing	MC: Mediany Kriseka Putri, MAB

PRESENTATION SCHEDULE – FAS 1

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				**SCBTII 2022 PARALLEL SESSION**		
				FAS Room 1		
	13.00	13.10	10	**Session Chair:** Dr. Cahyaningsih PIC: Muhammad Jakfar Siddiq		
1.	13.10	13.25	15	Abdurrahman, Aurik Gustomo, Eko Agus Prasetio	Designing a digital transformation capability maturity model for the Indonesian banking industry	732
2.	13.25	13.40	15	Dia Mekar Sari	Analysis Of Factors Affecting Economic Growth In Lampung Province 1999-2020	718
3.	13.40	13.55	15	Dida Farida Latipatul Hamdah	The Effect of Investment Decisions on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange	660
4.	13.55	14.10	15	Haura Dyna, Astrie Krisnawati	The Role of Social Capital as a Mediator between Financial Literacy and Financial Inclusion on Productive Age in Purwakarta Regency	739
5.	14.10	14.25	15	Wahdan Arum Inawati, Tri Utami Lestari, Ruri Octari Dinata, Rr. Sri Saraswati, Ilham Ripana, Irsa Pramesti Rahmadani	Type of Industry, Company Size, Profitability, Environmental Performance and Environmental Disclosure in Kompas 100 Index Companies	595
6.	14.25	14.40	15	Siti Rahma Siregar	The Effect of Family Ownership On Tax Aggressiveness With Political Connections As A Moderation	758
7.	14.40	14.55	15	Christian Jonathan Hadipraja	Impact Analysis of Government Debt Issuance on Corporate Debt in Emerging Countries from 2010 to 2019	752

PRESENTATION SCHEDULE – FAS 2

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				FAS Room 2		
	13.00	13.10	10	**Session Chair:** Tieka Trikartika Gustyana PIC: Fadel Husni N. H.		
1.	13.10	13.25	15	Titania Agustin	Analysis Of The Effect Of Inflation, Exchange Rates, Gross Domestic Product And Net Exports On Indonesia's Balance Of Payments In 1995-2020	672
2.	13.25	13.40	15	Yuniar Puspita Dewi	Factors Affecting Income Inequality In The Province Of South Kalimantan 2017-2020	676
3.	13.40	13.55	15	Eti Kusmiati	Analysis Of Financial Literacy Factors For Smes	548
4.	13.55	14.10	15	Annisa Sekar Kinasih	Impact Of Fiscal Decentralization Implementation On Poverty Alleviation In Tanggamus Regency Of Lampung Province In 2018-2020	566
5.	14.10	14.25	15	Amanda Rizki Bagasta	Prediction Of Financial Distress From Transportation Sector Companies In South East Asia Using SMOTE Support Vector Machine	599
6.	14.25	14.40	15	Nuzila Kholidah Alfath	Analysis Of The Effect Of Economic Growth On Zakat Poverty Level And Unemploymen Rate In Indonesia For The Period 2018-2020	628
8.	14.55	15.10	15	Nora Amelda Rizal, Azmi Syakir Aprianto	The Effect Of Good Corporate Governance And Ownership Structure On The Profitability Of Companies Listed In The Jakarta Islamic Index	778

PRESENTATION SCHEDULE – FAS 3

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
**SCBTII 2022 PARALLEL SESSION**					
FAS Room 3					
	13.00	13.10	10	**Session Chair:** Suhal Kusairi, Ph.D PIC: Defitriana Fardiyanti		
1.	13.10	13.25	15	Fany Putri Agustina	Analysis of the Effect of Population, GRDP Growth, and Unemployment on Poverty in the Ex Residency of Pati in 2017-2020	703
2.	13.25	13.40	15	Mei Sopiani	Analysis of Determinants of Indonesian Coffee Exports to the United States Period 2001-2020	491
3.	13.40	13.55	15	Lina Nurlaela	Analysis Of The Effectiveness And Variance Of Direct Expenditure	552
4.	13.55	14.10	15	Cindi Prasestesia	Analysis of the Influence of Investment, JUB, and Interest Rates on Economic Growth in Indonesia for the 2010-2020 Period	802
5.	14.10	14.25	15	Rahmi Bunga Anggraini	Indonesia Pension Fund Asset Allocation During Financial Market Uncertainty Due to Covid-19 Pandemic	600
7.	14.40	14.55	15	Dhian Wahyuni	Factors Influencing Executive Compensation in Indonesia	708
8.	14.55	15.10	15	Thanthowie Jauharie	Effect of macroeconomic on net asset value of equity mutual funds in indonesia during covid-19 pandemi	785

PRESENTATION SCHEDULE – FAS 4

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
SCBTII 2022 PARALLEL SESSION
FAS Room 4
	13.00	13.10	10	**Session Chair:** Dudi Pratomo, Ph.D PIC: Azizan Hawari, 'Ashriyani Fadhilah		
1.	13.10	13.25	15	Mira Putrinisih	Analysis of the Effect of Minimum Wage, Investment, and Human Development Index on Labor Absorption in the Semarang Karesidenan Region in 2017-2020	496
2.	13.25	13.40	15	Citta Prastyani Putri	Analysis Of The Influence Of Foreign Investment, Domestic Investment, Agglomeration And Labor On Economic Growth In The Province Of West Java In 2018-2020	712
4.	13.55	14.10	15	Khoirul Sidiq	Analysis of Factors Affecting Income Inequality in West Java Province in 2016-2020.	579
5.	14.10	14.25	15	Vaya Juliana Dillak, Syifa Denali Kairinnisa	Analysis of Intellectual Capital Disclosure on the Kompas 100 Index in Indonesia	779
6.	14.25	14.40	15	Rifki Abdul Malik, Dendy Syaiful Akbar, Iyus Yustini, Thomas Aditya Ramdani	E-Filing and Tax Revenue: a Role of Digital Tax Socialization	654
7.	14.40	14.55	15	Mandasari.R	The Effect of Firm Performance on Stock Returns by Moderating Google Search Volume Index and Corporate Governance Quality during Covid-19 on Indonesia Sharia Stock Index (ISSI)	635
8.	14.55	15.10	15	Puspita Sari, Dian Agustia	The Effect Of Green Technology Innovation On Company Financial Performance Through Environmental Performance	792

PRESENTATION SCHEDULE – FAS 5

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				**SCBTII 2022 PARALLEL SESSION**		
				FAS Room 5		
	13.00	13.10	10	**Session Chair:** Dr. Leny Suzan PIC: Ilham Ripana, Anisah Daffa		
1.	13.10	13.25	15	Trisnika Alfina Putri	Analysis of the Effect of Inflation, Minimum Wage, TPT, HDI on the Number of Poor People in East Java Province 2018-2021	497
2.	13.25	13.40	15	Zainufiqh Ali Mukti	Accuracy Analysis Of Government Program In Poverty Reduction In Sukoharjo Bulu District 2017-2021	704
3.	13.40	13.55	15	Rini Ilwida Wahyu Ningrum	Analysis of The Influence of Regional Native Income, General Allocation Fund and Special Allocation Fund to Human Development Index in Besuki Ex Residency Region of East Java Province in 2014-2020	555
4.	13.55	14.10	15	Raihan Muhammad Jibril	Analysis Of Factors That Affect Local Revenue In Sleman District In 2015-2020	641
5.	14.10	14.25	15	Muhammad Rafi Muzakki	Influence of World Oil Prices, Corruption Perception Index, and Foreign Debt on Indonesia's Tax Revenue	597
6.	14.25	14.40	15	Nurdiana Mulyatini, Yusup Iskandar, Erna Rozalina	Analysis the Economic Potential of the Base Sector Using the Location Quotient to Increase Industrial Competitiveness in Ciamis Regency	661
7.	14.40	14.55	15	Faiz Muhammad	The Effect of Good Corporate Governance Characteristics on Company Financial Performance	735

PRESENTATION SCHEDULE – FAS 6

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				FAS Room 6		
	13.00	13.10	10	**Session Chair:** Dr. Dini Wahjoe Hapsari PIC: Sri Nodia Rahna		
1.	13.10	13.25	15	Rachmat Subiyantoro	Real/real exchange value analysis, exports, and imports, on Indonesia's 1994-2019 trading sheet	503
2.	13.25	13.40	15	Muhammad Nabiel Ihza Ramadian	Analysis The Effect Number Of Industry, Population, And Value Of Investment On Employment Opportunities In Kendal Regency	518
3.	13.40	13.55	15	Dhila Dwi Anggie Nugroho	Analysis Of The Effect Of Gdp, Income Inequality, Human Development Index, And Goverment Expenditure On Poverty In Regencies/Cities In Bali Province 2017-2021 Period	554
4.	13.55	14.10	15	Bryna Nisa Sapphira	Analysis of the Effect of Inflation, Money Supply, and Interest Rates on E-Money Circulating in Indonesia in 2013-2021	589
5.	14.10	14.25	15	Supriyanto	Analysis of Factors Affecting the Indonesian Sharia Stock Index on the Indonesia Stock Exchange (IDX) for the period of February 2014 – January 2022	611
6.	14.25	14.40	15	Mochamad Romdhon, Resmi Afifah Fadilah, Winda Ningsih	Firm Age On Islamic Bank: Evidence From Indonesia	670
7.	14.40	14.55	15	Jefry Hartanto Kurniawan	Does Educating Customers Increase Loyalty Toward Digital Banks?	737

PRESENTATION SCHEDULE – FAS 7

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
SCBTII 2022 PARALLEL SESSION						
FAS Room 7						
	13.00	13.10	10	**Session Chair:** Willy Sri Yuliandhari, Ph.D PIC: Andre Alva Miracle Taroreh		
1.	13.10	13.25	15	Claurita Nur Khasana	Analysis of the Effect of Economic Growth and Education on Poverty in Semarang Residency in 2017-2019	504
2.	13.25	13.40	15	Ibnu Ahmad Firmansyah	Analysis Of The Influence Of Gross Regional Domestic Product (Gdp), Unemployment, And Education On Poverty In Central Java 2016 – 2020	679
3.	13.40	13.55	15	Muslim Al Kautsar	Does The Self-Assessment System Run To Collect The Entertainment Tax In Garut?	562
4.	13.55	14.10	15	Imam Rafif Hanif	Predicting Employee Burnout Rate Using Neural Network	587
5.	14.10	14.25	15	Febry Dhiya Ulhaq Fauzi	Operational Performance Efficiency and Financial Performance Efficiency of Aviation Companies in The Asia Pacific Region During Covid-19 Pandemic	605
6.	14.25	14.40	15	Resmi Afifah Fadilah, Mochamad Romdhon, Winda Ningsih	The Impact Of Covid-19 On Firm Investment: Evidence From Indonesia	707
7.	14.40	14.55	15	Mamat Rohimat	Determinants of Capital Adequacy Ratio Before And During The Covid-19 Pandemic: Evidence From ASEAN Banking Sector	793

PRESENTATION SCHEDULE – FAS 8

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				FAS Room 8		
	13.00	13.10	10	**Session Chair:** Annisa Nurbaiti, SE, M.Si. PIC: Cut Rizkiya Syahputri		
1.	13.10	13.25	15	Muhammad Nuzul Haidar Ghozi	Analysis Of The Influence Of Monetary Policy On Inflation In Indonesia, 1997-2021	507
2.	13.25	13.40	15	Erik Kartiko	The Effect of Profitability on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange	653
3.	13.40	13.55	15	Muslim Al Kautsar	The Implementation of Village Financial System (SISKEUDES) in Supporting Village Financial Performance	561
4.	13.55	14.10	15	Erny Anugrahany, Athor Subroto	Cluster Prioritization in Advanced Metering Infrastructure Strategic Implementation Planning	592
5.	14.10	14.25	15	Septiany Trisnaningtyas, Rofikoh Rokhim	Pharmaceutical Firm Profitability: A Descriptive Analysis During The Covid-19 Pandemic in Indonesia	618
6.	14.25	14.40	15	Trias Rachmatika, Timotius Timotius	Proposed product costing with ABC method for e-commerce of organic product	667
7.	14.40	14.55	15	Hanna Syaghofa, Aldilla Iradianty	The Effect Of Financial Literature, Financial Inclusion, And Financial Behavior On Investment Decision Of Telkom University's WRAP Entrepreneurship Students	741

PRESENTATION SCHEDULE – IBM 1

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				IBM Room 1		
	13.00	13.10	10	**Session Chair:** Indira Rahmawati, Ph.D PIC: Salma Luthfania Patra		
1.	13.10	13.25	15	Firman Edi Saputra	Categorization of Digital Cooperative Features using Kano Model	513
2.	13.25	13.40	15	Hani Siti Hanifah, Erik Kartiko, Irma Rosmayati, Imas Purnamasari	Analysis Of The Role Original Local Government Revenue On Economic Growth Of Garut Regency: Moderating Variable Tourism	702
3.	13.40	13.55	15	Ilham Pandika Haris Chandra	Public Sentiment Analysis of The National Movement Bangga Buatan Indonesia on Twitter Social Media Using Big Data Analytics	550
4.	13.55	14.10	15	Thersya Christine Nugroho	Exploring Indonesian consumers' attention toward online food delivery service usage during COVID-19 pandemic: a topic modeling approach	723
5.	14.10	14.25	15	Dwi Riani Novitasari	Analysis of personal information disclosure to mobile wallet applications using privacy calculus theory	632
6.	14.25	14.40	15	Athiya Noura, Wati Susilawati, Rohimat Nurhasan, Tina Andriani Dewi	Customer Trust On The Use Of Shopeepay And The Impact On Millenial User Satisfaction During The Covid-19 Pandemic	688
7.	14.40	14.55	15	Mayangsari Wilandini	The Effect Of Organizational Culture, Digital Technology Self Efficacy, Agility, Resistance To Change On Digital Innovativeness	714
8.	14.55	15.10	15	Jongkey Mulia	Pull Strategy Concept Implementation On MSME's Social Media And E-commerce Digital Marketing For Sales Improvement	811

PRESENTATION SCHEDULE – IBM 2

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				IBM Room 2		
	13.00	13.10	10	**Session Chair:** Dr. Maya Ariyanti PIC: Lukman		
1.	13.10	13.25	15	Diqy Fakhrun Shiddieq	Prototype Motorcycle Security System Using Internet Based Arduino Of Things Integrated With Whatsapp Application	527
2.	13.25	13.40	15	Wufron	The Implementation of the Decoy Effect Marketing Strategy On the Purchase Decision of Telkomsel Users in Kabupaten Garut	747
3.	13.40	13.55	15	Siska Marlina	How to Maintain Bank Customer Loyality	558
4.	13.55	14.10	15	Siti Aisyah	Analysis of Factors Affecting the Absorption of Manpower in the Tourism Sector in West Java Province in 2018-2020	797
5.	14.10	14.25	15	Muhammad Iqbal	Predicting the Occurrence of Top Rated Freelancers in Freelance Marketplace Users Using the Random Forest Algorithm	655
6.	14.25	14.40	15	Nana darna, iwan setiawan, Ade Risma	The Optimization of Campus Website in Knowledge Management System	693
7.	14.40	14.55	15	Diyan Fariha Rosyidah	Green Marketing Segmentation and Marketing Mix Across Emerging Economies	710
8.	14.55	15.10	15	Taufiq Rachman Hidayat, Yeshika Alversia	Optimalization of Digital Marketing Channels and Online Sales Channels To Increase MSME's Brand Exposure	754

PRESENTATION SCHEDULE – IBM 3

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
SCBTII 2022 PARALLEL SESSION						
IBM Room 3						
	13.00	13.10	10	**Session Chair:** Dr. Maria Sugiat PIC: Safwan Hanif		
1.	13.10	13.25	15	Abi Yusuf Nur Asida, Rini Kuswati	E-Wallet Adoption Of Millennial Generation: The Roles Of Perceived Benefits As Partial Mediating	645
2.	13.25	13.40	15	Hilman Rismanto	Analysis Service Quality of the Mobile App Tukang Sayur.co	748
3.	13.40	13.55	15	Umari Abdurrahim Abi Anwar	Triple A and Supply Chain Integration: Literature Review from the Indonesian Automotive Industry	564
4.	13.55	14.10	15	Helni Mutiarsih Jumhur, Rizkia Feriska, Melati Sabila Putri	Regulation Study of Implementation Digital Trade in Indonesia	585
5.	14.10	14.25	15	Gina Sara Melati, Kanti Pertiwi	Media Convergence And Covid-19 Pandemic: An Explorative Study Of The Perspective Of Media Workers At The Office Of PT. Media Televisi Indonesia	648
6.	14.25	14.40	15	Aflit Nuryulia Praswati	Virtual Reality (VR) as Reference Sustainable Tourism	695
7.	14.40	14.55	15	Rut Cahaya Hutapea	Factors That Influence The Loyalty Of Mobile Apps Users On Teleconsultations Or Virtual Clinic Services	713
8.	14.55	15.10	15	Rr Rieka Febriyanti Hutami, Tisa Kartika Dewi	Inventory Control with Periodic Review System Method (Case study of Antigen and PCR test package in XYZ Laboratory)	817

PRESENTATION SCHEDULE – IBM 4

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				IBM Room 4		
	13.00	13.10	10	**Session Chair:** Ratih Hendayani, Ph.D PIC: Fazri Evrizal Muharam		
1.	13.10	13.25	15	Nunuk Khoiriyah	Analysis of factors affecting soybean imports Indonesia in 1989-2019	531
2.	13.25	13.40	15	Rohimat Nurhasan	Generation-Z Behavior: Social Media Marketing vs Brand Image	725
3.	13.40	13.55	15	Jordi Anggada Putra	Planning And Implementation Of Digital Marketing In Vertex Studio	765
4.	13.55	14.10	15	Abi Satrio Pramono, Daniel Tumpal Hamonangan Aruan	Perceived Fear of COVID-19, Enjoyment, and Subjective Norms Effect Towards Intention to Use Online Grocery Shopping in Indonesia	586
5.	14.10	14.25	15	Anisa Lisara	The Influence Of Discount Prices And Store Attempt On Consumer Behavior In Purchase Decisions At Pt Alfaria Trijaya Tbk (Alfamart)	657
6.	14.25	14.40	15	Andi Rachman Putra, Rifelly Dewi Astuti	Factor Analysis that Drives Organic Food Purchase in Indonesia: SOBC Framework	690
7.	14.40	14.55	15	Tessa Viennie Setiawan	Implementation Of Human Resource Management, Preparation Of Standard Operating Procedures For Payments And Digital Marketing Strategies For Smes Nurma Catering	767
8.	14.55	15.10	15	Amalia E Maulana, Cecilia E Indriastuti, Deva P Setiawan	Penetration of fish meals via online delivery platforms and its influences to the intention of cooking fish at home	720

PRESENTATION SCHEDULE – IBM 5

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
				SCBTII 2022 PARALLEL SESSION		
				IBM Room 5		
	13.00	13.10	10	**Session Chair:** Yudha Febrianta PIC: Ferdhy Ramadan		
2.	13.25	13.40	15	Fikri Fahru Roji	Neural Network Algorithm For Classification Of Student Graduation In Faculty of Economics, University of Garut	547
3.	13.40	13.55	15	Diah Aryani, Sabrina Oktaria Sihombing, Shine Pintor Siolemba Patiro, Maklon Felipus Killa	Business Behavior Models Of Msmes In Indonesia In Implementing The Use Of Chatbot Technology	796
4.	13.55	14.10	15	Anggit Yoebrilianti, Ginta Ginting, Etty Puji Lestari, Tika Arundina	Electronic Word Of Mouth (E-WOM) And Consumer Trust To Buy In The Market Place : Shoppe Platform Study Case	594
5.	14.10	14.25	15	Yanet Kemala Putri	Investigating the Effect of Brand's Social Media on Consumer Purchase Intention	808
6.	14.25	14.40	15	Kennard Jonathan Layman	Analysis Of Urban Waste Collection System Planning At Zero Waste Management Company In Jadetabek Using Shortest Route Method	698
7.	14.40	14.55	15	Elizabeth Stefani Sitohang	Factors Affecting Continuance Intention to Reuse Telemedicine Application	807
8.	14.55	15.10	15	Helni Mutiarsih Jumhur, Rizkia Feriska	Regulation Analysis of Implementation Mobile Virtual Network Operator Business Model in Indonesia	620

PRESENTATION SCHEDULE – IBM 6

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
\multicolumn{7}{SCBTII 2022 PARALLEL SESSION}						

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
	13.00	13.10	10	**Session Chair:** Refi Rifaldi Widya Giri PIC: Yuga Raihan		
1.	13.10	13.25	15	Hedi Cupiadi	Factors Affecting Consumer Perception Using E-payments	535
2.	13.25	13.40	15	Kana Agatha Nathania	Text Mining Approach to Analyze User Response on Social Media Towards a Sales Promotion Program	652
3.	13.40	13.55	15	Ismayanti Istanto, Hapzi Ali, Shine Pintor Siolemba Patiro, Liza Mumtazah Damarwulan	Big Data Utilization on Tourism Marketing in Post-pandemic Recovery Era: Future Prospect	568
4.	13.55	14.10	15	Dimitri Ismandana Utama Putera	The Effect of User Generated Content and Fear Of Missing Out Towards Indonesian Mobile Gacha Gamers' Purchase Intention	762
5.	14.10	14.25	15	Elgina Febris Maria Manalu	Examining the Benefits of Online Behavioral Advertising on Behavioral Intention	674
6.	14.25	14.40	15	Indah Utami Abudiman	The Importance Of Digital Product Presentation To Drive Behavioral Intention In The Context Of Digital Commerce	705
7.	14.40	14.55	15	Stefan Adrian Sitepu, Gita Gayatri	The Effect of Korean Celebrity Endorsers and Online Marketplace Brand Congruence on Indonesian Consumers' Purchase Intention	761

Table header spanning rows: SCBTII 2022 PARALLEL SESSION / IBM Room 6

PRESENTATION SCHEDULE – SHEE 1

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
**SCBTII 2022 PARALLEL SESSION**
SHEE Room 1
	13.00	13.10	10	**Session Chair:** Puspita Wulansari, Ph.D PIC: Rafat Naufal Aziz		
1.	13.10	13.25	15	Erlin Anggraini	Public Consumption Analysis Of Special Region of Yogyakarta with Panel Data 2015-2019	627
2.	13.25	13.40	15	Intan Tenisia Prawita Sari	Micro and Small Enterprises Employee Productivity Analysis in the Post Pandemic Era: The Impact of Motivation and Work Environment	506
3.	13.40	13.55	15	Distika Safara Setianda	Analysis of Labor Absorption Industry Sector in Central Java Province 2015-2019	522
4.	13.55	14.10	15	Megha Sakova	The Role of Nano Influencer in Strategic to Increase Promotion of Micro, Small, and Medium Enterprise (MSME) In Pandemi Covid 19	560
5.	14.10	14.25	15	Elisa Romadhona Devitasari	Analysis Of The Impact Index Of Human Development In The Province Of Bali And Factors Influencing IT.	617
6.	14.25	14.40	15	Dwi Martuti Kurnia Putri	Resilience Of The Agricultural Sector In Central Kalimantan	639
8.	14.55	15.10	15	Nana Darna, Mukhtar Abdul kader, Wiwin Setianingsih	THE LEADERSHIP IN INDONESIA: Students' Perception	697
9.	15.10	15.25	15	Yordi Hikmawan	Marketing Plan Implementation in SME	804

PRESENTATION SCHEDULE – SHEE 2

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
SCBTII 2022 PARALLEL SESSION						
SHEE Room 2						
	13.00	13.10	10	**Session Chair:** Jurry Hatammimi, Ph.D PIC: Dali Arya W		
1.	13.10	13.25	15	Yasmine Rahma Sheva Surya Safira	The Effect Of The Number Of Unemployment, The Number Of Population And The Literature Rate On Poverty Rate In Indonesia 2016-2020	677
2.	13.25	13.40	15	Istianah	Determinants of the Human Development Index in Districts/Cities of Central Kalimantan Province 2010-2020 Period	511
3.	13.40	13.55	15	Fitrin Rawati Suganda	Consumer Preferences for Purchasing Handmade Wallets in Sukaregang Garut	525
4.	13.55	14.10	15	Bently Nevada Tobing	In Search of Leadership Competency Model For Millennials in Energy Sector: A Literature Review	809
5.	14.10	14.25	15	Agung Dwi Saputra, Gita Gayatri	The Effect of Platform Characteristics, Reward Recognition and Customization on Customer Loyalty Intention of Micro-Scale SMEs Culinary Products in Food Delivery Applications	744
6.	14.25	14.40	15	Siswo Baskoro	Causality Analysis between Economic Growth and Labor Absorption in Bali Province 2002-2021	763
7.	14.40	14.55	15	Juniar Rijatama	Performance Improvement Of Sepiring Geprek MSME Through The Application Of Sop Standard, Employee Training Standard, Recruitment Standard, And Optimization Of Company Profile	659
8.	14.55	15.10	15	Dimas Bayu Putrantio	E-government and corruption Indonesian government studies	788

PRESENTATION SCHEDULE – SHEE 3

SCBTII 2022 PARALLEL SESSION						
SHEE Room 3						
No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
	13.00	13.10	10	**Session Chair:** Arien Arianti Gunawan PIC: Annisa Prameswari		
1.	13.10	13.25	15	Yusnia Solikah	Analysis Of The Effect Of Human Development Index, Education Level, Total Population, On Poverty In Gorontalo Province 2016-2021	493
2.	13.25	13.40	15	Rini Yustika Sari	Analysis of the Effect of Infrastructure Development on Economic Growth in East Nusa Tenggara	647
3.	13.40	13.55	15	Riska Febrianti Bastiar	Analysis Of Gender Development Index Indicators On Economic Growth In The DKI Jakarta In 2017-2020	526
4.	13.55	14.10	15	Catur Priyadi	Core Values AKHALAK BUMN ON MILLENIAL GENERATION JOB SATISFACTIONS	582
5.	14.10	14.25	15	Agus Purnomo	Poverty Factors in Grobogan Regency 2010-2020 Period	757
6.	14.25	14.40	15	Bayu Ari Sadewo	Improvement in Operational Cost Efficiency and increasing Net Profit in Duck Egg Farming SMME Business : Business Coaching of duck egg Farming Business.	768
7.	14.40	14.55	15	Muhammad Zaki Rahman	Implementation Of Sub-Division Leadership In Efforts To Improve Employee Performance Of The Regional Financial And Asset Management Agency Of Ciamis Regency	689
8.	14.55	15.10	15	Kurniawati Santi Andriani	The dynamics of The Bureaucracy System and Gender Equality in Government - Civil Servant Alternative Perspective Study	684

PRESENTATION SCHEDULE – SHEE 4

			SCBTII 2022 PARALLEL SESSION		
			SHEE Room 4		
No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
	13.00	13.10	10	**Session Chair:** Ratna Komala Putri PIC: Annisa Resky		
1.	13.10	13.25	15	Luqyana Widy Indria Husna	Analysis Of The Impact Index Of Human Development In The Province Of East Kalimantan And Factors Influencing IT	484
2.	13.25	13.40	15	Wahida Reza Mustika Wardhani	Analysis Of The Effect Of Wages, Investment, Human Development Index (HDI), And Number Of Industry On Labor Productivity In East Java Province 2016-2020	515
3.	13.40	13.55	15	Tesauna Ajeng Nur Hanifah	Analysis Of The Effect Of Seeds, Labor, And Land Area Towards Increasing Rice Production To Meet Community's Food Bars Klaten District	656
4.	13.55	14.10	15	Fatin Amalina	Analysis of Economic Gap Between Districts in Bali Province in 2017-2021	584
5.	14.10	14.25	15	Arsyi Asriawati, Daryono Soebagyo	Analysis Of Factors Affecting Non-Oil And Gas Exports In Indonesia 2017-2021	637
6.	14.25	14.40	15	Aprilia Dwi Prastika	Effect Of Poverty Rate, Open Unemployment Rate, Provincial Minimum Wage And Economic Growth On Human Development Index (Case Study Of North Maluku Province In 2011-2021)	664
7.	14.40	14.55	15	Henny Widya Anita Napitupulu	Analysis of Talent Management and Performance Management Public Service Agency Ministry of Finance Lembaga Manajemen Aset Negara (LMAN)	691
8.	14.55	15.10	15	Triastuti Putri	Analysis of the influence of human resource development on economic growth in the province of East Java in 2017-2021	666

PRESENTATION SCHEDULE – SHEE 5

No.	Start	End	Duration	Presenter Name	Paper Title	Paper ID
SCBTII 2022 PARALLEL SESSION						
SHEE Room 5						
	13.00	13.10	10	**Session Chair:** M. Azhari PIC: Nandang L. Rezqi		
1.	13.10	13.25	15	intan yulia wanti	PDRB Impact Analysis, Education, Population, Poor Towards IPM In West Sulawesi 2017-2021	505
2.	13.25	13.40	15	Dini Turipanam Alamanda	Contemporary Coffee Business during the Covid-19 period in Indonesia	520
3.	13.40	13.55	15	Afidatul Iza	Analysis Of The Effect Of Locally Revenue , Regional Shopping , And The Workforce On The GDP Of The Central Java Province In 2019-2020	557
4.	13.55	14.10	15	Aji Kurniawan	Analysis The Effect Of Education, Women's Health, And Labor Force Participation Rates On Poverty In Metropolitan Semarang In 2017-2021.	602
5.	14.10	14.25	15	Ega Annisa Rizti, Cynthia Afriani Utama	Carbon Disclosure and Firm Performance: The Role of the Upper Echelons	638
6.	14.25	14.40	15	Elin Herlina, Cici Yulianti, Deden Syarifudin	Performance Improvement Of Outsourced Government Employees Through Organizational Commitment And Organizational Citizenship Behavior (OCBs)	668
7.	14.40	14.55	15	Reni Marliani, Elin Herlina, Faizal Haris Eko Prabowo	An Analysis of Human Relation in Enhancing Working Productivity at Kicimpring MSME's in Cihaurbeuti Village	692
8.	14.55	15.10	15	Muhammad Arifin	Improvements Of The Layout Of Retail Store And Warehouse Facilities At SMEs In Pot Selling Shop	800

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Analysis Of The Impact Index Of Human Development In The Province Of East Kalimantan And Factors Influencing It

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Abstract

Human Development Index (HDI) is one of the most important indicators for measuring success in building human quality of life. The research aims to analyze the magnitude of some variables in the model's impact on human development index in east kalimantan in 2017-2020. Human development index in the eastern Kalimantan province of 2010 to 2021 tended to increase by an average growth of 0.69% each year. By 2020, the east kalimantan fall by 0.48%, as the covid19 pandemic has affected people's restraint and the impact on poor economies. In 2017-2020, balikpapan, samarinda, bontang, had a highly elevated human development index, causing progress to be driven by improved education dimensions and improved standards of living and school friendly expectations. The study uses a quantitative method with the data panel regression model. In the regression data panel model there are some test models (cem, fem, rem), test chow, hausman test,test t,test F,R-square. In uji F of probabilitas 0,0000, there was a chance that the country's minimum wage, poverty, unemployment, and education together could affect the number of human development index in east kalimantan. Based on the results of the R-square of 99.65% was affected by the variables in the model and the rest of the 0.35% were affected by those outside the model. Research has concluded that only the district's minimum wage variables affected the human development index in the eastern Kalimantan province of 2017-2020.

Keywords— human development index; district minimum wage; poverty; unemployment; education

I. INTRODUCTION

The economic development of a region is affected by human development processes. Such achievements are not without measure the human quality of a region. An indicator of the quality of people in the region is the human development index (HDI). The ipm is an indicator of how it measures one important aspect of the quality of economic development, the degree of human development.

The human development index is one of the indicators for measuring the level of physical and non-physical quality of the population (andaiyani,2012). The human construction index is a composite index that includes three presumed basic areas of human development that are viewed by the physical and non-physical qualities of the population. These are also the three indicators: health indicator, education level and economics. While physical quality is polluted from life expectancy, non-physical quality is reflected in its average length - the average population in school, literacy and considering its economic capability of real capital expenditure.

The difference in public welfare levels can lead to inequality and inequality between areas. To measure the extent of human development development, it is aimed at analyzing how much the minimum wage of districts/cities is affected by the human development index (HDI) in the eastern provinces of 2017-2020.

Table 1. Index For East Kalimantan Development Man Province

Year	HDI
2017	75,12
2018	75,83
2019	76,61
2020	76,24
2021	76,88

Sources: data from east kalimantan province

Poverty, Human Development Index and economic growth in several regions in Indonesia and make it as a reference to understand the relationship of economic growth and Human Development Index with poverty in Indonesia.

II. LITERATURE REVIEW

The problem of poverty is generally related to several factors such as the quality of human resources and economic growth. Where the decline in the quality of human resources and economic growth in a region will have a negative impact on the level of poverty, and vice versa.Introduction covers the background of the issue or problem and the urgency and rationalization of activities (research or service). The objectives of the activities and problem solving plan are presented in this section. Relevant literature reviews also included in this section.

A. Human Development Index Theory

The United Development Program (UNDP) defines human development as a process of expanding people's choices. The most important choice is to live a healthy long life, get adequate education and enjoy a decent standard of living (Hakim, 2002). UNDP compiles an alternative measure of well-being by using the Human Development Index. Human Development Index (HDI) is a composition index based on three indicators, namely health, education and standard of living (Arsyad, 2010)

B. Quantity Theory Of Money (Irving Fisher)

According to (Kuncoro, 2009), the components seen in measuring HDI are based on the basic components of quality of life consisting of life expectancy, literacy rate and average length of schooling and decent living standards. The determination of the HDI category is based on a scale of 0.0-0.10 consisting of: 1. Low category: HDI value 0-0. 05 2. Middle category: HDI value between 0.51-0.79 3. High category: HDI 0.8-1 Cambridge Marshall Pigou theory. Components of the Human Development Index a. Longevity as a measure of Health and nutrition. Longevity is measured by the average life expectancy (in years) of the 31st birth rate, calculated by assuming that a baby born in a given year will experience the instantaneous mortality rate of each age group throughout his life (Hakim, 2002).

C. Poverty Theory

Poverty is a condition when a person cannot meet his basic needs for life. Or a limitation to meet their needs for food, health, education and welfare in social conditions.Where in the social life of the male and female population have limitations to get a more decent life such as clean water, habitable housing, jobs that can improve the quality of life of 18 people, and higher education that can be achieved. In fact, it is not only the limitations that are experienced by the poor because in other conditions the poor are not uncommon to experience the threat of living conditions such as malnutrition experienced due to Nutritional Insufficiency obtained which poor nutrition can cause death. So that poverty eradication is needed to cut all these limitations with various policies or approaches undertaken by the government (Bappenas: 2004).Transaction motives and precautions.

Precautionary motive: people will benefit from holding money to deal with unforeseen circumstances, because of the liquid nature of money, which is easily exchanged for other goods. According to Keynes, the demand for money for precautionary purposes is influenced by the same factors that affect the demand for money for transactions, that is,it is mainly influenced also by the level of income of the person, and may also be influenced also by the interest rate (although it is not strong influence).

D. Factors Causing Poverty

Poverty is a problem that always exists in a country or region where these problems are related to productivity, production and consumption in the development of society or individuals as a manifestation of government policies contained in national development. This poverty grows not only naturally without cause and effect but can occur because there is no change from generation to generation that causes poverty to continue to exist.Poverty sometimes makes its inhabitants feel discriminated by social inequalities that cannot be avoided by the poor.

Various kinds of poverty according to Arsyad Lincoln (1997) these kinds of poverty include:

a. Absolute poverty someone who belongs to the absolute poor if someone is unable to meet their basic needs to achieve survival, someone can be called a poor population.
b. Relative poverty a person belongs to the relative poor if he has been able to meet the basic needs of his life, but still much lower than the surrounding community conditions.

E. Relationship Between Poverty Index And Development

The relationship between poverty and Human Development Index level of Health and education can affect poverty. Improvements in health made by the government can improve public health, and school-age children can attend school and receive lessons well. The level of Education makes workers have skills and knowledge which in turn causes productivity to increase and income also increases. This causes economic growth to increase which will then cause the level of poverty to decrease. There is an important relationship between HDI and earning capacity. Income is the main determinant and result of capital shortage low productivity low income low savings low investment 22 of human development. Poor people use their labor to participate in economic growth, but poverty due to lack of education, as well as poor nutrition and health reduces their capacity for work. Thus, the result of low HDI is that the poor cannot take advantage of productive income opportunities due to economic growth. Therefore, the provision of basic social services is an important element in poverty management (Kanbur and Squire,1999).

F. Unemployment

Unemployment is a condition found in developed and developing countries which means a state of the population which is the labor force but has not found a job but is still said to be actively looking for work (Nanga, 2001:253). A resident who is not working but is looking for work cannot be categorized as unemployed and a resident can be said to be unemployed when the resident is included in the labor force but has not obtained a job (Sukirno, 2000:472).

G. Unemployment

Unemployment is a condition found in developed and developing countries which means a state of the population which is the labor force but has not found a job but is still said to be actively looking for work (Nanga, 2001:253). A resident who is not working but is looking for work cannot be categorized as unemployed and the population can be said to be unemployed when the population is included in the labor force but has not obtained a job (Sukirno, 2000:47magam-macam unemployment according to Case and Fair (2004:54), unemployment can be divided into several kinds, as follows:

a. Frictional unemployment (frictional unemployment) frictional unemployment is a type of unemployment that arises as a result of changes in working conditions, which occur along with economic developments or dynamics that occur.

b. Seasonal unemployment refers to the fluctuating state of the economy. in general, this unemployment only lasts a certain time in one year. 24

c. Cyclical unemployment is a condition in which economic activity is slow and results in production restrictions in a company or a reduction in employee working hours or even the threat of employee reduction, this condition causes an increase in unemployment.

d. Structural unemployment structural unemployment occurs because economic conditions are growing rapidly with increasing production or technology in a company that causes high qualification requirements by a company for job applicants. From the qualifications set by the company make job applicants unable to meet the qualifications set by the company.

The relationship between unemployment and Human Development Index Todaro (2000) suggested that human development is the goal of development itself. Where human development has a role to shape the success of a country in an effort to absorb increasingly modern technologies as a goal for individual capacity development in improving the quality of work and reducing unemployment to achieve sustainable human development. Based on the overcoming of unemployment and the impact on increasing the income of 25 a population that will have an impact on improving human development with various improvements in the quality of life that has been achieved such as nutritional needs, household consumption and education, the reduction of unemployment can experience changes in the Human Development Index is increasing.

Unemployment is a reality faced not only by developing countries, but also by developed countries. In general, unemployment is defined as a situation where a person belonging to the category of labor force (labor force) does not have a job and is actively looking for work.A person who does not work, but is actively looking for work cannot be classified as unemployed. To measure unemployment in a country is usually used what is called the unemployment rate (unemployment rate) is the number of unemployed expressed as a percentage of the total labor force (labor force). While the labor force itself is the number of people who work and do not work, who are in certain age groups in Indonesia for example, included in the labor force are those aged 10 years and over; while in the USA are those aged between 15 64 years).

To determine the size of the unemployment rate can be observed through two approaches, among others, as follows :

a. Labor force apprpach the size of the unemployment rate is calculated based on the percentage of the ratio between the number of unemployed people and the number of labor force.
b. Labor utilization approach to determine the size of the unemployment rate based on the labor utilization approach, among others:

1. Fully employed: people who work full time or work 35 hours per week.
2. Underemployed are those who work, but have not been fully utilized, meaning that their working hours in a week are less than 35 hours

III. RESEARCH METHODOLOGY

A. Methods Of Analysis

a. Data Types And Data Sources

The method of data collection in this study is the secondary data obtained from the Central Statistics Agency (BPS). Data on all variables to be studied starting from 2017 to 2020.

b. Analysis Tools

Regression analysis of Panel data with econometric models (estimators) as follows:

$$IPM_{it} = \beta_0 + \beta_1 UMK_{it} + \beta_2 JPM_{it} + \beta_3 TPT_{it} + \beta_4 IHK_{it} + \varepsilon_{it}$$

IPM	= Human development index
UMK	= Minimum wage
KEMIS	= Number of Poor Population
TPT	= Open unemployment
IHK	= Education
β_0	= Intercept or Konstanta
$\beta_1 \beta_1 \beta_3 \beta_4$	= Shows the regression coefficient of the independent variable
i	= Shows Regency or City cross section data
t	= Shows time series data for 2017-2020
ε	= Error term (Error factor)

Research methodology, The research method describes the design of activities, scope or object, main materials and tools, place, data collection techniques, operational definitions of research variables, and analytical techniques. [Times New Roman, 10, normal].

IV. RESULT / FINDING

The results of panel data regression estimation with Pooled Ordinary Least Square (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM) approach can be seen in Table 1.

Table 1. Panel Data Regression Estimation Results

Variabel	Koefisien Regresi		
	CEM	FEM	REM
C	5.089.214	6.509.214	5.457.987
UMK	-5,36E-07	8,81E-07	1,06E-07
JPM	-0,389138	-0,218508	-0,594891
TPT	-0,062979	-0,063163	-0,010935
IHK	3.050.742	0,961344	2.559.348
R-squared	0,970193	0,996518	0,902434
Adj,R-squared	0,966468	0,99455	0,890238

Prob F-statistik	0,00000	0,00000	0,00000

Source: Eviews Regression Data

A. Uji Chow

Table 2. Hasil Uji Chow

Effects Test	Statistic	d.f.	Prob.
Cross-section F	19.321043	(9,23)	0.0000
Cross-section Chi-square	79.444471	9	0.0000

Source: Eviews Regression Data

The conclusion of the Chow Test is that the conclusion is H0 is rejected because the p value for F and Chi Square (0.0000 and 0.0000) ≤0.05. So the best model to use is the Fixed Effect Model (FEM).

B. Hausman Test

Table 3. Hausman Test Results

Test Summary	Chi-Sq. Statisti	Chi-Sq. d.f.	Prob.
Cross-section random	14.027630	4	0.0072

Source: Eviews Regression Data

The conclusion H0 is drawn because the p-value for Chi-squared (0.0072) < 0.05. The best Model to use is the fixed effects model (Fem).

Based on the model selection test published above, the best model used is the Fixed Effect Model (FEM). The estimated results of the fixed effects model (fem) are shown in Table 4.

Table 4. Hasil Estimasi Fixed Effect Model

$$IPM_{it} = 65,09214\beta_0 + 8,81E - 07UMK_{it} - 0,218508JPM_{it} - 0,063163TPT_{it} + 0,961344IHK_{it}$$

0,0000		0,0157	0,4795
	0,3661	0,1518	

R^2= 0,996518; DW-Stat.= 2,601054; F-Stat.= 506,3501; Prob. F-stat.= 0,0000

Keterangan:

*Signifikan pada α = 0,01

** Signifikan pada α = 0,05

*** Signifikan pada = 0,10

Result section presents the results of the study. Research results can be supplemented with tables, graphs (pictures), and / or charts.

V. DISCUSSION

A. Test The Goodness Of The Model

Based on Table 4, it is known that the empirical statistical significance of F in the FEM estimate has a value of 0.0000 (<0.01) so that Ho is rejected. The conclusion is the model used in this study excision. Based on Table 4 The coefficient of determination (R2) shows the predictive power of the estimated model. Based on Table 4.4 known value (R2) for Fixed Effect Model (FEM) of 0.99455, meaning that 99.45% variation of Human Development Index variable (HDI) can be explained by the district minimum wage variable, the number of poor people, open unemployment rate and CPI. The remaining 0.55% is influenced by variables or other factors that are not included in the research model.

B. Influence Validation Test

Table 5. Effect Validation Test Results

Variabel	t-statistik	Prob,t	Criteria	Conclusion
UMK	2.610.122	0,0157	<0,05	Signifikan α = 10%
JPM	-0,718758	0,4795	>0,10	no Signifikan
TPT	-0,922053	0,3661	>0,10	no Signifikan
IHK	1.482.428	0,1518	>0,01	no Signifikan

Source: Eviews Regression Data

Based on the effect Validation Test (t test) that has been described above, there is one independent variable that has a significant effect and three independent variables that do not have a significant effect on the Fixed Effect Model (FEM). Variables that affect the Human Development Index is the district minimum wage, while the number of poor people, open unemployment rate, and RLS has no significant effect.

District minimum wage variable has a regression coefficient of -8.81 E-07. The pattern of the relationship between the district minimum wage and the Human Development Index is linear so that if the district minimum wage increases by 1%, The Human Development Index will increase by 8.81 E-07 index numbers. Conversely, if the amount of economic growth decreased by 1%, The Human Development Index will decrease by 8.81 E-07 index Figs. These results are in accordance with research conducted Moh. Faizin (2019). The results of partial hypothesis Test (t test) on the minimum wage states that the independent variable has a significant influence on the HDI, because the probability value obtained is smaller than (0.000 < 0.05). Thus, the results of this analysis states the first hypothesis raised in this study is that the minimum wage prevailing in a region positively and significantly affect the value of HDI in the area can be proven empirically.

Variable number of poor people has a regression coefficient of -0.218508. The pattern of the relationship between the number of poor people with Human Development Index is linear so that if the number of poor people has increased by 1%, The Human Development Index will decrease by 0.218508 index numbers. Conversely, if the number of poor people decreased by 1%, The Human Development Index will increase by 0.218508 index Figs. This is in line with research conducted by Siti Nur Fatimah (2018) with the results of provincial poverty having a coefficient value of 1.507112, with a t count of 0.600007 and a probability of 0.5522. Where the probability is more than α= 10%, which means it is not significant to the Human Development Index.

Variable number of open unemployment rate has a regression coefficient of -0.063163. The pattern of the relationship between the open unemployment rate with the Human Development Index is linear so that if the open unemployment rate increases by 1%, The Human Development Index will decrease by 0.063163, the index Fig. Conversely, if the open unemployment rate decreased by 1%, The Human Development Index will increase by 0.063163 index Figs. This result is in line with the research conducted with the results that show based on the results of hypothesis testing shows that unemployment does not affect the HDI. This can be seen from the significant value of 0.370> 0.05. The theory carried out by Wahyuni (2005) says that the unemployment rate is the state of a person who does not work or is looking for work in order to earn income. When the unemployment rate increases then the decent living index of a society increases then the companies will employ more labor so that the decent living index level of the workers will increase so that it will reduce the Human Development Index.

CPI variable has a regression coefficient of 0.961344. The pattern of the relationship between the CPI with the Human Development Index is linear so that if the CPI has increased by 1%, The Human Development Index will increase by 0.961344, the index number. Conversely, if the CPI decreased by 1%, The Human Development Index will decrease by 0.961344 index Figs. These results are in line with research conducted Rivo M, et al. (2022). The results obtained based on the test conducted obtained the result that the value of the CPI table 2013-2107 is -1.11 then thitung CPI < ttable, means there is no influence between the CPI to the HDI 2013-2017. TTABLE value of GDP 2013-2107 is 0.256, then thitung GDP < ttable, means there is no full between GDP against HDI 2013-2107. Of the two variables economic conditions there is no significant influence on the Human Development Index in Central Java Province in 2013-2017.

The discussion section describes the results of data processing, interpreting the findings logically, linking them with relevant reference sources. [Times New Roman, 10, normal].

VI. CONCLUSION AND RECOMMENDATION

The best panel data model selection test results prove that the Fixed Effect Model (FEM) is the selected model. Based on the goodness model test on the Fixed Effect model (FEM) approach model, it is proven that the exsis estimated model with detrminant coefficient (R2) of 0.996518, meaning that 99.45 percent of the variation in the Human Development Index is influenced by variations in the district minimum wage, the number of poor people, the open unemployment rate, education. Based on the effect Validation Test (t test), it can be seen that partially the minimum wage variable has a positive and significant effect on the Human Development Index (HDI) in East Kalimantan province, while the number of poor, Open unemployment, CPI variables have no significant effect on the Human Development Index (HDI) in East Kalimantan province. In the F test of 0.0000 so that it can be seen that the district minimum wage, the number of poor, Open unemployment rate, CPI jointly affect the Open Development Index.

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Analysis of Determinants of Indonesian Coffee Exports to the United States Period 2001-2020

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Abstract

The era of economic openness allows international trade or buying and selling between countries such as exports to be carried out. The United States is the destination country with Indonesia's largest coffee export value, considering the country's high coffee consumption. This study aims to examine the effect of the variables Gross Domestic Product, Exchange Rate, International Coffee Prices, and Domestic Coffee Production on Indonesian Coffee Exports to the United States. The analytical method used in this research is Ordinary Least Square (OLS) regression analysis. This research was conducted in Indonesia. This research is a quantitative study using secondary data obtained from the Central Statistics Agency (BPS) and the World Bank. The results showed that Gross Domestic Product and Domestic Coffee Production had a significant effect on Indonesian Coffee Exports to the United States for the period 2001 to 2020.

Keywords— Export, Gross Domestic Product, Exchange Rate, International Coffee Prices, Domestic Coffee Production

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I. INTRODUCTION

Globalization has made countries dependent on one another, and they can no longer separate themselves from other countries. Because the country cannot meet all of the country's domestic demands. Furthermore, countries are interconnected due to variations in resource ownership and a country's limited ability to create commodities or services independently. As a result, international trade is required to address this situation. According to Setiawan & Lestari (2011), international trade is a purchasing and selling transaction between countries that is carried out on the basis of a mutual agreement. Export activities are one type of international trade. The act of exporting things abroad in order to increase a country's foreign exchange earnings is known as export. If domestic output surpasses domestic demand and meets the standards for sale on the global market, exports are carried out.

Indonesia is a subtropical country with the potential to develop resources other than oil and gas, including plantation commodities. Plantation items continue to dominate some of Indonesia's top products. Coffee is one of the most important plantation products. Coffee is Indonesia's most valuable commodity, serving as a source of foreign exchange, employment, and income for farmers and other economic actors involved in the cultivation, processing, and marketing of coffee beans, particularly in the country's largest coffee-producing regions, such as South Sumatra, Lampung, Sumatra, North, and East Java (Turnip, 2002). After palm oil, rubber, and coconut, coffee was Indonesia's fourth major agricultural commodity (particularly plantations) in 2019. Coffee exports totaled 0.36 million tons, with an export value of US$ 0.88 billion.

Despite the fact that the plantation sub-sector is the most important, the coffee commodity still need improvement in terms of governance and marketing. Not only that, but there are other factors to consider as well, such as competitiveness, because commodity competitiveness can influence export performance (Kartini, 2018). As a result, the state of the commodity products, the amount of these commodities, and how these commodities contribute at the global level influence the formulation of plans to enhance exports in the plantation sector. After Brazil, Vietnam, and Columbia, Indonesia is the world's largest coffee producer. Brazil will be the world's leading coffee producer between 2016 and 2020, with an average production of 3.19 million tons. Second, Vietnam produced 2.01 million tons on average, followed by Columbia, which produced 840.37 thousand tons on average. With an average production of 725.68 thousand tons per year, Indonesia is the world's fourth largest producer.

Robusta coffee is produced primarily in Vietnam and Indonesia, while arabica coffee is produced primarily in Brazil and Columbia (ICO, 2018). Coffee is a high-value global commodity and one of the most widely consumed beverage components on the planet. According to the International Coffee Organization (ICO), global coffee consumption in 2020-2021 is expected to reach 167.58 million bags, up 1.9 percent from the previous year's Fig of 164.43 million sacks (Dera, 2021). Millennials and parents are adopting the trend (Wibowo, 2019).
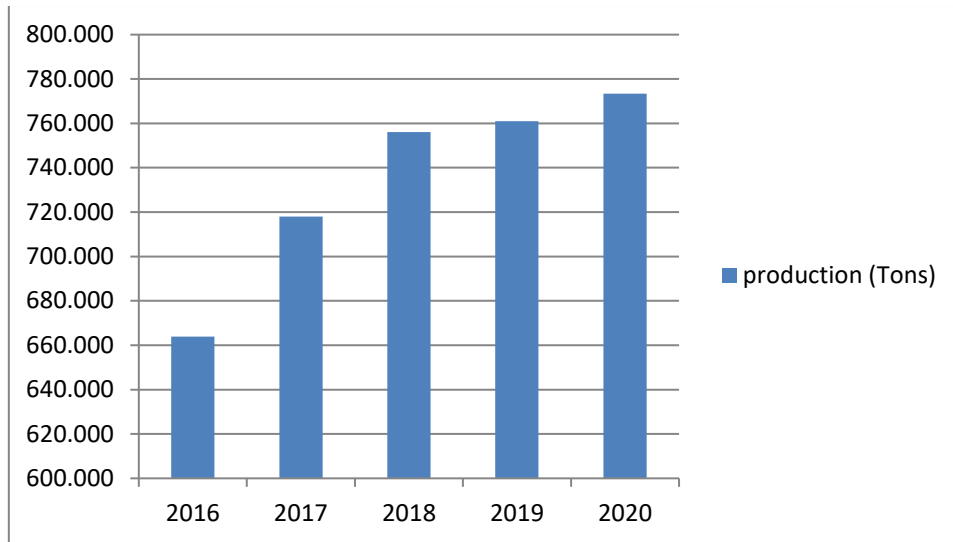
Fig 1. Coffee Production in Indonesia from 2016 to 2020

The production of coffee in Indonesia varies, as seen in Fig 1. Extreme weather fluctuations and high rainfall lead coffee production to surge and decline. In 2016, coffee production was 449,536 tons, which climbed to 503,385 tons in 2017, 530,305 tons in 2018, 531,558 tons in 2019, and 541,569 tons in 2020. As a result, coffee production is expected to rise from 2016 to 2020. In order for Indonesia's coffee commodity to compete in the international market, it must maintain its quality by employing superior and high-quality seeds, ensuring that Indonesian coffee output remains constant and grows year after year. Between 2001 and 2020, the majority of coffee plantations in Indonesia grew 80.36 percent robusta coffee, covering an average area of 979.20 thousand hectares, while Arabica coffee covered only 239.39 thousand hectares, accounting for 19.63 percent of the total area of Indonesian people's coffee plantations. As one of the world's largest coffee producers, Indonesia's purpose in supplying coffee goods is to increase exports.
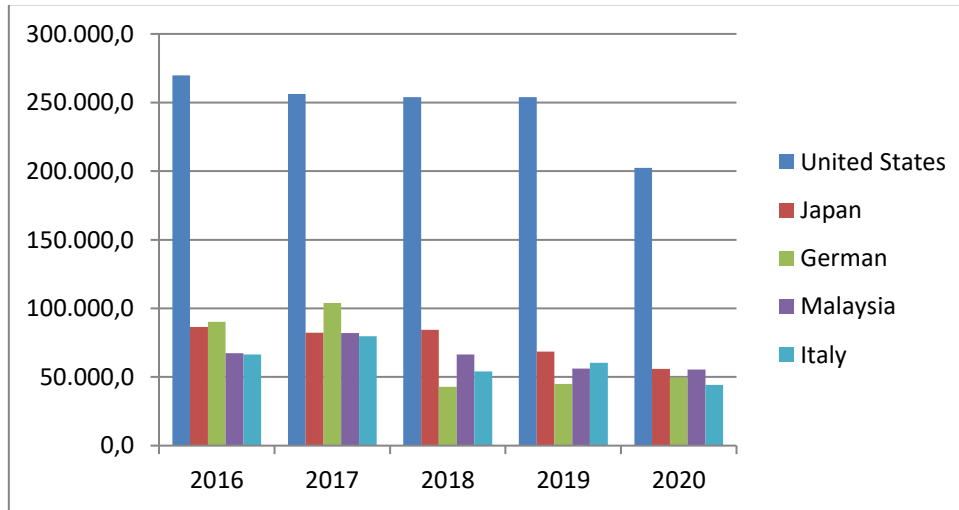
Fig 2. The Value of Coffee Exports by Major Destination Countries

(Thousand US$) 2016-2020

Fig 2 shows that the United States has been the main destination for Indonesian coffee exports for the past five years, with a total export value of around US$ 1.24 million, followed by Japan with a total export value of US$ 377.6 thousand, Germany with a total export value of around US$ 331.5 thousand, Malaysia with a total export value of US$ 327.4 thousand, and finally Italy with a total export value of around US$ 304.7 thousand. 68 percent of adults in the United States claim they have a cup of coffee every day (VOA, 2018). Starbucks is a coffee franchise in the United States that uses coffee from Indonesia. As a result, the United States becomes a prospective market for Indonesia's coffee exports.

Based on the foregoing context, this research will look at the impact of the GDP, the rupiah exchange rate versus the dollar, international coffee pricing, and domestic coffee production on Indonesian coffee exports to the United States from 2001 to 2020.

II. LITERATURE REVIEW

A. International Trade

International trade is a type of economic cooperation in which a country trades commodities or services with other countries in order for the countries involved to benefit economically. It is also based on numerous requests and offers of goods or services in each country, in addition to advantages such as the economic benefits of international trade (Jamilah, 2021).

Export is the process of selling goods or services outside of the customs region in compliance with government regulations and legislation. All national areas of a country are considered customs areas (Purnawati, Astuti & Fatmawati, 2013). The export purpose of foreign trade is to generate profits for the country, resulting in an increase in national revenue or foreign exchange, which can lead to an increase in output and the pace of economic growth. The flow of trade of an item from another country into the country is known as import (Winarno & Ismaya, 2003). Imports are the costs of buying or using goods or services from other countries.

B. Gross Domestic Product (GDP)

The market value of all final goods and services generated in the economy during a given time period is known as Gross Domestic Product (Mankiw, 2006). The worth of goods and services measured using current prices is known as nominal GDP. The worth of goods and services assessed at constant prices is referred to as real GDP.

A relationship of GDP and exports is positive. When it comes to international trade, a high GDP can boost people's purchasing power (Risma et al., 2018). According to Desnky et al 2018. research, Indonesia's coffee exports are influenced by GDP. The GDP variable has a considerable effect on the value of Indonesian coffee exports, according to Maulani & Wahyuningsih, 2021. According to Lillah (2016), the United States' GDP has a substantial impact on Indonesian coffee exports to the United States.

C. Exchange rate

The exchange rate is the price of one country's currency versus the price of another country's currency. The nominal exchange rate is the price of a currency when it is exchanged between two countries. The real exchange rate, on the other hand, is the relative cost of commodities between two countries.

Foreign items are relatively inexpensive when the actual exchange rate is high, whereas domestic goods are substantially more expensive. Foreign goods are more expensive when the real exchange rate is low, whereas domestic items are less expensive (Mankiw, 2006). Maulani & Wahyuningsih's research from 2021 found that the exchange rate had no substantial impact on the value of Indonesian coffee exports. According to Afriamah et al., 2021, the currency rate has no bearing on the volume of Gayo coffee exported to the United States.

D. International Coffee Prices

Price is a unit of value assigned to a commodity by commodity producers as counter-performance information. According to economic theory, the high and low prices of an item or service with a competitive market are determined by market supply and demand. When the price of international coffee rises, demand decreases; on the other hand, when the price of coffee lowers, demand increases. Wijayanti et al., 2021 found that global coffee prices had little effect on demand for Indonesian coffee exports to the United States.

E. Domestic Coffee Production

Production is an economic activity that transforms inputs into outputs by changing shape (form utility), moving places (place utility), and storing (store utility) to maximize opportunities (Suhardi, 2016).

According to Heckscher and Ohlin's (Hamdy, 2001) production theory, a country has a proclivity to export products with low production costs and abundant supply. Meanwhile, things that are relatively expensive to produce and are only available in restricted numbers will be heavily imported. Increased demand for exports may emerge from increased worldwide market demand, resulting in increased output. According to Maulani and Wahyuningsih (2021), Indonesian coffee output has a substantial impact on the value of Indonesian coffee exports. Putri et al., 2018 found that Indonesian coffee production variables had a substantial impact on the value of Indonesian coffee exports in a previous study.

F. Previous research

Ordinary Least Square (OLS) regression analysis was used by Wijayanti et al., (2021). With a significant empirical t of 0.0591 (< 0.05), 0.0002 (< 0.01), 0.0057 (< 0.5), 0.0001 (< 0.01), the t-test concludes that the real effective exchange rate, Indonesian inflation, world tea prices, and the population of the United States have a significant effect on the demand for Indonesian coffee exports to the United States, while real GDP per capita and world coffee prices have no significant effect on the demand for Indonesian coffee exports to the United States.

Elisha, (2015), using the Error Correction Model's regression analysis (ECM). Coffee production has an empirically significant t of 0.0451 (< 0.05), while world coffee prices and exchange rates have empirically significant ts of 0.1582 (>0.10) and 0.1501 (>0.10), respectively.

Ordinary Least Square (OLS) regression technique was used by Desnky et al., (2018). With empirical significance of 0.0011 (< 0.05) and 0.0488 (< 0.05), the t-test revealed that GDP and exchange rate had a significant effect on

Indonesia's coffee exports. With significant empirical t of 0.9636 (> 0.10) and 0.8183 (> 0.10), the variables of coffee output and international coffee prices had no significant effect on Indonesian coffee exports.

Ordinary Least Square (OLS) regression analysis was used by Novariani et al., (2021). According to the regression results, the variables of Indonesian coffee bean production, exchange rates, and international coffee prices all have a substantial impact on the volume of Indonesian coffee bean exports to Japan. The volume of Indonesian coffee bean exports to Japan is influenced in part by worldwide coffee price and exchange rate variables. Meanwhile, Indonesian coffee bean production has little impact on the volume of Indonesian coffee beans exported to Japan.

In the period 1993-2011, Komaling (2013) investigates the factors that influence Indonesian coffee shipments to Germany. analysis of regression Least Squares in the Real World (OLS) The findings of this study show that German per capita income, global coffee prices, and German coffee consumption all have a considerable impact on the volume of Indonesian coffee exports to Germany, whereas world tea prices had no impact.

The Error Correction Model (ECM) approach is used in this study by Haryadi and Nopriyandi (2017). The findings of the estimation show that the volume of coffee exports is related to the price of coffee, Indonesia's Gross Domestic Product (GDP), and the exchange rate in both the short and long term. Coffee exports are influenced by coffee prices, GDP, and exchange rates in the short term.

The Error Correction Model (ECM) was utilized in this study by Putri et al., (2018) The t-test revealed that the Indonesian coffee production variable had a significant effect on the value of Indonesian coffee exports in the short run, but not in the long term. In the short term, the US consumption variable has no influence, but in the long run, US consumption has a considerable impact on the value of Indonesian coffee exports. While the coffee area variable has little bearing on the value of Indonesian coffee exports to the US.

Maulani & Wahyuningsih, (2021) examines Indonesian coffee exports to foreign markets. This study used panel data regression analysis with the Fixed Effect Model as the chosen regression model (FEM). The t-test found that GDP, international coffee prices, and Indonesian coffee production all had a significant effect on the value of Indonesian coffee exports, with significant empirical ts of 0.000 (< 0.01), 0.000 (< 0.01), and 0.002 (< 0.01), respectively, while the exchange rate variable had no significant effect, with a significant empirical t of 0.942 (> 0.10).

Tahani et al., (2021) investigates the factors that influence coffee exports from Indonesia to the United States. Ordinary Least Square (OLS) analysis is used in this study. The study's findings show that the United States GDP, exchange rate, and production all have a significant impact on Indonesian coffee exports to the United States, with significant empirical ts of 0.000 (< 0.05), 0.005 (< 0.05), and 0.006 (< 0.006), respectively, while the inflation variable has no impact, with a significant empirical t of 0.828 (> 0.10).

Explanatory Research utilizing a quantitative technique was used by Jamilah, (2021) in her research. With a significant empirical t of 0.024 (< 0.05), 0.061 (< 0.05), and 0.001 (< 0.05), the t-test reveals that the rupiah exchange rate, international coffee pricing, and domestic output all have a substantial impact on the volume of Indonesian coffee exports. The rupiah exchange rate, international prices, and domestic output all have a substantial effect on the volume of Indonesian coffee exports, according to the F test.

III. RESEARCH METHODOLOGY

A. *The Scope*

For the period 2001-2020, this study examines the impact of the Gross Domestic Product, Exchange Rate, International Coffee Prices, and Domestic Coffee Production on Indonesian Coffee Exports to the United States. This is a quantitative study that relies on secondary data from the Central Statistics Agency (BPS) and the World Bank.

B. *Operational Definition Variable*

Export (EXP)

The value of a set of products exported/imported (across Indonesian borders) without the use of non-PEB/PIB documentation, expressed in millions of US dollars.

Gross Domestic Product (Gdp)

GDP at buyer prices is the sum of gross value added by all resident producers in the economy, plus product taxes, minus non-product value subsidies. The data in this study is based on current GDP prices in trillions of dollars.

Exchange Rate

The Rupiah as for the Dollar exchange rate is an agreement known as the exchange rate of currency against present or future payments between two currencies.

International Coffee Prices

The International Coffee Organization (ICO), which is an organization or group of coffee exporting countries, is used to determine the price of international coffee. The data in this study is based on the annual average price of robust coffee in US$/kg.

Domestic Coffee Product

Wet coffee beans and dry coffee beans are the two types of coffee beans produced. The coffee used in this study is robust, and the units are thousand US dollars per ton.

C. Techniques of Analysis

The Eviews 10 program is used in this study to perform Ordinary Least Square (OLS) regression analysis. The relationship and influence between the independent and dependent variables will be shown in this model. model Ordinary Least Square includes classical assumption tests such as multicollinearity test, normality test, autocorrelation test, heteroscedasticity test, and linearity test (t-test). Model goodness test includes model existence test (F test), interpretation of the coefficient of determination (R square test), and test the validity of the effect. The accompanying is the econometric model:

$$EXP_t = \beta_0 + \beta_1 LogGDP_t + \beta_2 KURS_t + \beta_3 PRICE_t + \beta_4 PRODUCT_t + \varepsilon_t$$

Where :

EXP	= Export (million US$)
GDP	= *Gross Domestic Product* (trillion US$)
$KURS$	= Exchange Rate(Rupiah/US$)
$PRICE$	= International Coffee Prices (US$/Kg)
$PRODUCT$	= Domestic Coffee Product (Thousand/Ton)
Log	= Operator Logaritma berbasis *e*
ε	= *Error Term*
β_0	= Constant
$\beta_1 ... \beta_4$	= Coefficient of Regression Independent Variables
t	= the year *t*

IV. RESULT / FINDING

Table 1. Results of Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-8243038.	2598482.	-3.172252	0.0063
LOG(GDP)	290090.2	89903.86	3.226672	0.0056
KURS	-11.37872	7.388980	-1.539959	0.1444
PRICE	34433.85	25151.38	1.369064	0.1911
PROD	-0.588404	0.220463	-2.668941	0.0175

R-squared	0.911155	Mean dependent var	191154.9
Adjusted R-squared	0.887463	S.D. dependent var	86943.14
S.E. of regression	29166.39	Akaike info criterion	23.61174
Sum squared resid	1.28E+10	Schwarz criterion	23.86067
Log likelihood	-231.1174	Hannan-Quinn criter.	23.66033
F-statistic	38.45841	Durbin-Watson stat	2.004707
Prob(F-statistic)	0.000000		

Source: Authors' data was processed with Eviews in 2022

Model Existence Test (F Test) is used to see whether all independent variables in the model have the same effect on the dependent variable (simultaneous effect). The existence of the model is verified by comparing the statistical results with alpha. If the probability F-statistic < α, this indicates that the independent variables affect the independent variables together. Table 1 demonstrates that the regression results have an empirical probability value of 0.0000 (< 0.01), indicating that the independent variables of GDP, exchange rates, international coffee prices, and domestic coffee production have a significant impact on Indonesia's coffee exports to the United States.

Table 1 demonstrates that the coefficient of determination (R^2) is 0.9112, meaning that independent factors including GDP, exchange rate, international coffee prices, and domestic coffee production can explain 91.12% of the variation in Indonesian coffee exports. Other factors not included in the model influenced the remaining 8.88 percent.

The effect validity test (t test) was used to determine the significance of each independent variable's influence (partial). The probability value of each variable is compared with alpha in this t-test. The independent variable has a significant effect if the probability is less than alpha. The GDP and domestic coffee production variables have a significant impact on Indonesian coffee exports, as shown in Table 1, with empirical probability t of 0.0065 (< 0.01) and 0.0175 (< 0.05) respectively. Because exchange rates and international coffee prices have empirical probability of 0.1444 (> 0.10) and 0.1911 (> 0.10), they have no significant effect on Indonesian coffee exports.

A. Results of a Classic Assumption Test

Multicollinearity Test

Table 2.

Variable	VIF	Criteria	Conclusion
LOG(GDP)	8,4425	< 10	Causes no multicollinearity
KURS	5,6256	< 10	Causes no multicollinearity
PRICE	4,7321	< 10	Causes no multicollinearity
PROD	2,7118	< 10	Causes no multicollinearity

The VIF test is the multicollinearity test that is applied. Multicollinearity in the VIF test happens when the independent variable's VIF value is more than 10.

Test of Residual Normality

A Jarque Bera (JB) test will be used to rate residual normality. If the probability value or empirical statistical significance of the JB test is greater than alpha, the residual distribution is normal. The residual distribution is normal since the probability or empirical significance JB is 0.3761 > 0.10.

Test for Autocorrelation

The Breusch Godfrey (BG) test will be used to examine autocorrelation. The BG states that if the probability value or the empirical significance of the BG > alpha, then the model does not have an autocorrelation problem. Since the empirical significance BG, or probability value, is 0.9107 > 0.10, the model has no autocorrelation issues.

Table 3.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.110401	Prob. F(3,12)	0.9524
Obs*R-squared	0.537178	Prob. Chi-Square(3)	0.9107

Heteroscedasticity Test

Heteroscedasticity will be tested using White's test. If the probability value or empirical significance of the White test statistic is smaller than alpha, there is a heteroscedasticity issue in the model. As can be observed, there is no concern with heteroscedasticity in the model because the probability value, or statistical significance of the White test, is 0.7035 > 0.10.

Table 4

Heteroskedasticity Test: White

F-statistic	0.450826	Prob. F(13,6)	0.8923
Obs*R-squared	9.882580	Prob. Chi-Square(13)	0.7035

Test of model specifications

The Ramsey Reset test will be used to assess the linearity of the model specification. In cases where the probability value or empirical statistical significance is F > alpha, the Ramsey Reset test is a linear model or the specific model specification. Considering that the empirical significance or probability value F is 0.0212 less than 0.10, the model specification is inconsistent or imprecise.

Table 5

	Value	df	Probability
F-statistic	5.255668	(2, 13)	0.0212
Likelihood ratio	11.85067	2	0.0027

The connection between the coffee GDP of the United States and the coffee exports of Indonesia.

Indonesian coffee exports to the United States are influenced by the GDP variable in a positive and significant way. The regression coefficient for the GDP variable is 290090.2. The link between GDP and Indonesian coffee exports is linear-logarithmic (lin-log), which means that if GDP rises by 1%, Indonesian coffee exports rise by 290090.2/100 = US$ 0.2900902 trillion, or 29,009 dollars. However, if GDP declines by 1%, Indonesia's coffee exports will drop by 290090.2/100 = US$ 0.2900902 trillion, or US$ 29,009.

The exchange rate's association with Indonesia's coffee exports

In Indonesian coffee exports to the United States, the exchange rate variable has a negative and small influence. The exchange rate variable has a coefficient of -11.3787. The exchange rate and Indonesian coffee exports have a linear connection, meaning that if the exchange rate rises by one rupiah, Indonesian coffee exports fall by US$ 1.3787 million. If the exchange rate falls by one rupiah, however, Indonesian coffee exports will rise by US$ 1.3787 million.

The connection between international coffee prices and coffee exports from Indonesia

In Indonesian coffee exports to the United States, the international coffee price variable has a positive but not significant effect. If the international coffee price increases by one US$/kg, coffee exports will increase by US$ 34433.85 million, according to the coefficient value of the international coffee price variable. If the international coffee price falls by one US dollar per kilogram, Indonesian coffee exports will fall by US$ 34433.85 million.

The correlation between Indonesian coffee exports and domestic coffee production

Variables in domestic coffee production have a negative and significant effect on Indonesian coffee exports to the US. The regression coefficient for the Indonesian coffee production variable is -0.5884. The relation between domestic coffee output and Indonesian coffee exports is linear, which means that if domestic coffee production rises by 1,000 tons, Indonesian coffee exports fall by US$ 0.5884 million, or $5884,000. On the other hand, if local coffee production declines by 1,000 tons, Indonesia's coffee exports will rise by US$ 5884,000 million.

V. DISCUSSION

During the period 2001-2020, Indonesian coffee exports were influenced by GDP and domestic coffee production, but the exchange rate and international coffee prices had no significant impact.

The Gross Domestic Product (GDP) has a significant and positive effect. indicates that as Indonesia's GDP rises, so will its coffee exports. GDP is one of the key indicators of a country's economy and well-being. When the US GDP rises, so does people's spending power and demand for coffee, resulting in an increase in coffee consumption in the US.

Coffee production in the United States has a negative and significant effect. Indonesia's coffee exports decrease as domestic coffee production rises. Increased coffee production in the United States is not usually accompanied by an increase in exports. Because the outcomes of domestic coffee production are more important in meeting domestic demand. The quality of coffee has a significant impact on importers' willingness to buy coffee from Indonesia.

The currency rate has a negative impact on Indonesian coffee exports, but it is not significant. According to (Sukirno, 2008), export transactions from one country to another necessitate the use of a foreign exchange market, which is a market where one currency is exchanged for another. As a result, the foreign exchange market is essential. Importers consider domestic coffee prices costly when the rupiah exchange rate rises against the US dollar. Likewise, as the rupiah's exchange rate versus the dollar falls, its price of coffee falls for importers. Coffee exports are unaffected by exchange rate variations since coffee has become one of the most sought-after commodities on the worldwide market, despite the fact that its price has risen.

International coffee prices have a positive influence on Indonesian coffee exports, but the effect is not significant. According to (Soekartawi, 2005), if the price of coffee in the international market is higher than in the domestic

market, the number of coffee commodities exported will grow, resulting in an increase in the value and volume of coffee commodities exported. Domestic coffee growers, on the other hand, will choose to sell their coffee domestically if international coffee prices fall.

VI. CONCLUSION AND RECOMMENDATION

A. Results

The findings of this study show that the GDP variable in the United States has a significant positive effect on Indonesian coffee exports, whereas the domestic coffee output variable has a significant negative effect. In the meanwhile, the fluctuating currency rate and international coffee prices had no impact on Indonesian coffee exports. GDP, exchange rate, international coffee prices, and domestic coffee production all have an impact on Indonesian coffee exports, whether in independently or together.

B. Suggestion

To increase the quality of coffee production, there is a need for collaboration between the government, the business sector, and farmers, such as repairing and reviving coffee plant seeds, utilizing technology, and teaching farmers. Apart from focusing on coffee bean exports, stakeholders are hoped to support downstream production so that coffee exports will have added value in the future.

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Poverty and Population: Evidence Using Panel Data Approach in Gorontalo

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Abstract

Poverty is one of the complex and fundamental problems in the Indonesian economy. It is necessary to find a *solution to overcome or at least reduce the poverty rate. The HDI in the Gorontalo from 2016 to 2021 has increased because the Gorontalo provincial government has implemented various policies and programs to improve human quality, it increase occurred in all dimensions in 2021. This research was conducted to determine the effect of the variable level of education, and analysis the influence of the human development index, and population on poverty in Gorontalo. The method used to analyse is panel data method. The selected model is Fixed Effect Model (FEM). The results show that only population has significant effect on poverty in Gorontalo, while the human development index and the average length of schooling have no significant effect on poverty in Gorontalo from 2016 to 2021.*

Keywords: Poverty, Human Development Index, Average Years of Schooling, Population, Panel Data

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I. INTRODUCTION

Poverty is a problem faced by all countries in the world, especially developing countries, such as Indonesia. The problem of poverty is still the subject matter that must get extra attention. In the current conditions, the level of poverty is not only viewed from the low quality of the economy, but has been viewed from different angles and depends on the views used, the poverty limit has also shifted. According to the World Bank (in Whisnu Adhi Saputra, 2011), one of the causes of poverty is due to lack of income and assets to meet basic needs such as food, clothing, housing and acceptable health and education levels (acceptable) .

The strategic problems in Gorontalo Province are not much different from the problems at the national level, namely the problem of poverty which is still relatively high, because it is the responsibility of the government, both local and central government, as a buffer in the process of improving the lives of the poor . The government has the responsibility of finding a way out and formulating measures to overcome poverty.

As explained before, poverty may impose as a problem in economic development. Poverty may become a benchmark that needs to be reduced for developing countries in order to redistribute the economic growth to all population. Therefore, poverty alleviation strategies is really important for developing countries. Overcoming poverty is essential in developing countries. Poverty reduction policies need to focus on the empowerment of the poor to be independent, in economic, socio-cultural, and political aspects. Hence, poverty alleviation strategies need to satisfy all aspects that is associated with poverty itself. Therefore, this research will further investigate the factors that is associated with poverty to create poverty alleviation strategies.

This research would specifically analyse the issue of poverty in Gorontalo Province, because poverty rate in Gorontalo is relatively high compared to other provinces in Indonesia. According to BPS (2017), poverty is included as one of the fundamental problems in economic development in Gorontalo Province.

II. LITERATURE REVIEW

Subandi (2012) stated that poverty alleviation strategies need to address the quality of human resources due to poverty trap. Huraerah (2012) also stated that poverty alleviation strategies need to prioritize structural, cultural, and political aspects into consideration. Meriyanti (2015) further validates that human development index has significant impact on poverty alleviation strategies, while Satriani (2014) found that unemployment and human development index has insignificant impact on reducing poverty rate.

Poverty is more than just simply financial distress as it inevitably part of lacking empowerment, knowledge, chance as well as to income and capital (Gounder & Xing, 2012). Moreover, poverty has important role that influence macroeconomic policies that the governments endorse, as it generates a series of effects upon the fund distribution mechanism, affecting both the source and destination of public financial policies (Paraschiv, 2017).

The relationship between poverty and education is not simple. However, education brings people a healthier life and gives them smarter decisions about their life; for their children, their livelihoods, and the way they live. Education has a significant role for children, it provides chances to develop mentally, physically, and social awareness in them (ChildFund, 2019). The Unesco report claims that, if all adults completed secondary education, more people could be lifted out of poverty, global poverty rate would be reduced to more than halved.

This report shows that education is so crucial to be the center to the achievement of the SDGs. Education can play a transformative role to bring people out from their poverty, but access and inclusion need to be improved by education policies (Unesco, 2003). With education, people can improve their health and productivity. People with good education will have basic knowledge and skills, they will have a choice to have a job, starting from increasing productivity and raising income. Then education can break the vicious circle of poverty and social marginalization to improve the quality of life and social welfare (Ustama, 2009).

III. RESEARCH METHODOLOGY

This study is quantitative research In this study, the independent variables consist of HDI, education and population, while the dependent variable is poverty. The population in this study were all regencies/cities in the Gorontalo Province. Type of data in this study is secondary data. Secondary data is source of research data obtained by researchers indirectly through intermediary media. Data sourced from the Central Statistics Agency and journals, this data is obtained through direct access from the BPS website (bps.go.id).

Data analysis technique used in this study is panel data regression analysis. The data model used in this study is panel data. Panel data is combination of time series data and cross section data, the cross section can be in the form of characteristics of a company or region or country. So, by using panel data regression models it is possible to capture characteristics between individuals and between times which can be different.

Data analysis in this study begins with testing the best model to choose the right model. According to Winarno (2015) there are three panel data regression models, there are Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). In determining the most appropriate and best model, it is necessary to test first based on the Chow Test and Hausman Test. Then, hypothesis test was conducted to determine the effect of independent variable on dependent variable in the study of R2 test, F test and t test. In this research, poverty is This research uses panel data regression model with fixed effect model (FEM). We develop panel data model in estimating the effect of variable independent on poverty. Panel data model used in this research is written in Equation 1 as follows:

$$POV_{i,t} = \beta_0 + \beta_1\,HDI_{i,t} + \beta_2\,EDU_{i,t} + \beta_3 POP_{i,t} + \varepsilon_{i,t}$$

where

$POV_{i,t}$ is poverty rate of regencies i during period t;

$HDI_{i,t}$ is human development index of regencies i during period t;

$EDU_{i,t}$ is education level of regencies i during period t;

$POP_{i,t}$ is population of regencies i during period t;

$\varepsilon_{i,t}$ is eror term of regencies i during period t.

IV. RESULT / FINDING

The results of the regression reported in Table 1 show that the Fixed Effect Model (FEM) is the right model to use.

Table 1. panel data estimation result using Common Effect Model (CEM) , Fixed Effect Model (FEM), and Random Effect Model (REM)

Method : Common Effect Model (CEM)

Dependent Variable: PM

Method: Panel Least Squares

Date: 04/07/22   Time: 22:53

Sample: 2016 2021

Periods included: 6

Cross-sections included: 6

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	54.74255	38.21821	1.432368	0.1617
IPM	-0.011161	0.915683	-0.012188	0.9904
RLS	-7.625848	3.082646	-2.473799	0.0189

JP	0.000186	7.71E-06	24.16980	0.0000

R-squared	0.967235	Mean dependent var	32.34528
Adjusted R-squared	0.964164	S.D. dependent var	19.35995
S.E. of regression	3.664930	Akaike info criterion	5.539935
Sum squared resid	429.8149	Schwarz criterion	5.715881
Log likelihood	-95.71883	Hannan-Quinn criter.	5.601345
F-statistic	314.8878	Durbin-Watson stat	0.407713
Prob(F-statistic)	0.000000		

Method : Fixed Effect Model (FEM)

Dependent Variable: PM

Method: Panel Least Squares

Date: 04/07/22   Time: 22:54

Sample: 2016 2021

Periods included: 6

Cross-sections included: 6

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	132.2072	28.38729	4.657268	0.0001
IPM	-0.890144	0.772337	-1.152533	0.2592
RLS	-2.538579	3.567901	-0.711505	0.4829
JP	0.000104	4.18E-05	-2.477244	0.0198

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.994730	Mean dependent var	32.34528
Adjusted R-squared	0.993168	S.D. dependent var	19.35995
S.E. of regression	1.600189	Akaike info criterion	3.990439
Sum squared resid	69.13635	Schwarz criterion	4.386318
Log likelihood	-62.82790	Hannan-Quinn criter.	4.128611
F-statistic	637.0139	Durbin-Watson stat	1.176882
Prob(F-statistic)	0.000000		

Method : Random Effect Model (REM)

Dependent Variable: PM

Method: Panel EGLS (Cross-section random effects)

Date: 04/07/22   Time: 22:54

Sample: 2016 2021

Periods included: 6

Cross-sections included: 6

Total panel (balanced) observations: 36

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	112.9246	27.57554	4.095100	0.0003
IPM	-1.199327	0.698492	-1.717023	0.0956
RLS	-3.462813	2.806769	-1.233736	0.2263
JP	0.000137	1.82E-05	7.556835	0.0000

Effects Specification

		S.D.	Rho
Cross-section random		4.178817	0.8721
Idiosyncratic random		1.600189	0.1279

Weighted Statistics

R-squared	0.619552	Mean dependent var	4.995859
Adjusted R-squared	0.583884	S.D. dependent var	3.682018
S.E. of regression	2.375160	Sum squared resid	180.5244
F-statistic	17.37042	Durbin-Watson stat	0.657007
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	0.906162	Mean dependent var	32.34528
Sum squared resid	1230.991	Durbin-Watson stat	0.096350

Chow Test

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	28.171345	(5,27)	0.0000
Cross-section Chi-square	65.781862	5	0.0000

Cross-section fixed effects test equation:

Dependent Variable: PM

Method: Panel Least Squares

Date: 04/07/22   Time: 22:57

Sample: 2016 2021

Periods included: 6

Cross-sections included: 6

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	54.74255	38.21821	1.432368	0.1617
IPM	-0.011161	0.915683	-0.012188	0.9904
RLS	-7.625848	3.082646	-2.473799	0.0189
JP	0.000186	7.71E-06	24.16980	0.0000

R-squared	0.967235	Mean dependent var	32.34528
Adjusted R-squared	0.964164	S.D. dependent var	19.35995
S.E. of regression	3.664930	Akaike info criterion	5.539935
Sum squared resid	429.8149	Schwarz criterion	5.715881
Log likelihood	-95.71883	Hannan-Quinn criter.	5.601345
F-statistic	314.8878	Durbin-Watson stat	0.407713
Prob(F-statistic)	0.000000		

Method : Fixed Effect Model (FEM)

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	41.500650	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
IPM	-0.890144	-1.199327	0.108614	0.3482
RLS	-2.538579	-3.462813	4.851964	0.6748
JP	0.000104	0.000137	0.000000	0.0000

Cross-section random effects test equation:

Dependent Variable: PM

Method: Panel Least Squares

Date: 04/07/22   Time: 22:56

Sample: 2016 2021

Periods included: 6

Cross-sections included: 6

Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	132.2072	28.38729	4.657268	0.0001
IPM	-0.890144	0.772337	-1.152533	0.2592
RLS	-2.538579	3.567901	-0.711505	0.4829
JP	-0.000104	4.18E-05	-2.477244	0.0198

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.994730	Mean dependent var	32.34528
Adjusted R-squared	0.993168	S.D. dependent var	19.35995
S.E. of regression	1.600189	Akaike info criterion	3.990439
Sum squared resid	69.13635	Schwarz criterion	4.386318
Log likelihood	-62.82790	Hannan-Quinn criter.	4.128611
F-statistic	637.0139	Durbin-Watson stat	1.176882
Prob(F-statistic)	0.000000		

From the results of Chow test and Hausman test, it's known that probability value of both is < 0.05. This means that regression analysis in this research uses the Fixed Effect Model. Based on the FEM results above, the regression model can be formulated as follows:

$$POV = 132.2072 - 0.890144HDI - 2.538579\ EDU + 0.000104POP + \varepsilon$$

From the regression model, it's known that HDI, education and population have positive relationship towards poverty. According results of the F test, all independent variables have joint effect on the dependent variable. From results of the t test, it's known that only population has a significant effect on poverty.

V. DISCUSSION

Based on quantitative analysis with Chow test and Hausman test, the probability value <0.05. And it is determined that the selected test is the Fixed Effect Method (FEM). Based on the estimation results, the HDI coefficient value is - 0.890144 with a 95% confidence level. This means that every 1 percent increase in HDI will decrease the poverty rate by 0.890144. This indicates that an increase in HDI has a negative effect on poverty. And this is in accordance with several studies that have proven that HDI affects poverty levels, including research by Sofilda et al (2013) which shows that HDI has a negative and significant effect on poverty levels in districts/cities of Papua Province (Sofilda, 2016). Likewise with Silswanto's research that HDI plays a very important role in tackling poverty levels in Indonesia. Although there are several studies which state that HDI does not have a significant effect on poverty and it is stated that there is no causal relationship between HDI and poverty in Indonesia in the period 1990-2013 (Susilowati and Wahyudi, 2015).

After that, the JP coefficient value is 0.000104 with a 95% confidence level. This means that every 1 percent increase in JP will decrease the poverty rate by 0.000104, this shows that an increase in JP has a positive effect on poverty. This is in accordance with what Siregar and Wahuniarti (2008) stated that if the number of people increases, it will increase the number of poor people. Residents in question are people who settle and reside in a certain area. The increase in population is influenced by fertility, mortality, and migration.

And also the RLS coefficient value is -2.538579 with a 95% confidence level. This means that every 1 percent increase in RLS will decrease the poverty rate by 2.538579. The level of education has a significant effect on the level of individual income, where the higher the level of education, the level of income will also increase, and the poverty will decrease.

CONCLUSION AND RECOMMENDATION

This study aims to investigate impact of education level, human development index and population to poverty in Gorontalo Province. Based on the explanation above, it can be concluded that the level of education positive but not significant impact on poverty in Gorontalo Province. And also the population positive impact but on poverty in Gorontalo Province. As well as human development index (HDI) has positive and significant impact on poverty rates in Gorontalo Province.

Based on the conclusion, this Further research recommends that each the government needs to provide training or workshops to further alleviate poverty, the government also needs to evaluate policies about education, health, and the economy dimensions for overcoming poverty. Moreover, this study also recommends that the government need to integrate or coordinate poverty alleviation strategies at the national level or local level.

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Analysis of the Effect of Minimum Wage, Investment, and Human Development Index on Labor Absorption in the Semarang Karesidenan Region in 2017-2020

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Abstract

Population growth in Indonesian will continue to increase, as well as population growth in the Karesidenan area of Semarang. The increase in the number of people certainly results in an increase in the number of workers which will be a problem in the world of labor if the number of workers is not proportional to the amount of labor demand. The study aims to analyze the effect of the minimum wage, investment, and human development index on labor absorption. The dependent variables used are labor while the independent variables used are the minimum wage, investment, and human development index. The data used is panel data using 6 districts/cities in the Semarang Karesidenan area in 2017-2020. The model chosen in this study is the Fixed Effect Model (FEM), from the model it is known that the minimum wage and investment variables have a significant effect on the absorption of labor in the Semarang Karesidenan area, while the human development index variable has no significant effect on labor absorption in the Semarang Karesidenan area in 2017-2020.

Keywords— Minimum Wage;Investment; Human Development Inde; Labor

I. INTRODUCTION

The economic development of a region or a country is basically the interaction of various variable groups, including human resources, natural resources, capital, technology and others. Therefore, economic development cannot be separated from the role of humans in managing it. Man is labor, development input, also a consumer of the development itself. Employment is a very basic aspect of human life because it includes social and economic dimensions. One of the important goals in economic development is the provision of sufficient employment to pursue the growth of the labor force, which is faster than the growth of employment opportunities (Pangastuti, 2015: 6).

Indonesia is a country with a large population, but the number of workers who have not found high jobs. This is a problem that has not been resolved because the quality of human resources is still low and the number of jobs that are not balanced with the number of available labor force. With this problem, the role of the government is needed in improving the quality of its human resources through training and education. The training and education aims to increase people's expertise and creativity in working in order to be able to compete with foreign workers. The higher the expertise and creativity you have, it will increase work productivity. Therefore, human resources who have good skills and expertise will be the main capital to get a job while people who are not able to compete will be eliminated and become unemployed (Ministry of Industry, 2017: 19).

Economic growth is also one of the most important indicators for the absorption of labor. This is because the demand from labor is a derivative of the output demand. So logically there is the same movement between economic growth due to the growth of output demand and the absorption of labor. A rapidly growing economy is not a guarantee that a country is said to prosper if it is not followed by the expansion of employment opportunities to accommodate new workers who enter the workforce every year.

II. LITERATURE REVIEW

According to Sukirno (2011) investment is investors, expenditures and companies to buy equipment for the production of goods and services available in the economy. Ilhamdi, et al (2015) explained that investment is investment spending such as production equipment to increase the production capacity of goods and services. An increase in investment will have an impact on increasing output if the value of the investment is more than its depreciation. The increase in output will increase some production inputs, one of which is labor demand.

According to Ilhamdi, et al (2015) labor demand is a relationship between the level of wages and the number of workers employed by the company at a certain period of time. If in the economy there is an increase in labor supply then there will be a decrease in the level of wages, then the amount of labor demand will increase. If the labor force or with a high unemployment rate, it will cause high wage levels.

Wages that apply in one region can have a positive and negative impact. According to Gilarso (2002) the positive impact of wage determination is seen from the labor supply where wage increases will cause labor supply to increase and the number of unemployed will decrease. While the negative impact of wage fixing is when workers' wages rise it will result in a decrease in the number of people working because the company will reduce the number of workers so that the number of unemployed will increase.

Table 1. Jumlah Tenaga Kerja di Wilayah Karesidenan Semarang Tahun 2017-2020

Kabupaten/Kota	2017	2018	2019	2020
Kota Semarang	899.796	883.396	919.003	925.963
Kabupaten Semarang	596.297	575.925	600.787	600.322
Kota Salatiga	100.834	105.114	99.041	102.053
Kabupaten Kendal	460.967	462.260	476.852	493.062
Kabupaten Demak	549.295	571.560	561.895	574.602
Kabupaten Grobogan	724.515	727.216	707.352	710.909

Sumber : Badan Pusat Statistok, JawaTengah 2017-2020

Table 1 shows that the number of workers in the six districts and/or cities in the Semarang karesidenan area during 2017-2020 has fluctuated except in the Kendal Regency area from 2017-2020 experienced a steady increase. One of the areas with the number of workers experiencing fluctuations occurred in the Salatiga City area, where in 2017 a total of 100,834 people increased to 105,114 people in 2018. Furthermore, in 2019 it decreased to 99,041 people and an increase of 102,053 people in 2020. Of the six districts and/or cities in the Semarang karesidenan area, the area with the highest population occurs in Semarang City.

Economic growth is also a very important indicator for employment. This is because the demand for labor is a derivative of the demand for output. So that logically the same movement occurs between economic growth due to growth in output demand and employment. An economy that is developing rapidly is not a guarantee for a country to be said to be prosperous if it is not followed by the expansion of job opportunities to accommodate new workers who enter the workforce every year.

Economic development is a series of efforts and policies aimed at improving people's living standards, expanding employment opportunities, equitable distribution of people's income, and improving regional economic relations.

III. RESEARCH METHODOLOGY

Research Method

Data analysis methods used in this study are:

Research Tools and Models

This study uses a panel data regression tool. Panel data analysis was performed using three models, namely, Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Selection of the right panel data can be done by using the Chow test and Hausman test. After determining the right model, the next step is to test the existence of the model (F test), the coefficient of determination (R^2), and the effect validation test (t-test).

The model in this study was modified from the journal (Biamrillah, 2018) and Sulistiawati, 2012) with the title about employment.

The following is the regression model:

The calculation of the regression model has 3 approaches to analyze panel data, including:

$$logTK_{it} = \beta_0 + \beta_1 logUMK_{it} + \beta_2 logINV_{it} + \beta_3 logIPM_{it} + \varepsilon_{it}$$

Where :

Kindergarten = Labor Absorption

UMK = District Minimum Wage

INV = Investment

HDI = Human Development Index

e = Error Term (Error Factor)

$\beta0$ = Constant

$\beta 1\beta2\beta3\beta4$ = Independent variable regression coefficientLog =

Logarithmic operator based on e

i = Observation to i

t = Year t

Common-Constant Method

The Common-Constant method or can be called Pooled Least Square (PLS) is a model obtained by combining or collecting all cross section data and time series data. This data model is then estimated using ordinary least squares (OLS) (Pangestika, 2015). According to Gujarati et al., (2012) the big problem with this PLS model is that it does not differentiate between various airlines or the response of the explanatory variable tothe total cost is the same for each airline at all times. The panel data regression model can be formulated as follows:

$$CM_{it} = \beta_0 + \beta_1 PQ_{1it} + \beta_2 UMP_{2it} + \beta_3 TPEN_{3it} + \beta_4 PDRB_{4it} + \varepsilon_{it} \qquad (2)$$

Where: CM = Public Consumption Rate (Million)

PQ = Total Population (Soul)

UMP = Minimum Wage (Million)

TPEN = Education Level

PDRB = PDRB (billion rupiah)

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficient of independent variables

e = Error term

i = County or city

t = Year

Fixed Effect Method Selected ModelsHausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	855.610204	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
UMK	0.071599	0.106408	0.000506	0.1216
INV	-0.003757	0.008310	0.000000	0.0000
	-11611.800059		60748276.6443	
IPM		-13652.363478	26	0.7935

Cross-section random effects test equation:

Dependent Variable: TK
Method: Panel Least Squares
Date: 03/21/22 Time: 14:15
Sample: 2017 2020
Periods included: 4
Cross-sections included: 6
Total panel (balanced) observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1295063.	552074.1	2.345814	0.0331
UMK	0.071599	0.025481	2.809848	0.0132
INV	-0.003757	0.001625	-2.311769	0.0354
IPM	-11611.80	7935.350	-1.463300	0.1640

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.999003	Mean dependent var	559542.3
Adjusted R-squared	0.998471	S.D. dependent var	251810.8
S.E. of regression	9847.600	Akaike info criterion	21.50784
Sum squared resid	1.45E+09	Schwarz criterion	21.94961
Log likelihood	-249.0941	Hannan-Quinn criter.	21.62504
F-statistic	1877.986	Durbin-Watson stat	1.782056
Prob(F-statistic)	0.000000		

Method Selected Random Effect Method

Dependent Variable: TK
Method: Panel Least Squares
Date: 03/21/22 Time: 14:13
Sample: 2017 2020
Periods included: 4
Cross-sections included: 6
Total panel (balanced) observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1295063.	552074.1	2.345814	0.0331
UMK	0.071599	0.025481	2.809848	0.0132
INV	-0.003757	0.001625	-2.311769	0.0354
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F-statistic	1877.986	Durbin-Watson stat	1.782056
Prob(F-statistic)	0.000000		

To determine the most appropriate model for estimating the panel data regression parameters, there are three tests that can be carried out, namely:

Chow Test (Likelihood Test Ratio)

The Chow test is a test used to find out whether the FEM model is better than the PLS model by looking at the significance of the FEM model which can be done with the F statistical test. For the formulation of the hypothesis, H_0, the model chosen is Polled Least Square (PLS), and HA, the model that is used. Selected Fixed Effect Model (FEM). The test criteria are H_0 accepted if p-value > and H_0 is rejected if p-value . In conclusion,if the p-value >

0.05, then H₀ is accepted so that the selected model is polled least square. While the p-value 0.05, then H₀ is rejected so that the model chosen is Fixed Effect Model.

Hausman Test

To find out whether the fixed effect model is better than the random effect model, the Hausman test is used. The Hausman test statistic follows a chi-square statistical distribution with as many degrees of freedom as the number of independent variables (p). Formulation of the hypothesis, H₀ then the model selected Random Effect Model (REM), and H$_A$ then the model selected Fixed Effect Model (FEM). The test criteria are H₀ accepted if p-value > and H₀ is rejected if p-value . In conclusion, if the p-value > 0.05, then H₀ is accepted so that the model chosen is the Random Effect Model. While the p-value 0.05, then H₀ is rejected so that the model chosen is Fixed Effect Model. To see an accurate value estimate in the panel data regression function, it is necessary to carry out a goodness of fit test including the F statistic test, R2 determinant test, and t test.

F Statistic Test

According to Kuncoro, (2013) the F statistical test basically shows whether all the independent variables included in the model have a joint effect on the dependent variable. F test is used to test the existence of a model. The formulation of the hypothesis, H₀ : $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$; the model does not exist and HA : 0 ; existing models. The test criteria H₀ is rejected if the statistical significance is F and H₀ is accepted if the statistical significance is F > . In conclusion, if the significance of F 0.05 then H₀ is rejected which means the model does not exist, and H₀ is accepted if the significance of F > 0.05 then H₀ is accepted which means the model exists.

Determination of Adjusted R-Square (R2)

According to Kuncoro, (2013) the coefficient of determination (R^2) is to measure how far the model's ability to explain variations in the dependent variable is. In general, the coefficient of determination for cross-site datais relatively low because of the large variation between each observation, while for time series data it usually has a high coefficient of determination. The coefficient of determination test aims to see the percentage of variation (diversity) of the dependent variable that can be explained by the variation of the independent variables in the model. The value of the coefficient of determination is used to measure the contribution or contribution of the independent variables to the dependent variable. The value of the coefficient of determination ranges from zero to one. The closer to one the model is said to be better because it shows the more precise or suitable a regression line and the greater the variation of the independent variable can explainthe variation of the dependent variable.

T Test

Test the validity of the effect of the selected model using the t test. The partial regression coefficient test (t test) was conducted to determine whether or not the influence of the independent variables in the model was significant or not. The formulation of the hypothesis, H₀ : $\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$, the i-th independent variable has no significant effect and H$_A$: $\beta_2 \neq \beta_4$ 0, the i-th independent variable has a significant effect. The test criteria H₀ is rejected if the statistical significance of ti and H₀ is accepted if the statistical significance of ti > . In conclusion, if the statistical significance of ti 0.10 then H₀ is rejected, which means the i-th independent variable has a significant effect. And H₀ is accepted if the statistical significance ti > 0.10 then H₀ is accepted, which means the i-th independent variable has no significant effect.

Operational Definitions Of Research Variables

Consumption is expenditure activities carried out by consumers to fulfill their needs of goods and services in order to fulfill the needs or satisfaction of consumers themselves. The unit of the Consumption Level variable is in rupiah. According to the Central Statistics Agency (BPS) population is all people who live in the geographical area of the Special Region of Yogyakarta for 6 months or more and or those who live less than 6 months but aim to settle down. The data used is the population in 2015 – 2019 (in soul units).

Education is a form of investment in human resources in the life of the nation and state in order to create quality human resources. Education must be prioritized in balance with physical capital investment because education is the basic capital to create quality children of the nation so that education is categorized as a long- term investment.The data used in this study is the average length of school for 2015 – 2019 (in years).

According to the Central Statistics Agency (BPS) Wage/salary is a reward in the form of money received from employers to workers for work that has been or will be carried out and determined according to an agreement, or legislation. Compensation will be paid on the basis of an employment agreement between the employer and the worker, including allowances for both the worker himself and his family. While the minimum wage is the lowest wage (excluding overtime pay) paid to employees by type of work or position. The data used in this study is the minimum wage for the Special Region of Yogyakarta in 2015-2019 (in rupiah).

IV. RESULT / FINDING

Based on the results of the Chow test and Hausman test, the estimated accuracy of the model can be seen in the following table:

Table 1. Chow Test Results And Hausman Test

Model Testing	Prob.	P-value (5%)	Selected Model
Chow Test	0,000000	0.05	FEM
Hausman Test	0,000000	0,05	FEM

Source: Data processed by the author with Eviews, 2022

Based on the results of the Chow test from table 1 that the probability value is 0.000000 <0.05, then H_0 is rejected and H_1 is accepted so that the model chosen is Fixed Effect Model. Furthermore, according to the results of the Hausman test from table 1, it shows that the probability value is 0.000000 <0.05, so H_0 is rejected so that the model chosen is the Fixed Effect Model.

Hypothesis testing can be seen based on the results of the t test, F test, and R^2 test, the results of the test can be seen in the following tables:

Table 2. t Test Results

Variable	Prob.	P-value (Significance 10%)	Description
PQ	0,1545	$P > 0,10$	Not Significant
UMP	0,0613	$P < 0,10$	Significant
TPEN	0,0015	$P < 0,10$	Significant
PDRB	0,0858	$P < 0,10$	Significant

Source: Data processed by the author with Eviews, 2022

Based on the results of the t-test from table 2, it shows that if the statistical significance is 0.10 then H_0 is rejected, which means the to-i independent variable has a significant effect. And H_0 is accepted if the statistical significance of $t_i > 0.10$ which means the to-i independent variable has no significant effect. From the table it can be seen that the population variable has no significant effect, while the minimum wage, education, and GRDP variables have a significant effect.

Table 3. F Test Results

Variable	Prob (F-Statistic)	Criteria	Conclusion
PQ, UMP, TPEN, PDRB	0,000000	$P < 0,10$	Take effect

Source: Data processed by the author with Eviews, 2022

Based on the results of the F test from table 3, it shows that the probability value (F-Statistic) is 0.000000 < 0.10, it means that all variables such as population, minimum wage, education, and GRDP together have an effect on public consumption level.

Table 4. Coefficient of Determination Test Results (R^2)

R-square	Adjusted R-square	S.E. of Regression
0,991463	0,987194	43973,13

Source: Data processed by the author with Eviews, 2022

Based on the results of the coefficient of determination test (R2), it shows that the variables of population, minimum wage, education, and GRDP affect the level of consumption by 99.14%, while the remaining 0.86% is influenced by variables outside the model.

V. DISCUSSION

The estimated Public Consumption Rate can be influenced by total population, minimum wage, education level, and PDRB. Based on the results of panel data regression analysis assisted by the Eviews version 9 analysis tool, hypothesis testing has been carried out. The following are the results of the research with the proposed hypothesis:

The Effect Of Total Population To Public Consumption

Based on the results of research on the total population variable in testing, the value of Prob is obtained. of 0,1545 more than 0,10 (P > 0,10). This shows that H$_1$ is rejected, where the total population variable has no significant effecton public consumption. The high value of the total population variable is not a measure of the size of public consumption rate. In other words, the increase in population is not only a factor causing the increase in the level of public consumption but is also found in other variables.

The Effect of minimum wage to public consumption

Based on the results of research on the minimum wage variable in testing, the value of Prob is obtained. of 0,0613less than 0,10 (P < 0,10). This shows that H$_2$ is accepted, where the minimum wage variable has a significant effect on public consumption. Therefore, minimum wage can affect the value of the public consumption. This means that the greater the value of the minimum wage, the greater the influence on the public consumption.

The Effect of education level to public consumption

Based on the results of research on the education level variable in testing, the value of Prob is obtained. of 0,0015less than 0,10 (P < 0,10). This shows that H$_3$ is accepted, where the education level variable has a significant effect on public consumption. Therefore, education level can affect the value of the public consumption. This means that the greater the value of the education level, the greater the influence on the public consumption.

The Effect of PDRB to public consumption

Based on the results of research on the PDRBvariable in testing, the value of Prob is obtained. of 0,0858 less than 0,10 (P < 0,10). This shows that H$_4$ is accepted, where the PDRBvariable has a significant effect on public consumption. Therefore, PDRBcan affect the value of the public consumption. This means that the greater the value of the PDRB, the greater the influence on the public consumption.

VI.   CONCLUSION AND RECOMMENDATION

a.   Based on the results of data analysis and discussions that have been carried out, some conclusions canbe drawn as follows:
b.   Based on the results of the cross section panel data estimation, the best model was chosen, namelythe Random Random Effect Model (REM).
c.   The validity test of the effect (t test) shows that the significance level of the district/city minimumwage (UMK), Gross Regional Domestic Product (GRDP) and Inflation (INF) has a positive and significant effect on employment.

Suggestion

a.   Based on the conclusions and limitations above, the researcher gives some suggestions as follows:
b.   The government should formulate a wage policy in such a way as to increase labor productivity and production growth as well as increase the income and welfare of workers. So that the wage policy will be oriented to the interests of all parties.
c.   The government should encourage employment in Central Java Province to be maximized, one of which is increasing the rate of GRDP growth in every economic sector. So that it can improve the quality of human resources so that later they form a creative and ready-to-use person.

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Analysis of the Effect of Inflation, Minimum Wage, TPT, HDI on the Number of Poor People in East Java Province 2018-2021r

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Abstract
Poverty is one of the complex and multidimensional economic problems that must be solved. This study aims to analyze the effect of inflation, Minimum Wage, TPT, and HDI on the number of poor people in East Java province from 2018-to 2021. The type of data uses secondary data which obtained from BPS East Java province and also journals as supporting research. This research uses panel data and uses a Eviews 9. The model chosen from this research is the Fixed Effect Model (FEM). From the model, it is known that the Open Unemployment Rate (TPT) has a significant effect on the poor in East Java province in 2018-2019. From the results of the F test, it is known that the GRDP, ME, TPT and HDI variables simultaneously affect the PM variable. It is evidenced by the probability value of 0.00 < 0.05. According to the results of the t-test, partially the TPT variable has a positive and significant effect, while the GRDP, ME and HDI variables have no significant effect to the PM variable..

Keywords— number of poor people, inflation, minimum wage, TPT, HDI

I. INTRODUCTION

Poverty is a problem that faces by a country. Poverty reflects a condition which shows about an inability on fulfilling basic needs such as foods, clothes and houses. Poverty uses for measuring of the success on region's development. Poverty data can be used to evaluate government policies on poverty, compare poverty across times and regions, and determine targets for the poor by the aim of improving their life quality. According to the data from Central Statistics Agency (CSA), Indonesia's poverty statistics began to decline from March 2015 to September 2019, but in September 2019 to 2020 the number of poverty rate increased due to COVID-19 pandemic. The following data on the number of Indonesia's poor people from 2013 to 2020 as follow:
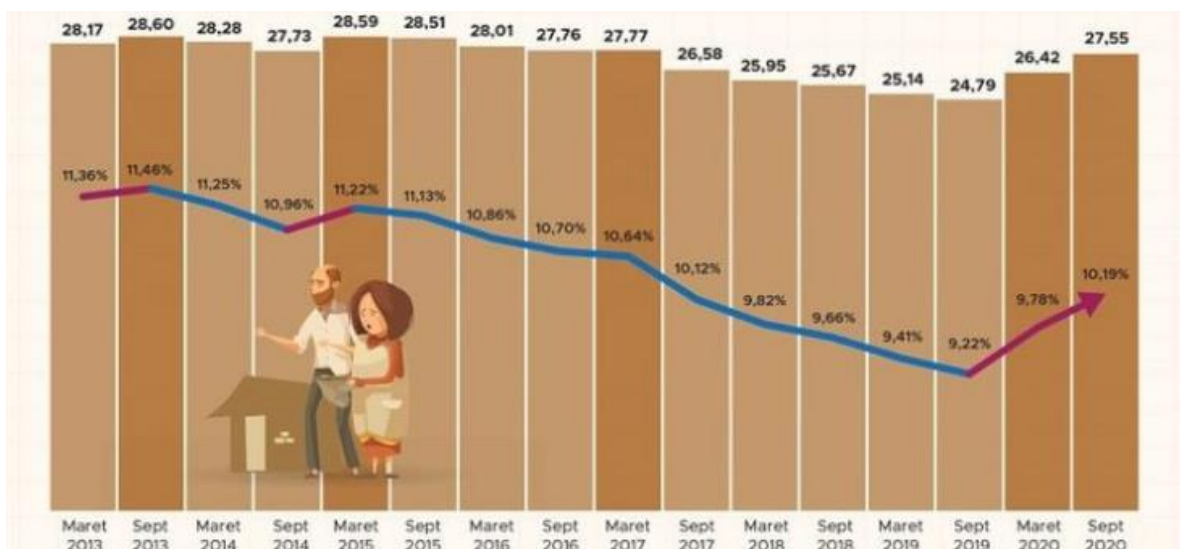
Fig 1. The Number of Poor People in Indonesia

Java Island is a national economy center; economic activity on the java island has a significant contribution to the Indonesian economic growth. East Java has the largest area on Java Island. From 2019, the number of poor people in East Java Province has increased. It is also influenced by out breaking of pandemic which causing community activities are disrupted. The following data on the poor population in East Java Province in 2019 to 2021 as follow:

	2019	2020	2021
■ Jawa Timur	4112,25	4419,1	4572,73
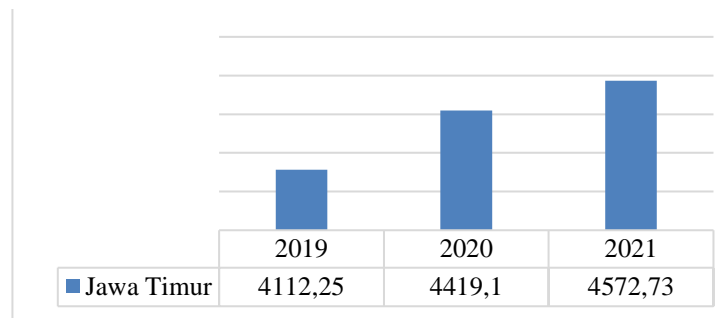
Fig 2. The Number of Poor People in East Java Province

Poverty is a long-term problem that has never been solved until this time. This problem is likened to a vicious circle that never finds its ending and beginning. The cycle of poverty is influenced by many interrelated factors. One of the goals of national development is to improve economic performance in order to create jobs and organize a decent life for all people which in turn will realize the welfare of the Indonesian citizen. One of the national development targets is to reduce poverty. Poverty is a disease in the economical field, it must be cured or at least reduced. Poverty problem is a complex and multidimensional problem. Therefore, poverty alleviation efforts must be carried out comprehensively, covering various aspects of people's lives, and implemented in an integrated manner.

Inflation is believed to affect the number of poor people. According to Ramadhana and Jayawarsa (2018) inflation is an increase in the value of commodities that applies to all economic sectors. When the price of goods rises, the purchasing on goods will decrease. The decrease on people's purchasing can increase the number of poor people. The minimum wage can also affect the number of poor people. The minimum wage is a monthly (lowest) income as a reward from the employer to the employee for a job for services. It have been or will be performed as stated or valued in a set amount of money based on an agreement or statutory regulation agreement between the entrepreneur and the employee which include of benefits, both for the employees themselves and for their families (Julianto and Suparno, 2016). The effect of the minimum wage toward poverty is influenced by high social costs and made fatal poorer.

Minimum wages, TPT is also believed on giving affect to the number of poor people beside inflation. According to BPS (2022) the Open Unemployment Rate (TPT) is the percentage of the number of unemployed to the total workforce. When the number of unemployed increases, people will difficult on fulfilling their needs and the number of poor people will increase significantly. The last factor that affects the number of poor people is the Community Development Index (IPM). According to Saputra in Palindangan and Bakar (2021) the Human Development Index (IPM) is a number to measure the achievement of human development based on a number of basic components of quality life that can give real affect the level of productivity of person. The higher of HDI level, it will make poor people will decrease.

Poverty is a social problem that should be solved. Therefore, it is important to conduct a study on kind factors that affecting the number of poor people, then government and related parties can determine steps to reduce poverty. Based on this, the researcher was motivated to conduct a research entitled "Analysis of the Effect of Inflation, Minimum Wage, TPT, HDI on the Number of Poor People in East Java Province in 2018-2021".

II. LITERATURE REVIEW

A. Poverty

Solikatun et al., (2018), argue that poverty is a low condition of living standard, which a low living material standard in a number of people or class compared to the generally accepted in the community concerned. Lower living standard affects to the health, moral life and self-esteem level for the people who classified on poor people directly. Sulistiyani (2017) defines poverty as a limited condition where the community has low accessibility to production factors, business opportunities, education, other living facilities, causing every activity in limited condition.

B. Inflation

Inflation is an increasing the price of goods generally and occur continuously within a certain period (Ambarini, 2017). According to Ramadhana and Jayawarsa (2018), inflation is an increase in the value of commodities that applies to all economic sectors. An increasing in one or two goods not called as inflation, unless the increasing is widespread and affects most of the prices of other goods. If inflation fluctuates, then economic activity will tend

to adjust to the conditions that occur. The impact of rising inflation causes a decrease in people's purchasing power. This is because the real value of the currency has decreased (Ningsih and Andiny, 2018).

C. Minimum wage

Wages are given as a result after giving service or doing work which given to workers for their services in achieving organizational goals. Wages are paid to workers based on operational hours, number of production or the number of services provided (Rivai in Setiawan, 2017). The minimum wage is a monthly lowest income as a reward from the employer to the employee for a job or service that have been or will be performed and is stated or valued in a set amount of money based on an agreement or statutory regulation and paid on the basis of a work agreement between the entrepreneur and the employee which including allowances, both for the employees themselves and for their families (Julianto and Suparno, 2016). The minimum wage is a minimum standard whichused by entrepreneurs or industry players to provide wages to workers in the business or work environment. The main purpose of setting minimum wages is to meet minimum living standards such as for health, efficiency, and worker welfare (Kaufman in Anggriawan, 2016).

D. Open Unemployment Rate

Unemployment defines as a condition whom a person belonging to the labor force category does not have a job and actively looking for job (Nanga in Anshori, 2018). According to BPS (2022) the Open Unemployment Rate (TPT) is the number of percentage about unemployed to the total workforce. Putro and Setiawan (2013) argue that unemployment can be occurud as a result of the high rate on changing in the workforce that is not matched by large job opportunity and low job demand percentage. It was caused the low growth rate of job creation to accommodate workers who are ready to work. In other words, labor market, the supply of labor is higher than the quantity supplied labor demand.

E. Human Development Index

According to Saputra in Palindangan and Bakar (2021) the Human Development Index (HDI) is a number to measure the achievement of human development based on a number of basic components of quality of life that can be affected to the level of productivity of people. In the context of region economic development, HDI defines as one of the main measurement included in the basic pattern of regional development. This indicates that HDI occupies an important position in regional development management. HDI function and human development indicators will be the key for implementation of targeted planning and development. HDI is a benchmark for the development of a region should have a positive correlation with poverty conditions in the region because it is expected that an area that has a high HDI, ideally the quality of life of the community is also high or it can be said that if the HDI value is high, then the poverty level of the community should be low. Lismawati in Syaifullah and Gandasari, 2016)
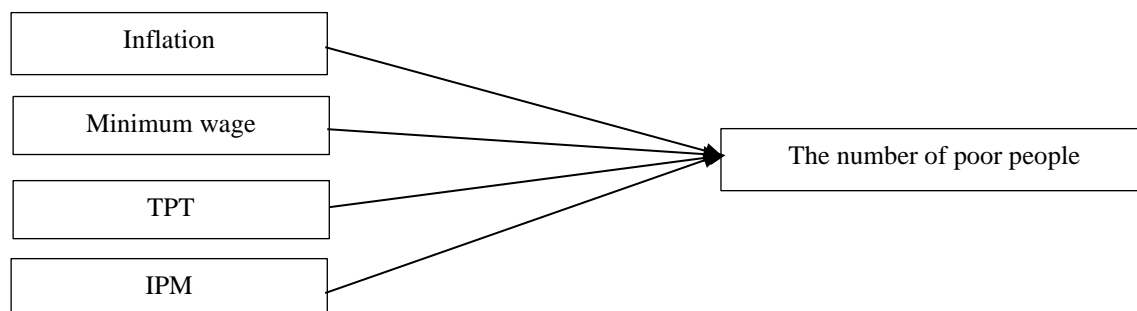
Fig 3. Research Framework

F. Hypothesis

1. The Effect of Inflation on the Number of Poor People
   Inflation is the tendency of rising price generally and continuously. Increasing one or two price of comodity cannot called as inflation, it can be called as inflation if almost all comodity have high price. Bad result of inflation is the decline in real income received by the community. The workers salary does not change easily to adjust by inflation conditions but it also give direct affect to the salary in general. Thus inflation will reduce the real income of fixed income. In addition, inflation can cause various bad effects on economic activities which will ultimately leading to instability, creating slow growth and increasing unemployment (Sukirno in Mahendra, 2017). Research conducted by Hamzah et al. (2019) provides evidence that inflation has a positive and significant effect on the number of poor people.

H1 = Inflation has a positive effect on the number of poor people

2. The Effect of the Minimum Wage on the Number of Poor People
The minimum wage is the number of people income, if the income decreases or remains, then welfare also decreases or remains and that will also certainly affect the poverty level. The effect of the minimum wage toward poverty was influenced by the social costs which will cause the number of poor people. Complaints about inflation are common problem. We know that increasing of purchase of labor comes from capital accumulation and technological progress. Wages do not depend on how much money which determined to speard in society by government. Government can push inflation by creating policy on slowing the growth rate of money. Workers will not get their wages rising fast. In other word, when inflation is slower, companies or slightly increase the prices of their products every year and as a result will give workers a smaller minimum wage increase (Waluyo in Aggriawan 2016). Research conducted by Ningrum (2017) and Aggriawan (2016) states that the minimum wage has a positive and significant effect on the number of poor people.
H2 = Minimum wage has a positive effect on the number of poor people.

3. The Effect of TPT on the Number of Poor People
There is a very close relationship between the high number of unemployed and the number of poor people. Most of the people do not have permanent job or just take part time includes very poor groups of people. Human needs are much and varied, therefore they try to fulfill their needs, the usual thing is to work to earn an income. If they do not work or unemployed, the consequence is that they cannot fulfill their needs properly, this condition has an impact on the creation and swelling of the existing poor population. According to Octaviani in Redha (2018), the number of unemployed is closely related to poverty in Indonesia, where the population has a very large dependence on current salary or wages. Research conducted by Ningrum (2017) provides evidence that TPT has a positive and significant effect on the number of poor people.
H3 = TPT has a positive effect on the number of poor people.

4. The Effect of HDI on the Number of Poor People
Napitupulu in Redha (2018) said that the Human Development Index has an influence in reducing the number of poor people. Human Development Index has composite indicators in its calculation, including life expectancy, literacy rates, and per capita consumption. Improvements in the health and education sectors as well as income per capita contribute to human development, so that higher quality of people in an area will reduce the number of poor people. Human development is a development goal, where it plays a key role on shaping a country's ability to absorb modern technology and to develop its capacity to create sustainable growth and development. In the research, which conducted by Redha (2018) and Ningrum (2017) stated that HDI has a negative and significant influence on the number of poor people.
H4 = HDI has a negative effect on the number of poor people.

III. RESEARCH METHODOLOGY

A. Research Design
The research is a quantitative research, which include of associative research. Associative research is research that has the aim of knowing how the relationship between two or more variables, looking for roles, influences and causal relationships, namely between independent variables and dependent variables. In this study, the independent variables consist of inflation, minimum wage, TPT and HDI, while the dependent variable is the number of poor people.

B. Population and Sample
The population in this study were all regencies/cities in East Java Province. In this study, Process of takes sampling by using saturated sampling technique. Saturated sampling is a sampling technique when all members of the population are used as samples (Sugiyono, 2018). In other words, saturated sampling can be called a census, where all members of the population are used as samples.

C. Data and Data Collecting Technique
The type of data in this study is secondary data. Data sourced from the Central Bureau of Statistics of East Java Province and journals. The data was obtained through direct access from the BPS website for the Province

of East Java (jatim.bps.go.id). Data collection in this study was carried out using the documentation method, namely analyzing data on inflation, minimum wages, TPT, HDI and the number of poor people in East Java Province in 2018-2020.

D. Analysis Tools

To measure accuracy of the calculation and to reduce human error, this study did not use manual calculations but using a computer program for statistical data processing.

E. Analysis Technique

The data analysis technique in this research is panel data regression analysis. The data model was used is panel data, which panel data is a combination of cross section data and time series data, namely observations on several companies that are observed within a certain period of time. The use of panel data in this study is expected to provide more complete information and be able to show the effect due to more observations. Data analysis in this study begins with testing the best model to choose the right model. The Best Model Selection Test was conducted to select the right model in the research by using panel data. There are three panel data regression models, namely, Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM) (Winarno, 2015). On determining the most appropriate and best model, it needs to test first based on the Chow Test and Hausman Test. Then, a test hypothesis was conducted to determine the effect of the independent variable on the dependent variable in the study in the form of the R2 test, F test and t test. In this study, the number of poor people tested was, so the panel data regression equation in this study was as follows:

$$NPP = \alpha + \beta 1 INF + \beta 2 MW + \beta 3 OUL + \beta 4 HDI + e \qquad (1)$$

Description:

NPP = Number of Poor People

INF = Inflation

MW = Minimum Wage

OUL = Open Unemployment Level

HDI = Human Development Index

IV. RESULT / FINDING

Table 1. The Result of Chow Test

Effects Test	Prob.
Cross-section F	0.0000
Cross-section Chi-square	0.0000

Source: Processed data, 2022

Table 2. The Result of Hausman Test

Test Summary	Prob.
Cross-section random	0.0000

Source: Processed data, 2022

Based on the results of the Chow test and Hausman test that have been carried out previously, it can be seen that the probability value is <0.05, the test will be carried out using the Fixed Effect Model (FEM).

Table 3. The Result of Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.	F. Statistic	Prob(F-statistic)	R-squared
C	463.3446	117.0561	3.958314	0.0002	571.4987	0,0000	0,9969
LOG(PDRB)	-11.97025	7.980792	-1.499882	0.1380			
LOG(UM)	-12.20636	8.494934	-1.436898	0.1551			
TPT	2.022484	0.490401	4.124144	0.0001			
IPM	-0.846076	1.580638	-0.535275	0.5941			

Source: Processed data, 2022

From table 3 above, the regression model can be formulated as follows:

NPP = 463,34 - 11,97 INF - 12,21 MW + 2,02 OUL - 0,85 HDI + e   (2)

From the regression model above, it can be seen that inflation, minimum wage and HDI are negatively related to the number of poor people, while TPT has a positive relationship. According to the t-test, only TPT has an effect on the number of poor people, while the variables of inflation, minimum wage and HDI have no significant effect to the main variable.

V. DISCUSSION

Based on the model selection test conducted with the Chow test and the Hausman test, the panel data regression model was selected, namely the Fixed Effect Model, because the probability value of the Chow test and Hausman test are <0.05. In testing using FEM, it is known that the R-Squared value is 0.9969, which means that the ability of the independent variable to explain the dependent variable is 99.69% while the remaining 0.31% is explained by other variables not examined to this study. According to the results of the F-test probability 0.00 < 0.05, this proves that the regression model used in this study is fit and the independent variables together can affect the dependent variable.

According to the results of the t test, the GRDP variable has no effect on the PM variable. These results are similiar with the research which conducted by Kolibu et al. (2017) where inflation has no effect on the poverty level. Inflation is a macroeconomic determinant for changes in poverty conditions in a country. The poor will not be affected by the inflation rate because basically the poor do not have purchasing demand, even though inflation occurs they still have no purchasing demand.

From the results of the t test, it is known that the ME variable has no effect on the PM variable. Research conducted by Fatimah (2017) also proves that the minimum wage has no effect on the number of poor people. It can be seen to the fact that minimum wage in each region has been determined by the government, in the real practice not all companies provide salaries according to the minimum wage. In addition, some people have odd jobs then their income different with minimum wage.

Based on the t test, TPT variable proved that there is a positive and significant effect on PM. These results are similiar with the research which conducted by Ningrum (2017) states that TPT has a positive and significant influence on the number of poor people. Work is one way to earn income so that people can fulfill their needs. Therefore, lower of unemployment rate in an area will causeing the rate of poor people in sertain area.

According to the results of the t test, HDI does not have a significant effect on PM. These results are in accordance with Edfrida's research (2019) which states that HDI has a negative and insignificant effect on poverty levels. This is probably caused by uneven human development in East Java Province. Therefore, the Human Development Index in East Java Province has not been able to provide a significant influence on the number of poor people.

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Independent variable in this study was able to explain the dependent variable namely 99.69% while the remaining 0.31% was explained by other variables not examined in this study. From the results of the F test, it is known that the GRDP, ME, TPT and HDI variables simultaneously affect the PM variable. It is evidenced by the probability value of 0.00 < 0.05. According to the results of the t-test, partially the TPT variable has a positive and significant effect, while the GRDP, ME and HDI variables have no significant effect to the PM variable.

B. Recommendation

The independent variable in this study has a high enough ability to explain the dependent variable, but further research can add or replace the independent variable with other variables. For the subjects studied in this study only focused on data from the East Java Province, further research could conduct research with other provincial subjects as well as on a national scale in order to obtain more reliable data. Based on the results of the study, it is known that TPT has an influence on the number of poor people, therefore the East Java Province government can design steps to reduce unemployment by opening job opportunities and providing job training.

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Analysis Of Real, Export, And Import Exchange Value Impact On Indonesia's 1994-2019 Trading Sheet

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Abstract

The trade balance is one of the instruments in the balance of payments to indicate the state's export and import condition. The country's economic balance sheet is often a poor indicator. As one of the countries that support such an open economic system today, a country will not abandon its current economic activities. The economic condition of a country, especially in regard to international trade, can be noted by the balance sheet of that trade. The trade balance sheet in Indonesia during the 2009-2018 period experienced fairly dynamic fluctuations. The economic growth rate was expected to reach 6.3 percent in 2008, he said. Then, in 2009 to 2011, there were positive trends of 19,680, 22,115, and 26,061 million us dollars. The study aims to know the impact of kurs, imports, exports on trade scales. The research is expected to provide information for the relevant parties. Research research: the study USES regression analysis tools with the ordinary least square approach of ols. The method of ols presents several tests: multicolonity, vif tests, normality tests, autocorrelation tests, heterosticizing tests, model specs. After processing data obtained value coefficient is decrypted (squared) in the model which is 1.0000. Of known prob. F statistics by 0.0000. At the t test it was stated that variable exchange, import, export affected the trade balance sheet the study has concluded that kurs variables, imports, exports affect Indonesia's 1994-2019 balance sheet.

Keywords— trade balance; Curs; Import; export

1. INTRODUCTION

The condition of the deficit trade balance is often used as an indicator of the poor economy of a country. This is not entirely true because the trade balance does not have such an ideal condition. To be able to declare the condition of the trade balance deficit as bad or good is very relative to the economic conditions both domestic and international. As one of the countries that adopt an open economic system like Indonesia today, a country will not be separated from international economic activities. The economic condition of a country, especially in terms of international trade, can be known by looking at the trade balance. The trade balance is one of the instruments in the balance of payments that shows the conditions of exports and imports of a country. The data present in the trade balance can show not only the condition but the performance of exports and imports of a country (Salvatore, 2004).

However, if the condition of the trade balance deficit occurs continuously, it needs to be considered because it can indicate poor economic conditions, especially in terms of export performance. The condition of the trade balance in Indonesia in the period 2009-2018 can be seen in Graph I.
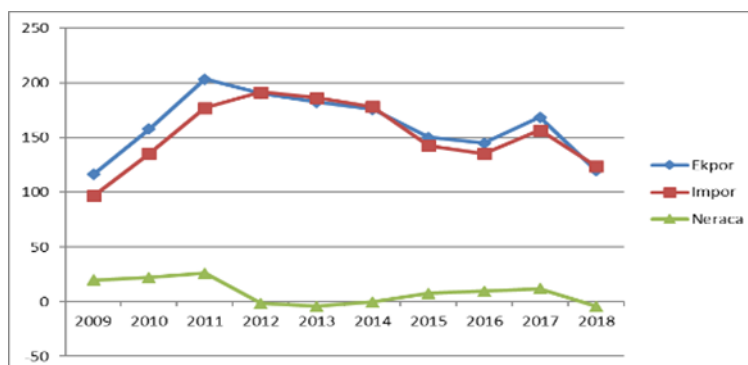
Fig. 1 Trade Balance in Million USD

Source: BPS Indonesia 2018

From the i-1 chart, it can be seen that the level of trade balance in Indonesia during the 2009-2018 period experienced quite dynamic fluctuations. The highest trade balance occurred in 2018 at -4.161 million USD, while the lowest deficit occurred in 2012 at -1.669 million USD. Then in 2009 to 2011 had a positive trend of 19,680, 22,115, and 26,061 million USD. In the graph I - 1 shows the development of the value of Indonesian exports is greater than imports. However, this development did not last long since the end of 2012 until in 2014 there was a negative trade balance trend of -1,669, -4,076, and -2,198 million USD, an increase in the amount of Indonesian export value since that year is lower than the increase in the amount of import value, causing the trade balance, in 2015-2017 Indonesia can restore Indonesian trade in a surplus position of 7,671, 9,533 and 11,842 million USD.

The trade balance has been researched quite often. Aniyati Ika (2017) found that the variable exchange rate, Export Import simultaneously or simultaneously significant effect on the trade balance. This is because the increase in the exchange rate will greatly affect the formation of export and import, where the exchange rate is too high will disrupt price stability. So in the short or long term if imports are greater than exports, the instability of the combination will cause a decline in the trade balance.

Chaisrisawatsuk in Ginting Ari Mulianta (2015) said that the inflow of Foreign Direct Investment becomes one of the important factors to stimulate the increase in exports of a country and increase the capacity of production capabilities of these countries and the increase in production capacity can increase exports.

Asnawi and Hasniati (2018) there is a relationship between interest rates and the trade balance that the policy of granting interest rates can have an impact on economic activity because high interest rates result in expensive deposits of money. This will weaken the competitiveness of exports in the world market. Based on the background in advance this study will observe the effect of exchange rate, inflation, foreign exchange reserves and birate period 1994-2019

II. Literature Review

A. Trade Balance

The trade balance is one part of the current account balance, the trade balance records the difference between exports and imports of goods traded in international trade (Ekananda, 2014). The export of goods is a credit transaction because the transaction gives rise to the right to receive payment (causing the flow of money or funds into the country). The import of goods is a debit transaction because it creates an obligation to make payments to other countries (causing the flow of money or funds abroad). In recording transactions in the trade balance is based on the value of free on board (fob) and is not taken into account the costs of transportation including Transactions Services. If the value of imports is higher than the value of exports, then what happens is the trade balance deficit, otherwise if the value of exports is higher than the value of imports, then there is a trade balance surplus, Madura (1997) in Marpaung (2013).

B. Curs

The currency exchange rate or often referred to as the exchange rate is the price of one unit of foreign currency in domestic currency, or it can also be said the price of domestic currency against foreign currency. For example, the value of the Rupiah exchange rate against the US dollar (USD) is the price of one US dollar (USD) in Rupiah (Rp), or vice versa (Arsyad, 2015). In this case, if the exchange rate increases, it means that the Rupiah depreciates, while if the exchange rate decreases, the Rupiah experiences appreciation.

The exchange rate is a fundamental macroeconomic variable that spurs investors on how best to strike a balance between trading partners. Exchange rate refers to the price of a currency (domestic currency) in another (foreign currency). Exchange rates and balance of payments are interconnected because there cannot be international trade if one country's currency has no price in another country (Kuswantoro, 2017). The weakening of the rupiah exchange rate will make foreigners buy Indonesian goods because of the low price, the situation resulted in the number of exports in Indonesia increased. If the number of exports is greater than imports indicates that the country has a lot of foreign exchange reserves. Setyowati & Soepatini (2004) stated that the real exchange rate in the short term is influenced by interest rates and GDP, while in the long term it is influenced by the money supply and relative prices.

C. *Export*

The definition of export according to the Directorate General of Customs & Excise is quite simple, namely the activity of removing goods from the customs area. Meanwhile, the meaning of the Customs Area is the territory of the Republic of Indonesia which includes land, water and airspace above it, as well as certain places in the Exclusive Economic Zone and the Continental Shelf in which Law No. 10 of 1995 on customs applies. While from the general sense of export in economics, is the expenditure of goods from circulation in the Society of a country, and sending out of the country according to government regulations and expect payment in foreign currency (Gentari & Sunaryo, 2019).

Export is the process of transporting goods or commodities from one country to another (Fauziah, 2018). Export is an activity or effort to deliver goods from a country or region to other countries or regions either in a series of moral trade or as a personal action (Sherly et al., 2020).

D. *Import*

Import is the process of transporting goods or commodities from one country to another legally, generally in trade. The import process is generally the act of introducing goods or commodities from other countries into the country. The import of goods generally requires the intervention of Customs (customs) in the sending and receiving countries. The involvement of this institution is generally for the purpose of recording goods that are transferred from one country to another (Yoesoef, 2013).

Import can be defined as the purchase of goods and services from abroad into the country with a cooperation agreement between two or more countries. Import can also be said to be a trade by entering goods from abroad into the territory of Indonesia by fulfilling the applicable provisions (Benny, 2013).

II. RESEARCH METHODOLOGY

This study will observe the effect of real exchange rates, exports, and imports on the trade balance (trade balance) Indonesia, using multiple regression analysis with OLS (Ordinary Least Square) method approach with the estimator model: Ordinary Least Square (OLS) with econometric model as follows :

$$TB_t = \beta_0 + \beta_1 KURS_t + \beta_2 Eks_t + \beta_3 Imp_t + \varepsilon_t$$

Di mana :

TB_t =Neraca Perdagangan Indonesia (Juta USD)

$KURS_t$ = Nilai tukar rupiah terhadap USD (Rupiah)

EKS_t = Ekspor di Indonesia (Juta USD)

iMP_t = Impor di Indonesia (Juta USD)

ε_t = *Error term* (faktor kesalahan)

β_0 = Konstanta

$\beta_1 \dots \beta_3$ = Koefisien regresi variabel independen

t = tahun ke t

III. RESULT / FINDING

This study uses multiple linear regression method. Multiple linear regression test is done to determine how much influence the independent variable to the dependent variable. This test uses the Ordinary Least Square (OLS) method with the E Views 10 application.

1. The results of multiple linear regression of the relationship between the variables of foreign exchange reserves and trade balance against the exchange rate of the rupiah against the US dollar obtained the following results:

Table 1. Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.36E+08	92652679	-1.464258	0.1573
LOG(KURS)	18023212	12318438	1.463109	0.1576

LOG(IMPOR)	-52843.96	8841.588	-5.976750	0.0000
LOG(EKSPOR)	66265.47	10741.30	6.169224	0.0000
R-Squared	0.758406			
F-Statistic	0.000001			

Source: Result Output E Views

Based on the results of the regression test in the table above, the equation can be written as follows: Trade Balance = -1.36 E + 08 + 18023212 Exchange Rate-52843.96 Imports + 66265.47 Exports. The value of the exchange coefficient of 18023212 which means that the exchange rate increases every 1 unit it will increase the trade balance of 18023212 units, the value of the import coefficient of 52843.96 which means that imports increase every 1 unit it will decrease the trade balance of 52843.96 units, and the value of the export coefficient of 66265.47 which means that exports increase every 1 unit it will increase the trade balance of 66265.47 units.

A. Classical Assumption Test

Normality Test

Table 2. Normality Test Results

Jarque Bera	1,3338280
Probability	0,512149

Source: Result Output E Views

Based on the test results in the table above, it is known that the probability value of 0.512149 > 0.05 (UTC) and the value of Jarque Bera of 1.3338280 < 2 which means that the data in this study is normally distributed.

Autocorrelation Test

Table 3. Autocorrelation Test Results

Prob. F(2,20)	0,0983
Prob. Chi-Square (2)	0,0678

Source: Result Output E Views

Autocorrelation test Based on the test results in the table above, it is known that the probability value of chi-square is 0.0678 > 0.05 (UTC) which means that there is no autocorrelation problem in this research data

Table 4. Multicollinearity Test Results

Variable	Value VIF
C	NA
LOG(KURS)	3.735290
LOG(IMPOR)	21.64275
LOG(EKSPOR)	17.52646

Source: Result Output E Views

Based on the test results in the table above, it is known that the value of VIF for the exchange rate variable is 3.735290 < 10 which means that there is no multicollienarity problem in this research data. While the import and export variables there is a multicollienarity problem in this research data.

Heteroscedasticity Test

Table 5. Heteroscedasticity Test Results

Prob. F(6,19)	0,0370
Prob. Chi-Square(6)	0,6672

Source: Result Output E Views

Based on the test results in the table above, it is known that the probability value of chi-square is 0.6672 > 0.05 (UTC) which means that there is no problem of Heteroscedasticity in this research data.

t-statistic Test

Table 6. Heteroscedasticity Test Results

Variable	t-Statistic	Prob.

C	-1.464258	0.1573
LOG(KURS)	1.463109	0.1576
LOG(IMPOR)	-5.976750	0.0000
LOG(EKSPOR)	6.169224	0.0000

Source: Result Output E Views

Based on the results of testing the probability of the exchange rate variable of 0.1576 > 0.10 (UTC) which means that the exchange rate has a significant effect on the trade balance. The test results are known that the value of import probability of 0.0000 < 0.05 (UTC) which means that imports have a significant effect on the trade balance. The results of the test are known that the export probability value of 0.0000 < 0.05 (UTC) which means that exports have a significant effect on the trade balance.

F-statistical test

Based on the results of the test, it is known that the probability value of F is 0.000001 < 0.05 (UTC) which means that exchange rates, imports, exports together affect the trade balance.

Coefficient Of Determination (R-Squared)

The test results obtained R-squared value of 0.758406 which means the variable exchange rate, imports and exports can affect the trade balance variable of 75.84% and the rest of 24.16% explained by other factors that are not contained in this study.

IV. DISCUSSION

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.36E+08	92652679	-1.464258	0.1573
LOG(KURS)	18023212	12318438	1.463109	0.1576
LOG(IMPOR)	-52843.96	8841.588	-5.976750	0.0000
LOG(EKSPOR)	66265.47	10741.30	6.169224	0.0000
R-Squared	0.758406			
F-Statistic	0.000001			

Based on OLS regression states that:

From Table 1, the results of the above estimates can be explained the influence of independent variables, namely exchange rates, imports, exports to Indonesia's trade balance as follows :

a. The exchange rate coefficient has a positive and insignificant effect on the trade balance. This shows the result where, the exchange rate has a coefficient of 18023212. Every exchange rate increase of 1%, the trade balance will rise by 18023212 percent. Which means if the rupiah exchange rate against the dollar depreciates and the price of goods that will.

b. The import coefficient has a negative and significant effect on the trade balance. Where, imports have a coefficient of -52843.96. this means that every increase in imports by 1%, the trade balance will fall by -52843.96 percent.

c. The export coefficient has a positive and significant effect on the trade balance. Where, exports have a coefficient of 66265.47. Every increase in exports entering Indonesia by 1%, the trade balance will increase by 66265.47 percent.

d. Normality test, based on the test results in the table above, it is known that the probability value of 0.512149 > 0.05 (UTC) and the value of Jarque Bera of 1.3338280 < 2 which means that the data in this study is normally distributed.

e. Autocorrelation test, based on the test results in the table above, it is known that the chi-square probability value is 0.0678 > 0.05 (ironic) which means that there is no autocorrelation problem in this research data.

    f. Multicollinearity test, based on the test results in the table above, it is known that the value of VIF for the exchange rate variable is 3.735290 < 10 which means that there is no multicollienarity problem in this research data. While the import and export variables there is a multicollienarity problem in this research data.

    g. Heteroskedasticity test, based on the test results in the table above, it is known that the chi-square probability value is 0.6672 > 0.05 (ironic) which means that there is no problem of heteroskedasticity in this research data.

V. CONCLUSION AND RECOMMENDATION

a. The exchange rate has a positive and not statistically significant effect on Indonesia's trade balance.

b. Imports negatively and significantly affect Indonesia's trade balance.

c. Exports have a positive and significant effect on Indonesia's trade balance.

d. Test F, the probability value of F is 0.000001 < 0.05 (UTC) which means that exchange rates, imports, exports together affect the trade balance

e. the R-squared value of 0.758406 which means that the exchange rate, import and export variables can affect the trade balance variable of 75.84% and the remaining 24.16% is explained by other factors that are not contained in this study.

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Analysis of the Effect of Economic Growth, Education and Unemployment on Poverty in Semarang Residency in 2017-2019

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Abstract

Poverty is a state of inability to meet basic needs such as food, clothing, shelter, education, and health. This study aims to determine the effect of economic growth, education and unemployment on poverty in Semarang Residency during the period 2017-2019. The type of data using secondary data obtained from the BPS residency of Semarang. This study uses panel data method and the model chosen is the Fixed Effect Model (FEM). The result show that RLS has significant effect, economy growth and unemployment variables have no significant effect. The F test show that PE, RLS, PG simultaneously has significant effect on poverty.

Keywords— poverty; economic growth; education level; unemployment

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I.   INTRODUCTION

Poverty is problem experienced by all countries. Poverty can cause various other problems such as hunger, health problems, crime, and sanitation. Poverty is generally characterized by low levels of education, work productivity, income, health, nutrition, and population welfare. This caused by limited human resources owned and utilized, especially the level of formal and non-formal education. Poverty is seen as an economic inability to meet basic food and non-food needs measured from the expenditure side (Badan Pusat Statistik, 2016). A population is categorized poor if it has an average monthly per capita expenditure below the poverty line.

Rate of the poverty can measure using level of income, level of expenditure, also combination of both. To measure poverty, BPS uses the concept of ability to meet basic needs (basic needs approach). This concept refers to Handbook on Poverty and Inequality published by the Worldbank. Good poverty data can be used to evaluate government policies on poverty, compare poverty across time and regions, and determine targets for the poor with the aims improving their quality of life. The poverty data obtained from BPS presented in Fig 1:

Fig 1. Poverty Graph in Indonesia 2012-2021

From the data in table 1, it's known that from 2015 to 2019 the poverty rate in Indonesia tends to decrease but in 2020 the poverty rate increases again. Based on BPS, Indonesia included in the list of 15 countries that able to reduce extreme poverty which is an average of -2,1 percentage point per year. Compared to other countries, Indonesia is country that is slow in reducing poverty rates compared to Tanzania, Tajikistan, Chad and the Republic of Kongo which able to reduce poverty rates by 30 percent (Hill, 2021). One of the causes of the increasing number of poverty in Indonesia today is influenced by COVID-19 pandemic which weakens community's economy. Semarang City is one of the areas that is considered successful in maximizing the use of technology to accelerate handling of COVID-19. Semarang city also one of the areas in Central Java with the

lowest poverty rate. Semarang Residency as one of the main residencies in the Dutch East Indies, has strategic position because it's an agribusiness development area and the main gateway for import-export activities in the Central Java region. Based on the analysis of CORE economists, the potential for increasing the number of poor people is greater in urban areas with a scenario prediction that the number of poor people in cities is 9.7 million while in rural areas it is 3 million. The risk of a massive increase in the number of poor people cannot be separated from the wave of layoffs or layoffs and work stoppages that are currently rolling. The number of unemployed has crept up rapidly in the two months the social restrictions were imposed.

Poverty is national problem that must be handled properly. it's needed research about what the factors can affect the poverty rate. One of the factors believed to able influence poverty rate is economic growth. Economic growth means the development of activities in economy which causes the goods and services produced in the community and prosperity community increase (Sukirno, 2015). When economic growth in the area increases, poverty rate will decrease.

Education is also believed have effect on poverty. According to Illahi (2012) education is effort to foster and develop human person, both concerning the spiritual and physical aspects. When people get high level of education, the quality will increase. This will also have effect on reducing poverty. Currently, the level of education is one of the requirements in applying job. High level of education and adequate skills are competencies that must be possessed by every job seeker.

Beside economic growth and education, unemployment rate can also affect poverty. Unemployment is defined a condition where a person belonging the labor force category does not have job and is actively looking for work (Nanga dalam Anshori, 2018). Poverty is condition where a person is not able to meet basic needs, people who work will earn income, so their needs can be met. When the unemployment rate in area is low, the poverty rate will also be low.

Poverty occurs because ability of the community as economic actors is not same, so there are people who cannot participate in the development process or enjoy the results of development. It is necessary to study the factors that influence poverty so national development can be enjoyed by all levels of society. Therefore, researchers are motivated to conduct research on "Analysis of the Effect of Economic Growth, Education and Unemployment on Poverty in Semarang Residency in 2017-2019".

II. LITERATURE REVIEW

A. Poverty

Poverty can define as condition faced by an individual where they do not have the availability of resources to meet their comfortable daily needs, both in terms of economic, social, psychological, and spiritual dimensions (Shirazi dan Pramanik in Dinata et al., 2020). Meanwhile, according to Badan Pusat Statistik (2016) poverty is seen as an inability from economic perspective to meet basic food and non-food needs measured from the expenditure side. According to BPS, there are three poverty indicators, namely head count index, poverty gap index and poverty severity index. Head count index is percentage of population below the poverty line. Poverty gap index is measure of the average expenditure gap of each poor person against the poverty line. While poverty severity index is description of distribution expenditure among the poor. According to Todaro dan Smith inc Fadila & Marwan (2020) the factors caused poverty are low income levels, limited employment opportunities, slow economic growth, income inequality, health and education service facilities are still inadequate. Poverty is disease category in the economy, so the number of its must be cured or minimized. Therefore, poverty reduction efforts must be carried out comprehensively, covering various aspects of life in society, and carried out in integrated manner.

B. Economic Growth

Economic growth means the development of activities in economy which causes goods and services produced in the community increase and the community's prosperity also increase (Sukirno, 2015). According Boediono in Utomo (2020) economic growth is process of increasing output per capita in the long term. The emphasis is on three aspects, there are process, output per capita and long term. So, economic growth measured the achievement of development in economy. Meanwhile, according to Hasyim (2016) economic growth can be interpreted as process of changing the economic conditions a country ongoing basis towards a better state during certain period. From one period to another the ability a country to produce goods and services will increase. This increased ability is caused by the addition of production factors both in quantity and quality. Investment will increase capital goods and the technology used is also growing. Economic growth in a region influenced by economic factors. Economic factors that affect economic growth include natural resources, human resources, capital and technology.

C. *Education*

According to Illahi (2012) education is an effort to foster and develop human person, both concerning the spiritual and physical aspects. According to Djumali (2014) education prepare humans to solve life problems in the present and future. Education is process where the nation prepares their young generation to live and fulfill life goals effectively and efficiently. Education is more than just teaching, because reality education is process where the nation or state fosters or develops self-awareness among individuals, with that awareness, nation or state can pass down cultural wealth or ideas to next generation, so it becomes an inspiration for them in every aspect of life. Education level is a long-term process uses systematic and organized procedure, which the managerial workforce learns conceptual and theoretical knowledge for general purposes (Sikula dalam Toyyibatussalamah, 2017). Education is very important for everyone with the aims to educate and develop the potential within themselves. By growing and developing, every individual can have creativity, wider knowledge, good personality and become responsible person. Education indicators in calculating the HDI of new method can be measured through the literacy rate and the average length of schooling.

D. *Unemployment*

Unemployment defined as a condition where person belonging to the labor force category does not have a job and is actively looking for work (Nanga dalam Anshori, 2018). Unemployment is condition where someone who is included in the workforce wants to get a job but hasn't got it (Sukirno, 2015). A person who is not working but not actively looking for work is not classified as unemployed. Unemployment is macroeconomic problem that directly affects human survival. For most people losing a job is drop the standard of living. Unemployment can occur as result the high rate of change in workforce that is not matched by existence fairly the wide job field and the absorption of labor which tends to be small in percentage. This is due the low growth rate of job creation to accommodate workers who are ready to work. Or in other words, in the labor market the supply of labor is higher than the demand for labor (Setiawan dalam Anshori, 2018). Unemployment causes people to be unable achieve theirs maximize the welfare. Unemployment causes the actual achieved national income to be lower than the potential national income. This situation means that the level of community prosperity achieved is lower than the level that is possible to achieve.
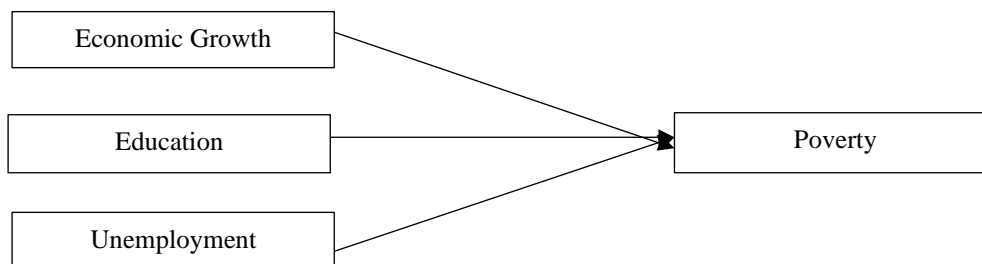
Fig 2. Research Framework

E. *Hypothesis*
The Effect of Economic Growth on Poverty

Economic growth is one of the important factors in assessing the performance of economy, especially in analyzing the results of economic development. It is said to experience growth if there is an increase in the production of goods and services from previous year so give provide increase in income. Economic growth is very significant in improving people's welfare through the creation and expansion job opportunities and business opportunities. In other words, economic growth able to create a trickledown effect through the creation and absorption of labor which in turn is expected to be followed by more and more people who earn income which will ultimately increase economic growth and reduce poverty. Research conducted by Alwi et al. (2021) and Faritz & Soejoto (2020) proves that there is a negative and significant effect between economic growth and poverty.

H_1 = Economic growth has a negative effect on poverty

The Effect of Education on Poverty

Education is one of the important things in the development of nation so that it cannot be underestimated. Highly educated people will lead to higher economic growth, making it easier for the government to overcome poverty, education and economic growth have relationship that can be explained through human capital theory. According

to the theory of human capital in the field of education will produce graduates who have high productivity, where more the quality higher, it's more be better. Education has negative effect on the level of poverty, when the more person's education increases, the productivity will increase. Research conducted by Azis et al. (2021) and Faritz & Soejoto (2020) show that education has significant negative effect on poverty.

H_2 = Education has a negative effect on poverty.

The Effect of Unemployment on Poverty

Unemployment is believed to be one of the factors that can affect poverty. The high number of unemployed will result in reduced people's prosperity, this will have impact on low income levels, so people's purchasing power is also low so productivity will also be low. One of the important factors in determining the level of prosperity society is the level of income. The community's income will reach its maximum if the full employment rate can be realized. By being unemployed, resources are wasted. The bad effect of unemployment is decrease in people's income which will ultimately have influence on person's level of prosperity. The decreasing level welfare or prosperity of person due to unemployment will make person trapped in poverty because of their declining income. Research conducted by Prasetyoningrum (2018) proves that there is a positive and significant influence between unemployment and poverty.

H_3 = Education has a positive effect on poverty.

III. RESEARCH METHODOLOGY

A. *Types of Research*

This study is quantitative research with associative nature. The quantitative research method is scientific method because it has fulfilled scientific rules, there are concrete, objective, measurable, rational and systematic (Sugiyono, 2018). The purpose of associative research is to find out how the relationship between two or more variables, looking for roles, influences and causal relationships, there are between independent variables and dependent variables. In this study, the independent variables consist of economic growth, education and unemployment, while the dependent variable is poverty.

B. *Population and Sample*

The population in this study were all regencies/cities in the residency of Semarang. In this study, sampling using saturated sampling technique. According to Sugiyono (2018) the saturated sampling technique is sampling technique when all members of the population are used as samples. This is often done when the population is relatively small, less than 30 people. Saturated sample is also known as census, where all members of the population are sampled.

C. *Data and Data Collection Techniques*

Type of data in this study is secondary data. Secondary data is source of research data obtained by researchers indirectly through intermediary media. Data sourced from the Central Statistics Agency and journals, this data is obtained through direct access from the BPS website (bps.go.id). Data collection in this study was carried out using the documentation method, there are analyzing the GRDP data to measure economic growth, the average length of schooling (RLS) as instrument to measure the education variable, the number of unemployed and the number of poor people.

D. *Analysis Tools*

In this study analytical tools in the form of Eviews 9 and Microsoft Excel are used. Eviews is Windows-based computer program that is widely used for statistical analysis and computational tool for time series econometrics. The purpose of using computer programs in analyzing statistical data is to reduce human error and ensure the accuracy of calculations.

E. *Analysis Techniques*

Data analysis technique used in this study is panel data regression analysis. The data model used in this study is panel data. Panel data is combination of time series data and cross section data, the cross section can be in the form of characteristics of a company or region or country. So, by using panel data regression models it is possible to capture characteristics between individuals and between times which can be different. Data analysis in this study begins with testing the best model to choose the right model. According to Winarno (2015) there are three panel data regression models, there are Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). In determining the most appropriate and best model, it is necessary to test first based on the

Chow Test and Hausman Test. Then, hypothesis test was conducted to determine the effect of independent variable on dependent variable in the study of R2 test, F test and t test. In this research, poverty is tested, so the panel data regression equation in this research is follows:

$$KMS = \alpha + \beta 1PE + \beta 2RLS + \beta 3PG + e \qquad (1)$$

Description:

KMS = Poverty

PE = Economic Growth

RLS = Education

PG = Unemployment

e = *error*

IV. RESULT/FINDING

Before performing regression analysis, testing is needed to select the best model. The best model testing is carried out using the Chow test and Hausman test, here are the test results:

Table 1. Results of Chow Test

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	5.114678	(5,9)	0.0169
Cross-section Chi-square	24.225475	5	0.0002

Cross-section fixed effects test equation:

Dependent Variable: KMS

Method: Panel Least Squares

Date: 04/08/22 Time: 21:31

Sample: 2017 2019

Periods included: 3

Cross-sections included: 6

Total panel (balanced) observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	250799.4	83173.01	3.015394	0.0093
PE	-330.2565	17720.68	-0.018637	0.9854
RLS	5385.708	2402.675	2.241547	0.0417
PG	8720.484	3809.611	2.289075	0.0381

R-squared	0.522789	Mean dependent var	376451.4
Adjusted R-squared	0.420530	S.D. dependent var	31673.92

S.E. of regression	24111.11	Akaike info criterion	23.21186
Sum squared resid	8.14E+09	Schwarz criterion	23.40972
Log likelihood	-204.9068	Hannan-Quinn criter.	23.23915
F-statistic	5.112385	Durbin-Watson stat	0.975301
Prob(F-statistic)	0.013502		

Table 2. Results of Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	9.943716	3	0.0191

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
PE	2545.273492	-18505.188431	447948076.829228	0.3199
RLS	65944.397399	8348.017442	369376440.193117	0.0027
PG	9635.943116	8031.812886	20965440.864263	0.7261

Cross-section random effects test equation:

Dependent Variable: KMS

Method: Panel Least Squares

Date: 04/08/22   Time: 21:31

Sample: 2017 2019

Periods included: 3

Cross-sections included: 6

Total panel (balanced) observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-777808.3	427617.0	-1.818937	0.1023
PE	2545.273	28271.43	0.090030	0.9302
RLS	65944.40	19528.93	3.376755	0.0082
PG	9635.943	6311.747	1.526668	0.1612

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.875775	Mean dependent var	376451.4
Adjusted R-squared	0.765352	S.D. dependent var	31673.92
S.E. of regression	15343.00	Akaike info criterion	22.42156
Sum squared resid	2.12E+09	Schwarz criterion	22.86675
Log likelihood	-192.7940	Hannan-Quinn criter.	22.48294
F-statistic	7.931115	Durbin-Watson stat	1.961002
Prob(F-statistic)	0.002723		

From the results of Chow test and Hausman test, it's known that probability value of both is < 0.05. This means that regression analysis in this research uses the Fixed Effect Model. FEM is technique for estimating panel data using dummy variables to capture differences in intercepts. Definition of Fixed Effect is based on difference in the intercept between individuals, but the intercept is same across time (time invariant). In addition, this model also assumes that the regression coefficient (slope) remains between individuals and over time. The following are results of multiple panel regression analysis using the FEM technique:

Table 3. Results of Fixed Effect Model Test

Dependent Variable: KMS

Method: Panel Least Squares

Date: 04/08/22   Time: 21:30

Sample: 2017 2019

Periods included: 3

Cross-sections included: 6

Total panel (balanced) observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-777808.3	427617.0	-1.818937	0.1023
PE	2545.273	28271.43	0.090030	0.9302
RLS	65944.40	19528.93	3.376755	0.0082
PG	9635.943	6311.747	1.526668	0.1612

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.875775	Mean dependent var	376451.4
Adjusted R-squared	0.765352	S.D. dependent var	31673.92
S.E. of regression	15343.00	Akaike info criterion	22.42156
Sum squared resid	2.12E+09	Schwarz criterion	22.86675
Log likelihood	-192.7940	Hannan-Quinn criter.	22.48294
F-statistic	7.931115	Durbin-Watson stat	1.961002
Prob(F-statistic)	0.002723		

Based on the FEM results above, the regression model can be formulated as follows:

$$KMS = -777.808 + \beta 1\ 2.545 + \beta 2\ 65.944 + \beta 3\ 9.635 + e \qquad (2)$$

From the regression model, it's known that economic growth, education and unemployment have positive relationship towards poverty. According results of the F test, all independent variables have joint effect on the dependent variable. From results of the t test, it's known that only education has an effect, while economic growth and unemployment have no effect on poverty.

V. DISCUSSION

Based on best model testing using Chow and Hausman test, the probability value is <0.05. Therefore, the panel data regression test that was selected in this study was Fixed Effect Model. From the results of the analysis, it's known that R Squared value is 0.8758, meaning that ability of variance economic growth, education and unemployment in explaining the poverty variable is 87.58% while the remaining 12.42% is explained by other variables not examined in this study. From results of the F test, it is known that regression model used in this study is fit and there is a simultaneous influence between economic growth, education and unemployment on poverty, this is evidenced by the probability value of $0.002 < 0.05$.

According to results of the t test, it's known that economic growth has no significant effect on poverty because probability value of PE obtained is $0.93 > 0.05$. These results are in line with research by Prasetyoningrum & Sukmawati (2018) which proves that economic growth cannot have a significant effect on poverty. Siregar in Fadila & Marwan (2020) said that economic growth is necessary condition for poverty reduction. While the conditions for adequacy where growth must be effective in reducing poverty. This means that poverty alleviation must be carried out through systematic and programmed policies of economic development, so that economic growth can really be enjoyed by all sections of society. It's hoped that good economic growth will be able to reduce economic inequality in the community.

Based on the t-test, it is known that the RLS probability is $0.00 < 0.05$ and the t-count is positive, meaning that education has positive and significant effect on poverty. These results are in line with research conducted by Agustina et al. (2019). The level of education is able to affect poverty, this because low level of education is one of the components that cause poverty. The development of education sector is an important aspect that the government needs to do reduce poverty. Although it has significant effect, results of this study are not in accordance with hypothesis which states that education has negative effect on poverty. This can be due to the fact, that employment in the residency area of Semarang is not determined by individual's educational level and lack of certain abilities and skills to compete in finding better jobs.

From results of the t test, it's known that probability value of PG is $0.16 > 0.05$, meaning that unemployment does not have significant effect on poverty. The results of this study are in accordance with the results of research conducted by Dinata et al. (2020) where unemployment has no significant effect on poverty. The results of this study are also supported by theory proposed by Nanga in Dinata et al. (2020) which states that workforce includes both working and non-working adults. A person said to be unemployed if the workforce is willing and ready to work and must have made effort to find work in last four weeks. It's likely that most of unemployment occurs in the residency of Semarang is those who are classified as frictional unemployment. Unemployment in this category is the power of newcomers who are looking for their first job and temporary workers, because the emergence of these workers moving to new location or job where workers will feel more productive.

Results of this study can be information for the government be able to further evaluate education which is the main factor in influencing the increase in poverty that occurs in Indonesia. Education is widely recognized as having an important role in the instrument of economic growth. This is because education can improve welfare and reduce poverty. In the field of education, the illiteracy rate can be used to measure the poverty line. In dealing with this problem, the government should improve the policy system on poverty that is influenced by the education sector. The policy can be formulated based on a population-weighted aggregation of national targets referring to "quality education for all" as stated in SDG 4 (UNICEF, 2022).
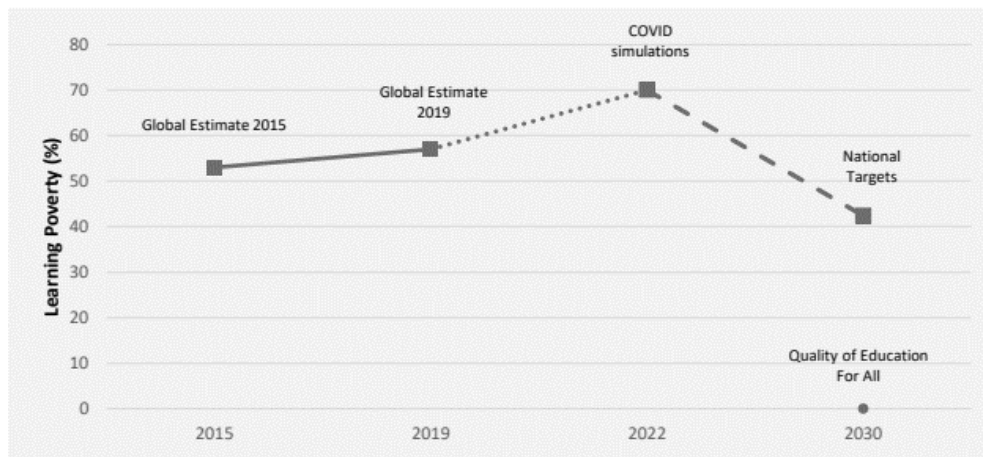
Fig 3. Learning Poverty – history, simulation results, and targets

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on testing using Fixed Effect Model, it's known that the ability of variables of economic growth, education and unemployment in explaining poverty variable is 87.58% while the remaining 12.42% is explained by other variables not examined in this study. According to results of F test, simultaneously variables of economic growth, education and unemployment have effect on poverty. However, partially the variables of economic growth and unemployment have no effect on poverty, only education variable has positive and significant effect on poverty.

B. Recommendation

In this study, ability of independent variable to explain dependent variable was only 87.58%, although the Fig is quite high, further research can replace or add independent variables such as HDI, minimum wages and inflation. Subjects in this study only covered the residency area of Semarang, further research could expand the subject to provincial or national level in order to obtain more reliable and relevant results. From the results of this study, it's known that education has effect on poverty, therefore the government must strive to ensure equal opportunities for all levels of society to get education.

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An Analysis of Factors Affecting Human Development Index: A Case Study in West Sulawesi

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Abstract
HDI (Human Development Index) is one of the important discussion topics in the development of a country. The increasing and also decreasing of human development index will cause significantly on the development of the country. It can be overcame by created quality of human being, which can make life level in society will increase. This research aims to analyse GRDP (Gross Regional Domestic Product), education, population and poor people toward human development index in West Sulawesi during 2017-2021. The independent variable in the research is GRDP (Gross Regional Domestic Product), education, population, and poverty. The dependent variable in this research is human development index. This research uses panel data and choses fixed effect model (FEM). The result shows that GRDP (Gross Regional Domestic Product), education, total population, and the number of poor people simultaneously have a significant effect toward human development index.

Keywords— HDI, GRDP, Education, Population, The Number of Poor people

VII. INTRODUCTION

National development is not only focus on infrastructure building but also on developing human. Human development index (HDI) is an indicator to measure how far the successful on developing human life quality. HDI is a measurement of comparing from life hope, knowing words, education and life standard. HDI explains how citizen can access the result of development on reaching income, healthy, education etc. Based on data from BPS, Indonesia's HDI was suffered incline from 2019 to 2021. The inclining from 2019 to 2020 was low but it was significant from 2020 to 2021 . Here is HDI data in Indonesia:
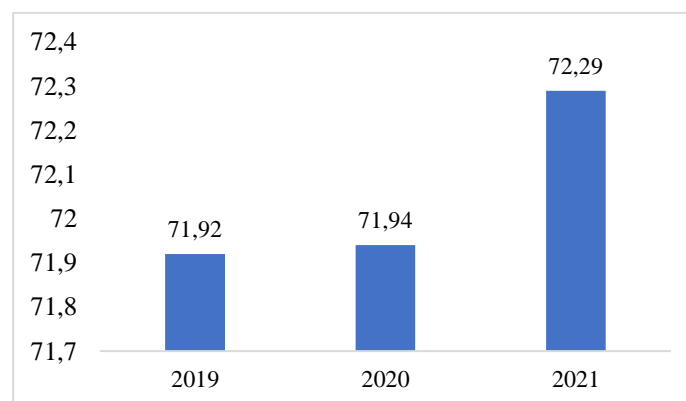
Fig 1. Human Development Index in Indonesia 2019-2021

Based on graphic above, HDI level in Indonesia was 71,92 in 2019, then it suffers increasing 0,02 in 2020 became 71,94 and in 2021 it increased 0,35 became 72,29 The achievement of economic development in certain area was influenced on human development process. The achievement cannot be separated from the level of human resources in certain area. West Sulawesi includes a province by smallest number of citizens, but HDI level in West Sulawesi always increase every year. Here is HDI data in West Sulawesi from 2019-2021:
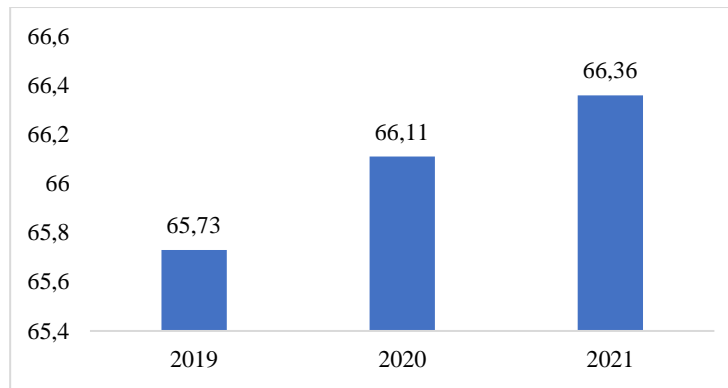
Fig 2. Human Development Index in West Sulawesi Province 2019-2021

The increasing of HDI in West Sulawesi Province increases consistently year by year. According to, HDI grouping guidance status from BPS, HDI score of West Sulawesi includes medium category. HDI become IPM measurement on the successful of area development. By that argumentation, HDI is in important position on region development management. Government should determine all steps on increasing human development index in West Sulawesi. There are many factors which can influence higher or lower HDI level in certain region such as PDRB, education, the number of society, and the number of poor people.

One of the factor that influence HDI (Human Development Index) is GRDP (Gross Regional Domestic Product). Gross Regional Domestic Product is a measurement of increasing value which produce by all units in certain region or measurement of the end goods value and services value (net) which produce by all economical units (BPS dalam Hidayat & Woyanti 2021). The highest GRDP (Gross Regional Domestic Product) ever in certain region, it will make HDI level in certain region will increase. Education is one of factors which influence HDI. Education is a teaching learning process on knowledge, skill, and habitual action a group of people which taught in one generation to the next generation by using teaching learning process, research, and also training. Good education will produce qualified human resources. Qualified human resources will give contribution on the advancement of technology than product efficiency will increase and give impact on increasing HDI.

Beside GRDP and education, the number of society also gives influence toward HDI. Population is an important element in economic activity as an effort to build an economy power because the population provides labor, experts and business leaders in creating economic activities. The high number of population in certain area, the economic activity will increase. The last factor that can affect the HDI is the number of poor people. Poverty can prevent a person from getting a decent level of education and health and causes no improvement in human resources. The high number of poor people will cause a decrease in human development. This statement was supported by Sastraningsih et al (2020) in their research which said that human development index has a significant negative effect on poverty. It is important to overcome the problem because it has high contribution on economic level in certain area.

HDI is one of indicators on measurement of successful development in certain region. It needs more research about factors that can influence the highest and lower HDI. Based on the background of the study, this research aims to analyse GRDP (Gross Regional Domestic Product) variable, education, population and poor people toward human development index in West Sulawesi during 2017-2021. Besides, the researcher wants to prove that GRDP (Gross Regional Domestic Product), education, total population, and the number of poor people simultaneously have a significant effect toward human development index.

VIII. LITERATURE REVIEW

According to UNDP (United Nations Development Programed) in Siswati & Hermawati (2018), Human development is a process of enlarging choices for humans. The concept or definition of human development basically includes a very broad dimension of development. In the concept of human development, development should be analyzed and understood from the human point of view, not only from economic growth. The Human Development Index (HDI) is a number that measures the achievement of human development based on a number of basic components of quality of life that can affect the level of productivity produced by a person (Saputra dalam Palindangan & Bakar, 2021). The HDI Fig is a geometric mean of three main components, namely life expectancy,

education (average length of schooling and expected length of schooling), and a decent standard of living. The Human Development Index is an important indicator in measuring success in developing the quality of life of the community in an area which is used to determine the level of development in that region. HDI provides a more comprehensive measure of development achievement because it does not only measure economic achievement, but also includes the basic essence of human happiness regarding a healthy, long life, smart life, and the opportunity to gain knowledge.

According to BPS (Central Bureau of Statistics) in Hidayat & Woyanti (2021) Gross Regional Domestic Product (GRDP) is the amount of added produced value by all business units in a certain area, or it is total value of final goods and services (net) which is produced by all economic units. GRDP is one of the important indicators to determine the economic development in an area within a certain period, both on the basis of current prices and on the basis of constant prices (Muliza et al., 2017). GRDP on the basis of current prices describes the added value of goods and services which is calculated using the prevailing prices in each year, while GRDP on the basis of constant prices shows the added value of these goods and services which is calculated using prices prevailing in one particular year as a basis. PRDB on the basis of current prices can be used to see the shift and structure of the economy, while constant prices are used to determine economic growth from year to year.

Education is every effort, influence, protection and assistance given to a child aimed at the maturation of the child, or more accurately helping the child to be sufficiently capable of carrying out his own life duties. (Longeveled in Kusuma & Sumianto, 2022). Education is learning of knowledge, skill, and habit on a group of people which doing continuity from one generation to the next generation through teaching, research and training. Education is something that has a role as a foundation in human life. Therefore, the implementation of education must be carried out as well as possible and oriented to the future. Education gives big contribution to the progress of a nation, and is a vehicle for translating constitutional messages as well as a means of developing nation's character. The purpose of education is to educate the nation's life and also to develop a complete human being.

Population is the number of people who living in an area at a certain time and as result of demographic processes, such as fertility, mortality, and migration (Said in Didu & Fauzi, 2016). Population are all people who are domiciled in certain geographical area of the Republic of Indonesia for six months or more and or those who are domiciled for less than 6 months but aim to settle down (Kuncoro, 2013). Population is an important element in economic activity as an effort to develop an economy because of population provides labor, experts, business leaders and manpower companies in creating economic activities. The large number of populations will increase production activities, consumption from the population can lead to aggregate demand. Then, increasing in aggregate consumption allows productive enterprises to develop whole economic factors

According to Alhudhori (2017) poverty is the condition where someone unable on buying basic needs such as foods, clothes, house, and medicine. BPS in Hidayat & Woyanti (2021) explains that poverty as individual inability on fulfilling basic needs such good life. In the whole meaning, poverty is economy inability not only on fulfilling basic needs but also inability on fulfilling some needs such clothes, foods, and house. Poverty cannot be seen from sex appearance or gender but whoever individual always has same needs on fulfilling life needs such as food, beverage, and other needs. Poverty is a condition which people in limited condition in all factors such as production, job opportunity, education, other life facilities in every activity or an effort become limited (Sulistiyani, 2017).

One indicator to see the distribution of development is to look at the Gross Regional Domestic Product. Domestic refers to the local area which not as large as country area. Domestic product refers to the product which is producing by the people in certain local area. Equitable development will be followed by increased income, both goods and services produced. It is because GRDP is an indicator that describes the ability of a region to generate income or remuneration for production factors in certain area. The high GRDP growth will cause consumption patterns in the community to increase and in this case will increase the level of purchasing demand. The high level of purchasing demand in the community will affect the increase in the human development index, because people's purchasing power is one of the composite indicators in the formation of HDI in terms of income. Research conducted by Muliza et al. (2017) stated that GRDP has a positive and significant effect on HDI. This result related to the research conducted by Hidayat & Woyanti (2021) which proves that there is a positive and significant influence between GRDP and HDI.

Indonesian education system consists of several levels of education. The level of education is a long-term process that uses a systematical and organizational procedure, which is the managerial workforce, learns conceptual and theoretical knowledge for general purposes. The basic measure of education level is the previous year. The development is always showed in the form of a percentage change in national income that it always compares every year to the previous year. Community welfare can be realized by fulfilling basic needs such as health, education, and infrastructure. Fulfillment of basic needs will improve the quality of human resources.

Quality resources will be able to contribute to the advancement of more advanced technology so as to increase production efficiency. Human resource development can be done by improving the quality of human capital. The Research conducted by Pamungkas (2020) states that education has a positive and significant effect on HDI.

Population is a supporting of development, because larger populations are potential market that becomes a source of demand for various kinds of goods and services which will support various kinds of economic activities. From this activity, it will create economies of scale in production that will give benefit to all parties, reduce production costs and create a source of supply or supply of cheap labor in sufficient quantities so that it can stimulate an increase in people's welfare which means poverty will decrease. With a large population, production activities, consumption of the population will increase and lead to aggregate demand. This increase in aggregate consumption will develop productive businesses which will affect the growth of the national economy. Research conducted by Zakaria (2018) and Jasasila (2020) states that there is a positive and significant relationship between the number of residents and the HDI.

Poverty is thought to be a disparity in increasing the Human Development Index. Poverty can prevent a person from getting a decent level of education, and health. Both of impact can cause decreasing in human resources and unemployment. Poverty causes a person have no the capability on doing something, it is because they have no ability on doing something. The level of a person's ability to access resources greatly affects the level of well-being. The high number of poor people will cause a decrease in human development. In this case, poverty and human development index has correlate each other. The lower number of human development index will cause poverty range in the certain area. Research conducted by Ningrum et al. (2020) stated that poverty has an effect on HDI. These results are related to the research conducted by Zakaria (2018) which proves that poverty has a negative and significant effect on HDI.
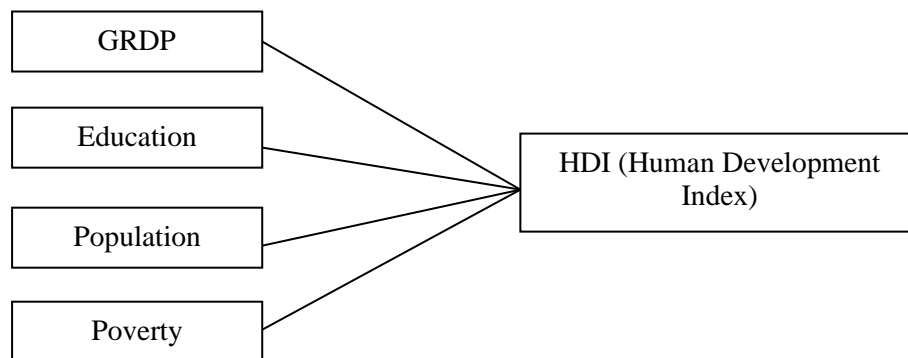
Fig 3. Conceptual Framework

The result shows that GRDP (Gross Regional Domestic Product), education, total population, and the number of poor people simultaneously have a significant effect toward human development index.

IX. RESEARCH METHODOLOGY

This research is a type of quantitative research by associative nature. The purpose of associative research is to find out the relationship between two or more variables, which is looking for roles, influences and causal relationships, such as between independent variables and dependent variables. In this study, the independent variables consist of GRDP, Education, Total Population and Poor Population, while the dependent variable is HDI.

The populations in this study were all regencies/cities in the West Sulawesi Province. In this study, sampling collection technique is by using saturated sampling technique. According to Sugiyono (2018) the saturated sampling technique is a sampling technique when all members of the population are used as samples. This is done when the population is relatively small, less than 30, or the research wants to make generalizations with very small errors.

The type of data in this study is secondary data. Data sourced from the Central Statistics Agency of West Sulawesi Province and journals. The data was obtained through direct access from the website of the BPS of West Sulawesi Province (sulbar.bps.go.id). Data collection in this study was carried out using the documentation

method, namely analyzing data on GRDP, education, population, number of poor people and HDI in West Sulawesi Province in 2017-2021.

The data analysis technique used in this research is panel data regression analysis. The data model used is panel data, where this panel data is a combination of cross section data and time series data, namely observations on several individuals who are observed within a certain period of time. The purpose of panel data analysis is to see the economic impact that is inseparable between each individual in several periods, and this cannot be obtained from the use of cross section data or time series data separately. Data analysis in this study begins with testing the best model to choose the right model. According to Winarno (2015) there are three panel data regression models, namely, Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). In determining the most appropriate and best model, it is necessary to test first based on the Chow Test and Hausman Test. Then, a hypothesis test was conducted to determine the effect of the independent variable on the dependent variable in the study in the form of the R2 test, F test and t test. In this study, the HDI was tested, so the panel data regression equation in this study is as follows:

$$HDI = \alpha + \beta_1 GRDP + \beta_2 EDU + \beta_3 TP + \beta_4 NPP + e$$

where
HDI   = Human Development Index
GRDP   = Gross Regional Domestic Product
EDU   = Education
TP   = Total Population
NPP   = Number of Poor People
e   = *error*

X. RESULT / FINDING

Table 1. Result of Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	20.092840	(5,20)	0.0000
Cross-section Chi-square	53.868611	5	0.0000

Cross-section fixed effects test equation:
Dependent Variable: IPM
Method: Panel Least Squares
Date: 04/12/22   Time: 20:45
Sample: 2017 2021
Periods included: 5
Cross-sections included: 6
Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	63.72099	0.541673	117.6373	0.0000
PDRB	3.55E-05	2.28E-05	1.554726	0.1326
PEN	0.259869	0.047410	5.481301	0.0000
JP	8.87E-06	4.17E-06	2.127643	0.0434
PM	-0.085260	0.022542	-3.782274	0.0009
R-squared	0.799218	Mean dependent var		65.80300

Adjusted R-squared	0.767093	S.D. dependent var	1.619830
S.E. of regression	0.781737	Akaike info criterion	2.496416
Sum squared resid	15.27783	Schwarz criterion	2.729949
Log likelihood	-32.44624	Hannan-Quinn criter.	2.571125
F-statistic	24.87829	Durbin-Watson stat	0.852621
Prob(F-statistic)	0.000000		

Table 2. Result of Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.340357	4	0.0004

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
PDRB	-0.000029	0.000024	0.000000	0.4118
PEN	0.159417	0.234836	0.001003	0.0172
JP	0.000055	0.000011	0.000000	0.0944
PM	0.133135	-0.093729	0.023323	0.1374

Cross-section random effects test equation:
Dependent Variable: IPM
Method: Panel Least Squares
Date: 04/12/22   Time: 20:46
Sample: 2017 2021
Periods included: 5
Cross-sections included: 6
Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49.66696	5.206811	9.538846	0.0000
PDRB	-2.90E-05	7.12E-05	-0.407525	0.6880
PEN	0.159417	0.038635	4.126259	0.0005
JP	5.54E-05	2.72E-05	2.036605	0.0551
PM	0.133135	0.155621	0.855509	0.4024

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.966665	Mean dependent var	65.80300
Adjusted R-squared	0.951665	S.D. dependent var	1.619830
S.E. of regression	0.356124	Akaike info criterion	1.034129
Sum squared resid	2.536493	Schwarz criterion	1.501195
Log likelihood	-5.511931	Hannan-Quinn criter.	1.183547
F-statistic	64.44168	Durbin-Watson stat	1.955299
Prob(F-statistic)	0.000000		

Based on the result of Chow test and Hausman test, the value of probability is <0,05 the test use *Fixed Effect Model* (FEM).

Table 3. Result of Fixed Effect Model

Dependent Variable: IPM
Method: Panel Least Squares
Date: 04/12/22   Time: 20:44
Sample: 2017 2021
Periods included: 5
Cross-sections included: 6
Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49.66696	5.206811	9.538846	0.0000
PDRB	-2.90E-05	7.12E-05	-0.407525	0.6880
PEN	0.159417	0.038635	4.126259	0.0005
JP	5.54E-05	2.72E-05	2.036605	0.0551
PM	0.133135	0.155621	0.855509	0.4024

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.966665	Mean dependent var	65.80300
Adjusted R-squared	0.951665	S.D. dependent var	1.619830
S.E. of regression	0.356124	Akaike info criterion	1.034129
Sum squared resid	2.536493	Schwarz criterion	1.501195
Log likelihood	-5.511931	Hannan-Quinn criter.	1.183547
F-statistic	64.44168	Durbin-Watson stat	1.955299
Prob(F-statistic)	0.000000		

From Table 3 it can be formulated regression model as follow:

$$\text{HDI} = 49, 67 - 2, 90 \text{ GRDP} + 0, 16 \text{ EDU} + 5, 54 \text{ TP} - 0, 13 \text{ NPP} + e$$

From the regression model above, it can be seen that GRDP is negatively related to HDI, while education, population and the poor have a positive relationship. According to the t-test, only education has a significant effect toward HDI, while GRDP, total population and the poor have no effect toward HDI.

XI. DISCUSSION

Based on the results of the Chow test and Hausman test, the panel data regression test in this study was carried out using Fixed Effect Model. Testing with Fixed Effect Model was chosen because the probability value in the Chow Test and Hausman Test < 0.05. In the FEM test, it is known that the R-Squared value is 0.9667; it means that the ability of the GRDP, Edu, TP and NPP variables in explaining the HDI variable is 96.67% while the remaining 3.33% is explained by other variables not examined in this study. Based on the results of the F test, it is known that the probability value is 0.00 < 0.05, so the regression model in this study is proven to be fit and the variables GRDP, Edu, TP and NPP simultaneously affect HDI.

The results of the t-test indicate that GRDP variable has no effect on the HDI variable. The results of the study are in accordance with research conducted by Nainggolan et al. (2021). High and low GRDP is not able to give effect to HDI. A high GRDP value does not guarantee the success of human development in certain area will increase. It is because the funds does not use for improving human development but for infrastructure or other purposes.

Based on the results of the t test, it is known that education has a positive and significant influence toward HDI. The results of this study are related to the research conducted by Pamungkas (2020) which states that there is a positive and significant influence between education and HDI. Positive influence means that the higher

education in certain area, it will make HDI in the higher position also. Education is one indicator of economic growth that can increase people's income. When the quality of education increases, the quality of human resources will also increase.

According to the results of the t-test the population has no significant effect on HDI. The results of this study are related to the results of research conducted by Kiha et al. (2021) population is not able to influence the HDI. Human in their roles are subjects and objects of development, which means that human, apart from being actors of development, and also development of targets. In this case, various facilities and infrastructures are needed to encourage the role of developing human. Therefore, investment is needed to be able to create the formation of productive human resources. According to human resource development can be done by improving the quality of human capital.

The results of the t-test show that the poor have no significant effect on HDI. These results are related to the result of research conducted by Kiha et al. (2021) the number of poor people in certain area cannot affect human development. Poor people can access education easily. The government has made various assistance programs to all levels of society and make them can get proper education. Therefore, the high and low poverty rates do not affect human development itself.

XII. CONCLUSION AND RECOMMENDATION

From the result and discussion above, the independent variable in this study was able to explain the dependent variable of 96.67% while the remaining 3.33% was explained by other variables not examined in this study. From the results of F test, it is known that the GRDP, Edu, TP and NPP variables simultaneously affect the NPP variable. It is proved by the probability value of $0.00 < 0.05$. According to the results of the t test, the Edu variable partially has a positive and significant effect, while the GRDP, TP and NPP variables have no significant effect on the PM variable.

The subjects was studied in this research only focused on data from West Sulawesi Province, further research could conduct research with subjects from other provinces as well as on a national scale in order to obtain more reliable data. The independent variable in this study has a high ability to explain the dependent variable, but further research can add or replace the independent variable with other variables. Based on the results of the study, it is known that education variable has a positive and significant effect on HDI. Therefore, government should be able to improve educational facilities and facilitate public access to obtain proper education in order to achieve increased human development.

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Micro and Small Enterprises Employee Productivity Analysis in the Post Pandemic Era: The Impact of Motivation and Work Environment

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Abstract

The objective of research is to broaden insight on how the effect of employee motivation and work environment to employee productivity after the pandemic of COVID-19. During Covid-19 outbreak since 2020 has changed work and business behavior as past studies found that Covid-19 has an dramatically effect on workers and workplaces. The greatest effect has caused a crisis on micro and small enterprises (MaSES). Changes in work regimes and rhythms in the post- pandemic will make changes in the organizational environment and employee motivation. The effect of coronavirus on human body is reputable and more research is ongoing but the human motivation and the workforce studies are yet to be unraveled. In this study, 80 MaSES employee in Garut regency were surveyed through questionnaire and the analysis was carried out using the structured Equation Model (SEM). Frequency Distribution was used for descriptive analysis while chi-square (X2) was used as the inferential statistical tool. The results revealed that work motivation, work environment and work productivity were not quite good, meaning that they were not maximized. But, there are strong connection between motivation, work environment and productivity. The findings of the study are valuable and have urgent policy implications for MaSES owner to emerging a special strategy for crisis after COVID-19 pandemic and any other case in the future. Although the calamity would be gradually lessened, organizations need to rebuild different alternatives approaches. The urgent need today is to enhance employee responsible and sense of belonging to organization to foster optimum productivity

Keywords—Employee; Motivation, Post-pandemic;Productivity; Work Environment

I. INTRODUCTION

The COVID-19 pandemic has resulted in a global crisis which has made significant changes to the global economy and pace of company activity around the world (Jamal et al., 2021). Lockdowns worldwide are driving irreparable disruptions in many industries, prompting many companies to close their businesses (Donthu & Gustafsson, 2020). Micro and Small Entrepreises (MSEs) is the one who fragile to disappear due to COVID-19 effect on economy. Companies that are able to answer challenges and implement the right strategies during the Pandemic will have a greater chance of surviving and growing, while others will be eroded (Chan and Muthuveloo, 2020). The pandemic had already caused massive dislocation among small businesses just several weeks after its onset (Bartik, et al, 2020). Two implications of the economic crisis experienced by Indonesia in the sector employment. First, an increase in the number of unemployed, and second, post-crisis labor market landscape changes (Rizal, 2020), In the worst conditions, termination of employment occurs unilaterally (Sugiri, 2020).

In the other hands, In Indonesia, MSEs are one of the fields businesses that have an important role for economic growth, besides that MSEs also have a in the absorption of labor and distribution of results development. COVID -19 can be a good influence on the Indonesian economy. The COVID-19 pandemic can also be an opportunity so that investment can be stable even though the economy is under pressure (Nasution et al., 2020). Nuari, (2017) stated that during the 1998 economic crisis, SMEs were one of the sectors that were able to survive and develop, while the larger sector was actually uprooted by the crisis. As business have been changed due to the COVID-19 crisis, MSEs need to change the way they conduct their business productivity to meet customers' new preferences. However, Almost all of the employee may have little or no opportunity to work remotely due to highly concentrated among highly skilled, well-educated workers in a handful of industries, occupations, and countries (McKinsey, 2020) . According to Onwuegbuna et al (2021), the challenges experienced by human resource managers in MSEs during and after the coronavirus pandemic include employee motivation and the work environment, because before the pandemic work was an impossible task. Workplace conditions are the main risk factor that can spread the corona virus. These changes can have implications for the performance of an economy.

In order to ensure the progress of current business at the national and international level after COVID-19 pandemic. The operational journey of MSEs must always be accompanied by a high level of ability in their field

and coupled with strong capital and good resources. This of course requires employees who run the company in a healthy, productive manner, a good work environment, strong competitiveness and safety, so that the company's output can run and develop smoothly. To get human resources like this, it is necessary to have support from the management of the MSEs itself. A very important problem in human resource management is to understand the factors that affect employee productivity, including knowing the influence of motivation and the work environment.

For individuals, those that affect motivation and the work environment allow employees to put more effort into improving their standard of living and for companies that affect employee motivation and work environment use it as a trigger for increasing productivity and achieving planned targets through improving the character and behavior of employees within the company. The work environment in the company will also support the production level of the employees. If the environment around the workplace gives an uncomfortable impression, employees will feel lazy to work. A good work environment includes several aspects that must be considered, for example a comfortable work space, safe working conditions, a fixed room temperature, adequate lighting, good relations with coworkers. If this can be fulfilled by a company or organization, it will lead to satisfaction for employees and will increase employee work production.. With the complaints from SME employees after COVID-19, in terms of motivation and work environment, of course, it greatly affects the productivity produced by employees, will be declining productivity employees in doing their jobs. Therefore, the authors are interested in taking the title "The Influence of Motivation and Work Environment on Work Productivity of Small and Medium Entreprises Employees in Post Pandemic Era".

5.

II. Literature Review

A. Micro and Small Enterprises (MSEs)

The characteristics of MSEs are using simple or manual technology so that technology transfer is easy, raw materials are easy to obtain, have basic skills that are generally obtained from generation to generation, market opportunities are wide enough, are labor intensive or absorb a large number of workers, most of their products are marketed in Indonesia. local or domestic market and some other parts have the potential to be exported (Halim, 2020). Sarmigi (2020) said that micro, small and enterprises are the main players in economic activity in Indonesia. The expertise and ability of micro, small and medium enterprises in developing their business independently can make changes in future development.

B. Motivation

Many transcript of literature documented research about human behavior from many perspective such, psychological, economic and behavioural, etc., to understand what motivate people to do the things they do. Some researcher try to propose definition of motivation. According to Hasibuan (2012), motivation is the provision of a driving force that creates a person's enthusiasm so that they want to work together, work effectively or be integrated with all their efforts in order to achieve a result, namely satisfaction. Finally, several universities and technology related institutions have designed, implemented and maintained employee recognition programmes to encourage hard work and productivity in the workplace. There are various factors to consider in motivating employees: some financial like salary and other non-financial like recognition and challenging work (Bawa, 2017). Motivation is often described as human need to regulate, control, or explain human behavior (Shoraj and Llaci, 2015). However, People who have a high motivation on completed task orientation tend to be not take time to socialize. (Hermina and Sari, 2021)

Motivation highlighted in this paper is based on McClelland Theory (1985) which is the needs for achievement, power, and affiliation. Humans who are high in achievement needs will experience feelings of either joy or sadness when getting results in accordance with their efforts (McClelland & Koestner, 1992). Need of power value to be dependent on the organizational context (De Hoogh et al., 2005). However, Humans who have a high need of power prefer to be in competitive situations, have status recognition, and actively want to achieve status (Veroff, 1992). To maintain appropriate interdependent relationships with others, individuals with a high need for power must often refrain their desire (Yamaguchi, 2003). And the last, The need for affiliation describes the willingness to relate closely and friendly other people (Robbins, 2003). McNeese-Smith (1999) suggests those who are higher in need of affiliation to lead others in desired directions and that in doing so, they feel there is an attachment to the same code of ethics as their partners. McClelland's pointof view on personality and its effect on motivation helps explain the meaning of the social context that creates leaders for real organizations, based on the

motives that exist in each person to encourage, direct, and choose their own behavior (Spangler, House, & Palrecha, 2004).

C. Work Environment

According to Sedarmayanti (2015) the definition of the work environment is a condition that exists around the workplace that can affect employees both physically and non-physically. The work environment is one of the causes of success in carrying out a job, but can also cause a failure in the implementation of a job, because the work environment can affect workers, especially the psychological work environment. A study had shown that prime condition of physical work environment can minimize absenteeism of worker, and improve employee performance (Chandrasekar, 2011). Haynes (2008) argues that the work environment is one of the real elements that determine the ability of employees to connect with work roles.

While, Oyetunji (2014) revealed the quality of the work environment has an effect on worker behavior and their mental, physical and emotional state. Pailhe (2002) pointed out that the important factors in calculating the work environment of an organization include non-physical, such as communication networks, working hours, employee empowerment, and work speed. Hours of work connect to programs, policies and practices initiated by worker to scheduling their work hours and compromising their working hours to get their want (Golden, 2012).

D. Work Productivity

According to Sunyoto (2015) Work productivity is the comparison between the results achieved and the overall resources used, taking into account the quality of employee work, time, initiative and employee abilities as a benchmark for work results. Hasibuan (2012) defined that productivity is a comparison owned either individually or in a group within the company. Rollison and Broadfield (2002), explained productivity is the quantity of output obtained from a given level of input, and which is influenced by various skills, characteristics and attitudes, including formal training and qualifications, level of motivation, initiative, team skills, attention to detail, multi-tasking ability , communication skills, general attitude and work ethic. Indicators of work productivity put forward by Simamora (2004), namely: Quantity of work, Quality of work, Punctuality work completion and cooperative attitude. According to (Sedarmayanti, 2011) that employee productivity can be influenced by several factors including motivation and work environment. Swandono Sinaga (2016) concluded that the work environment has a positive effect on employee work productivity. The results of Purnama's research (2008) conclude that there is a strong relationship between work motivation and work productivity.

E. Conceptual Framework

Based on the review of the theoretical basis above, the research framework describes the influence of motivation and work environment on employee productivity at UKM worker in Kabupaten Garut is depicted in the following Fig.
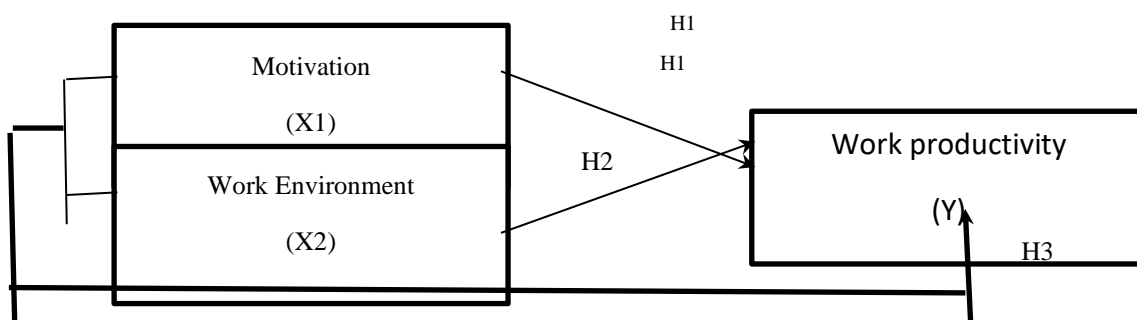
Fig 1. Framework Of Thinking

Information : X1   = Variabel Independent (Motivation)
X2   = Variabel Independent (Work Environment)
Y   = Variabel Dependent (Productivity)
H1, H2   = hypothesis 1 dan hypothesis 2 (Partially test)
H3   = hypothesis 3 (Simultaneously test)
⟶   = the partially effect of variable
⟶   = the simultaneously effect of variable

The hypothesis is a temporary answer compiled by the researcher, which will then be tested for truth through the research conducted. Meanwhile, the hypothesis of the research is: "The Effect of Motivation and Work Environment both Simultaneously and partially on Work Productivity".

III. RESEARCH METHODOLOGY

In this study, the method used by the author is descriptive and associative methods of causal relationships. According to Nazir (2013), descriptive method is a method in which it examines the status of a human group, an object, a system of thought, or a class of events in the present. The aim is to provide a systematic, factual and accurate description of the facts, characteristics and relationships between the phenomena studied. In the descriptive method, the problem solving procedure is researched by developing the state of the subject or object of research when the research is carried out by collecting data, processing and analyzing then drawing conclusions. While the causal relationship associative method, according to Sugiyono (2012) is a study that aims to determine the effect or relationship between two or more variables. This research has the highest level compared to descriptive and comparative because this research can build a theory that functions to explain, predict and control a symptom.

According to Sugiyono (2016) a variable is everything in any form that is determined by the researcher to be studied and then drawn conclusions. Then the variabel is divided into 3, namely:

a. Motivation
   Motivation is the provision of a driving force that creates a person's enthusiasm so that they want to work together, work effectively or be integrated with all their efforts in order to achieve a result, namely satisfaction such as need of achievement, affiliation and power (Hasibuan, 2012).
b. Work Environment
   The work environment is a condition that exists around the workplace that can affect employees both physically and non-physically (Sedarmayanti, 2015)
c. Work Productivity
   Work productivity is the comparison between the results achieved and the overall resources used, taking into account the quality of work of employees, time, initiative and employee abilities as a benchmark for work results (Sunyoto, 2015)
   The population in this study were employees of leather craft SMEs in Garut Regency. The sample taken is part of the population, selected using Nonprobability Sampling using purposive sampling techniques and quota sampling . According to Sugiyono (2013) purposive sampling is a sampling method based on certain criteria. In this case, the criteria used are worker of small and medium enterprises (SMEs) and are engaged in the leather work industry sector.

The analytical tool used in this study is Path Analysis which can explain the causal relationship between cause variables and effect variables. Therefore hypothesis as follows.

H0: There is no relationship between rows and columns or between motivation and work environment to productivity

H1: There is a relationship between rows and columns or between motivation and work environment to productivity

IV. RESULT / FINDING

A. Characteristics Respondents
Questionnaire is distributed to 80 Leather SMEs workers in Kabupaten Garut in December 2021. The characteristics of the respondents who were sampled in the study were grouped into 3 aspects namely; gender, age and education level. The results is shown in Fig 2.
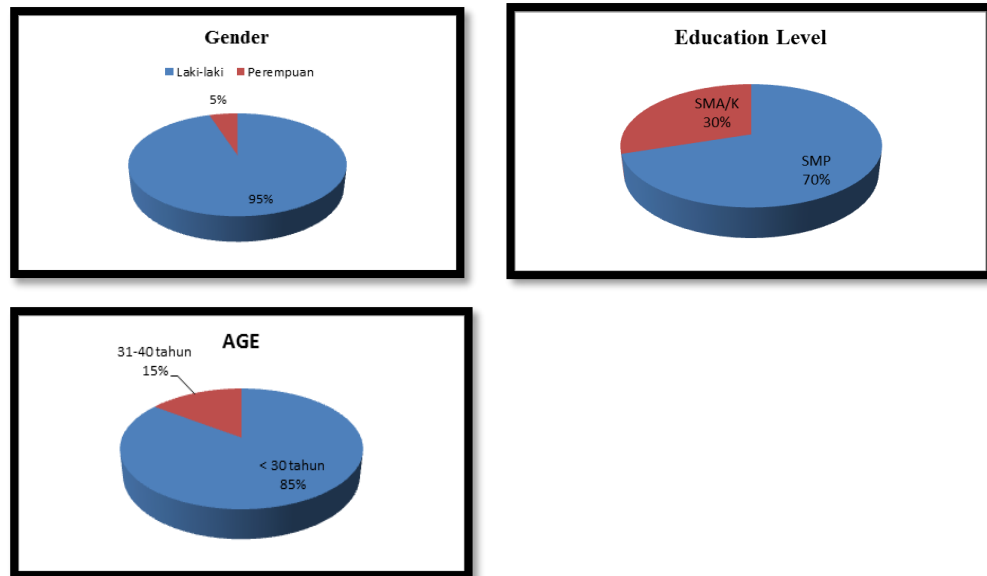
Fig 2. Respondent Characteristics (Source: data Processing, 2022)

Of the 80 employees in the leather craft sector who became respondents in this study, it showed that the number of male employees was 95% while the number of female employees was 5%. Furthermore, the Fig also shows that the majority of employees at this sector are under 30 years old, 85%, while the remaining 15% are aged 31-40 years. And finally, the grouping of education levels is divided into 2 parts, namely SMP and SMA/K which shows that employees with a junior high education (SMP) level have a percentage of 70% and employees with a high school (SMA/K) education level of 30%.

To find out the respondents' responses to the motivation variable at Leathers SMEs in Garut, namely by measuring the results of the questionnaire responses that have been carried out consisting of 10 statement items connected in 3 dimensions, namely: the need for achievement, the need for affiliation and the need for power. While, the work environment variable, consisted of 12 statement items connected in 2 dimensions, namely: physical work environment and non-physical work environment. To find out the respondents' responses regarding the work productivity variable, measured 8 statement items connected in 4 dimensions, namely: quality of work, punctuality, initiative, and ability.

Table 1. Respondent Response in Motivation

No	Dimension		Statement	Score	Criteria
1	Motivation	Achievement	1	101	Quite Good
			2	106	Good
			3	102	Quite Good
			4	103	Quite Good
		Affiliation	5	103	Quite Good
			6	105	Good
			7	103	Quite Good
			8	107	Good
		Power	9	101	Quite Good
			10	104	Quite Good
OVERALL MOTIVATION				104	QUITE GOOD

2	Workforce	Physical	1	103	Quite Good
			2	105	Good
			3	101	Quite Good
			4	101	Quite Good
			5	105	Good
			6	106	Good
			7	106	Good
			8	107	Good
			9	102	Quite Good
		Non-Physical	10	104	Quite Good
			11	102	Quite Good
			12	105	Good
OVERALL WORK ENVIRONMENT				105	GOOD
			1	105	Good
			2	106	Good
			3	103	Quite Good
			4	104	Quite Good
			5	102	Quite Good
			6	104	Quite Good
			7	102	Quite Good
			8	103	Quite Good
OVERALL PRODUCTIVITY				104	QUITE GOOD

Source: data Processing(2022)

Based on Table 1, the summary of the responses of respondents as a whole, with an average score of 104 meaning that all criteria is quite good. The highest score is dimension Motivation in affiliation statement 8 "I'm always included when the company has a big event" and work environment dimension in physical statement 8 "work can guarantee security" with score 107. While, the least is 101 score in Achievement dimension statement 1" In my work I always develop creativity", Power dimension statement 9 "The company provides opportunities for promotion to outstanding employees", and physical dimension statement 3 "There is still noise that can interfere at work", and 4 "The color arrangement in the workplace is good".

B. The Impact Of Motivation And Workforce To Productivity

To find out the influence of motivation and work environment to the work productivity of Leather Craft Worker in Garut, then an analysis is carried out using several statistical data analysis methods including the data from the questionnaire distribution (Validity Test, Reliability Test, Classical Assumption Test and Multiple Regression Test).

To test the validity of data, several statements were made from each variable, to be able to find out the correlation value based on the statement items, the Cronbach Alpha data processing method was used. The processing of the validity test of Motivation (X1), Work Environment (X2) and Work Productivity (Y) variables using the SPSS application program can be seen as follows:

Table 2. Validity Test (X1)

MOTIVATION	WORKFORCE	PRODUCTIVITY

Item	R count	r Table	Conclution	Item	R count	r Table	conclution	Item	R count	r Table	conclution
Item 1	0.560	0.332	VALID	Item 1	0.676	0.332	VALID	Item 1	0.730	0.332	VALID
Item 2	0.696	0.332	VALID	Item 2	0.619	0.332	VALID	Item 2	0.597	0.332	VALID
Item 3	0.767	0.332	VALID	Item 3	0.765	0.332	VALID	Item 3	0.712	0.332	VALID
Item 4	0.430	0.332	VALID	Item 4	0.428	0.332	VALID	Item 4	0.550	0.332	VALID
Item 5	0.741	0.332	VALID	Item 5	0.772	0.332	VALID	Item 5	0.661	0.332	VALID
Item 6	0.576	0.332	VALID	Item 6	0.594	0.332	VALID	Item 6	0.757	0.332	VALID
Item 7	0.671	0.332	VALID	Item 7	0.714	0.332	VALID	Item 7	0.661	0.332	VALID
Item 8	0.575	0.332	VALID	Item 8	0.559	0.332	VALID	Item 8	0.730	0.332	VALID
Item 9	0.576	0.332	VALID	Item 9	0.627	0.332	VALID				
Item 10	0.730	0.332	VALID	Item 10	0.576	0.332	VALID				
				Item 11	0.698	0.332	VALID				
				Item 12	0.770	0.332	VALID				

Source: data Processing(2022)

Based on Table 2 above, overall it is declared valid. Because the overall value of r-count > the value of r-table (0.332). While, the results of the data processing of the reliability test variables of Motivation (X1), Work Environment (X2) and Work Productivity (Y) using the SPSS application are as follows:

Table 3. Reability Test

Reliability Statistics		
Variabel	*Cronbach's Alpha*	*N of Items*
Motivation	,890	10
Work Environment	,914	12
Work Productivity	,894	8

Source: data Processing(2022)

Based on Table 3 above, it is known that the variables of Motivation (X1), Work Environment (X2) and Productivity (Y) in reliability testing have Cronbach's alpha values more than alpha values (0.05). Thus the measuring instrument used in the form of a questionnaire is declared reliable and can be used in data collection in the research process.

Then, Classical assumption test is used to ensure that the data used is normally distributed. The classical assumption test used is as follows normality test and multicoreality test. Based on observations using normal probability plot graph analysis as shown in Fig 3, it can be seen that the histogram graph forms a pattern such as peaking in the middle and with the normal probability plot graph it can be seen that the data spreads around the diagonal line and follows the direction of the diagonal line. According to Ghozali (2012) states that if the data spreads around the diagonal line and follows the direction of the diagonal line or the histogram graph shows a normally distributed pattern, it can be concluded that the regression model meets the assumption of normality. Thus, the conclusion is that the regression model in the study is normally distributed because it has met the assumption of normality.
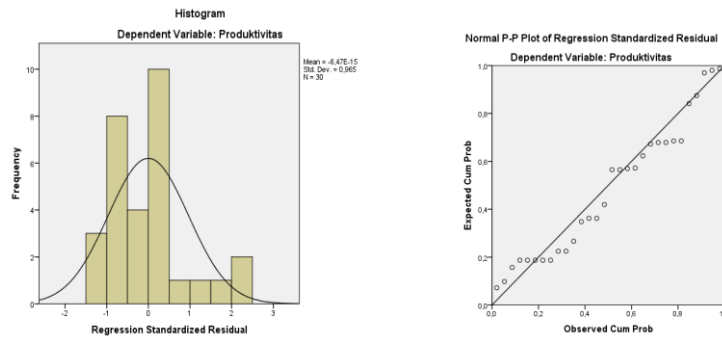
Fig 3. Grafik Normal Probability Plot (Source: data Processing, 2022)

According to Ghozali (2012) the normality test with a line can be misleading if you are not careful, visually it looks normal, but statistically the opposite. Therefore, another test is through the Non Parametric Kolmogorov Smirnov (KS) statistical test. The results of the test can be seen as follows:

Table 4. One-Sample Kolmogorov-Smirnov Test

		Standarized Residual
N		80
Normal Parameter[a,b]	Mean	,0000000
	Std. Deviation	,96490128
Most Extreme Differences	Absolute	,142
	Positive	,142
	Negative	-,082
Test Statistic		,142
Asymp. Sig. (2-tailed)		,128[c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: data Processing(2022)

From the table above, it can be seen that the One-Sample Kolmogorov-Smirnov Test shows that the data used is normally distributed. This can be seen in the significant value which is greater than the alpha value (0.128 > 0.05). Thus the results of statistical analysis are consistent with the results of graphic analysis.

Then, Multicollinearity test was conducted to test whether the regression model found regression between independent variables. Multicollinearity test can be done by looking at the TOL (Tolerance) and VIF (Variance Inflation Factor) of each independent variable on the dependent variable.

Table 5. *Coefficients Multikolinearitas*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	,940	1,183		,795	,434		
Motivation	1,262	,395	1,550	3,193	,004	,007	1,470
Work Env.	1,700	,329	2,512	5,174	,000	,007	1,470

Dependent Variable: Productivity
Source : data processing(2022)

Based on Table 5, it can be seen that the TOL (Tolerance) value of the Motivation variable (X1) and Work Environment (X2) is 0.007, while the VIF (Varian Inflation Factor) value is 1.470, then the VIF value is 1.470 < 10, so the regression model that is formed does not contain any multicollinear symptoms. This means that each independent variable is not related to each other so that the regression model is good to use.

The next test is heteroscedasticity test. This test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another observation.
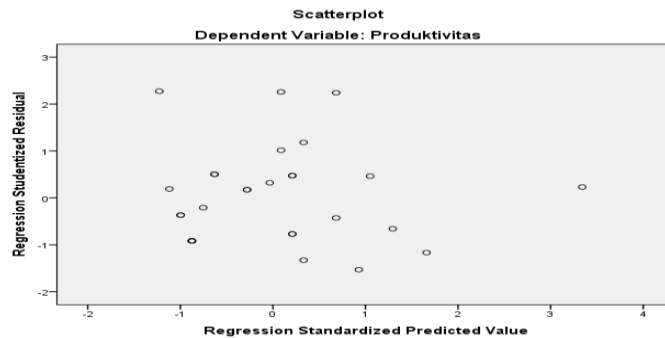
Fig 4. Scatterplot Heteroscedasticity Test (Source : data processing, 2022)

Based on the appearance of Fig 3 the scatterplot graph shows that the plot spreads randomly, above or below zero on the Studentized Residual Regression axis. Therefore, based on the heteroscedasticity test using graphic analysis, the regression model formed states that there is no heteroscedasticity. So that the regression model is declared good. Then, statistical analysis of heteroscedasticity testing was carried out using the Glejser method. Based on Table 6. Heteroscedasticity Coefficients, it is known that the significance value of the Motivation variable (X1) is 0.296, the Work Environment variable (X2) is 0.306 as a whole is greater than the alpha value (0.05), meaning that there is no heteroscedasticity in all variables, so the regression model is stated good.

Table 6. Coefficients Heteroscedasticity

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	,426	,667		,638	,529
	Motivation	,237	,223	2,353	1,065	,296
	Work Env.	,193	,185	2,304	1,043	,306

a. Dependent Variable: ABRESID

Source : Data Processing(2022)

The autocorrelation test is used to determine whether in a linear regression model there is a strong positive or negative relationship between the data on the research variables. In this study, researchers used the Run Test method. This test is conducted to test whether the residual value has a high correlation. The following are the results of the autocorrelation test using the Run Test method:

Table 7. Runs Autocorrelation Test

	Unstandardized Residual
Test Value[a]	,01610
Cases < Test Value	15
Cases >= Test Value	15
Total Cases	30
Number of Runs	17
Z	,186
Asymp. Sig. (2-tailed)	,853

a. Median

Source : Data Processing(2022)

Based on the Autocorrelation Test in Table 7, it can be seen that the significant value is 0.853 > alpha value (0.05), meaning that the residual value spreads randomly. Thus, it can be concluded that there is no autocorrelation in the regression equation. Next, Multiple linear regression analysis was used to predict the magnitude of the relationship between the dependent variable, namely Work Productivity (Y) and the independent variable, namely Motivation (X1) and Work Environment (X2). The results of calculations using SPSS are as follows:

Table 8. *Coefficients Multiple linear regression*

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	,940	1,183		,795	,434
	Motivation	1,262	,395	1,550	3,193	,004
	Work Env.	1,700	,329	2,512	5,174	,000

a.   *Dependent Variable:* Produktivity
Source : Data Processing(2022)

Based on the results of data processing in Table 8 that has been carried out, the following regression equation is obtained:

$$Y = 0,940 + 1,262\ X1 + 1,700\ X2 \qquad (1)$$

The equation states that the intercept or constant is 0.940, meaning that without the motivation variable (X1) and the work environment (X2), the magnitude of the work productivity variable (Y) is 94.00%. Thus the interpretation of the regression equation is as follows: Motivation variable (X1) of 1.262 has a positive value, indicating that if motivation has increased, then work productivity (Y) has increased by 12.62%. The Work Environment (X2) of 1,700 has a positive value, indicating that if the Work Environment (X2) has increased, then Work Productivity (Y) has increased by 17.00%.

Next step, the determination coefficient test was conducted to find out how much the endogenous variables were simultaneously able to explain the exogenous variables. Based on the results of data processing using the SPSS application, the results of the determination calculation are as follows:

Table 9. Model *Summary* Determination Coefficient

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	,977ᵃ	,954	,950	,819
a. *Predictors: (Constant),* Work Env., Motivation				
b. *Dependent Variable:* Produktivity				

Source : Data Processing(2022)

Based on Table 9, the correlation result is 0.977, which means that the correlation between the X variable and the Y variable is very strong. This means that the ability of the independent variables in explaining the variation of the dependent variable is high. A value close to one means that the independent variables provide almost all the information needed to predict the variation of the dependent variable.

C. *Hypothetical Test*

Hypothesis testing is done by using the feasibility test to find out whether the model is feasible or not. To find out how much influence motivation and work environment have on productivity, a hypothesis test is carried out with F-test statistics to obtain the F-table obtained from the F distribution. In this study the significance level used was 5%, following the test results. Then the value of F is 3.3541. Furthermore, comparing the value of the F-count with the F-table by using the decision rule, it can be proven if the sub-hypothesis is accepted or rejected. For the calculated F value, it can be seen from the output results in the F description, the results are 277.977 and the F-table is 3.3541.

Table 10. ANOVA

		Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
	Regression	373,336	2	186,668	277,977	,000ᵇ
	Residual	18,131	27	,672		
	Total	391,467	29			
a. *Dependent Variable: Produktivity*						
b. *Predictors: (Constant), Work Env, Motivation*						

Source : Data processing (2022)

Based on the results of simultaneous calculations for the effect of the variable Motivation (X1) and Work Environment (X2) on Work Productivity (Y) obtained F-count > F-table (277.977 > 3.3541) then the decision taken is H0 is rejected, meaning that there is an influence of Motivation and work environment simultaneously on work productivity.

To determine the effect of motivation and work environment on work productivity partially, hypothesis testing was carried out using t-test statistics, to obtain a t-table using a distribution table with a level of a = 0.05 and degrees of freedom (n-2), the t-table value was obtained 1,7011 . Based on the results of the statistical calculation of the t-test of motivation, can be seen in the output results with the t statement in Table 8 which is 3.193 and t count of work environment is 5,174. So, the results of the motivation and work environment variable obtained by the value of t-count > t-table. This means that H0 is rejected and H1 is accepted for both variabel. The conclusion is that there is an influence of motivation independently on work productivity. And so, there is an influence of work environment independently on work productivity.

V. DISCUSSION

A. Motivation

Based on the descriptive analysis, it is known that the respondents' assessment of motivation, is on a quite good criterian, meaning that employees carry out work activities well but not maximal, this is evidenced by the responses regarding working hard in achieving targets, there are still some people who are less enthusiastic about working on their work activities. Respondents' responses regarding being responsible for work, there are still some employees who respond that there is a lack of responsibility for the work they are charged with. In response to optimism, there are still some employees who are pessimistic about the targets achieved. Respondents' responses regarding the opportunity for promotion, this is considered less important by most employees, because the company still retains employees who already have positions. The response regarding maximizing abilities is considered quite good, meaning that the company's leadership is still lacking in terms of providing motivation to employees, thus causing employee morale to decrease. Thus the provision of worker motivation at Leather craft SMEs in Garut can be said to be quite good, although there are still shortcomings that must be improved. Steer (1994) believed that the aim of motivation is to help worker to enhance productivity, improve efficiency and enhance performance of overall organizational. Garut SMEs need to propose new strategies that motivate employees to reach their optimum potential. Malhotra (2021) argue that Managers need to be more pay attention on "intrinsically motivated" workers through the right intrinsic motivators that will be to be essential for organizations in the future. intrinsic motivation may drive what an individual chooses to work on and with whom. The greater the number of dependents of the family, the greater the cost of living that must be met by the head of the family. This is a trigger for workers to be more active in providing for their family's needs (Sari and Rauf, 2020)

B. Work Environment

Due to descriptive analysis results work environment variabel is considered quite good in terms of the dimensions of the physical and non-physical work environment, this is evidenced by respondents regarding lighting in the workplace that is not good for eye health, color schemes in the workspace that are not supportive, good equipment but still traditional, relationships between co-workers who at certain times are sometimes good, sometimes not good, usually there are differences of opinion when employees are working together in carrying out their work activities, as well as comfort at work, this is due to the pungent odor that comes from the leather, although this is a risk for employees, but there are still some employees who are disturbed by the smell of it. Notoatmodjo (2009) argue that factors involved in the work environment include lighting,odor and Noise. Because of that, manager need to enhance their work environment. Nitisemito (2010) that the work environment is everything that is around the worker that can affect in carrying out the tasks he carries out. Employees will not work well and effectively if they are not supported by a adequate work environment.

C. Work Productivity

Based on the descriptive analysis, it is known that the respondents' assessment of work productivity at Leather SMEs Company is considered quite good, this is evidenced by the respondents' responses regarding the quality of work considered quite good, meaning that some employees carry out work activities in accordance with the quality determined by the company. it's about timeliness in carrying out work is considered quite good too, meaning that it is sometimes right sometimes also exceeds the specified time limit, this is evidenced during an interview if the employee has not completed his work, then the employee works beyond the time limit determined by the company. The response regarding carrying out work immediately, this can be said to be quite good, because sometimes employees are slow in carrying out work activities, this is due to a lack of motivation from the leadership. In addition, regarding initiative and self-confidence in work, it is considered quite good, this has not been fully carried out by employees.

D. The Influence of Motivation and Work Environment on Work Productivity

Based on the results of the hypothesis test, the F-count value is 277.977 and the F-table is 3.3541. Thus, comparing the two values, it is concluded that F-count 277.977 > F-table 3.3541, the conclusion is that H0 is rejected, meaning that there is a positive effect. significant relationship between motivation and work environment on work productivity. Then reinforced by productivity theory. One of the factors supporting success in achieving productivity is motivation. Theoretically, Fahmi (2016) suggests that motivation and productivity are interrelated parts of each other. Increased motivation will affect work productivity, and vice versa. This means that empirical data supports the theory that high productivity can be achieved and supported by employees who have high motivation. Motivation is very important to note as a driver so that employees are enthusiastic in carrying out work activities. If employees have high morale, it will certainly produce optimal performance and productivity

achievement will be achieved. And make a good contribution to the success of organizational goals. Apart from motivation, the determining factor for success in achieving work productivity is the work environment. A good and conducive work environment will provide a sense of security, comfort, and enable employees to work optimally. While a bad work environment will cause employee dissatisfaction so that it will affect employee performance which will have an impact on employee work productivity. The work environment has an influence on work productivity. Companies must realize that to increase employee productivity, it is necessary to maximize a good and conducive and adequate work environment.   .

From the results of the hypothesis test, the t-count value is 3.193 and the t-table value is 1.701, thus comparing the two values, it is concluded that t-count 3.193 > t-table 1.701 then the conclusion is H0 is rejected, meaning that there is a significant positive effect between motivation on work productivity. Similar f inding also found by Lutfi (2014) motivational variables simultaneously and partially influencing the employee performance. Then reinforced by Hasibuan's motivation theory (2012) that the purpose of motivation is to stimulate and encourage individuals to work more actively, effectively and efficiently in order to achieve company goals. In general, one of the goals to be achieved from providing motivation is to increase employee productivity. So the provision of motivation is very important in order to provide good feedback for the company. Lamsah (2018) argue the motivation given by business actors to employees is proven to increase employee job satisfaction and can directly improve the performance of SMEs.

From the results of hypothesis testing, the t-count value is 5.174 and the t-table value is 5.701. Thus, comparing the two values, it is concluded that t-count 5.174 > t-table 1.701, the conclusion is H0 is rejected, meaning that there is a significant positive influence between the environment work on work productivity. The result is in line with Cahya et al (20211) work environment has a positive and significant effect on employee performance. Then reinforced by the theory of the work environment Sedarmayanti (2015) The condition of the work environment can be said to be good if employees can carry out their work in a healthy, safe and comfortable manner. An unfavorable work environment can demand more manpower and time and does not support obtaining an efficient work system.The main purpose of regulating the work environment is to increase company productivity. Therefore, the provision of good working environment facilities is sufficient, lest the workforce feel too pampered at work, so that the results achieved are not as expected. In this regard, the planning and regulation of the work environment cannot be ignored, because it affects the company's operations.

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on the analysis results that has been done, then some conclusions can be drawn as follows that Motivation and Work Environment simultaneously able to explain changes in Work Produktivity of SMEs Leather Craft Employee. While, independently both Motivation and Work Environment have an influence on Work Produktivity

B. Recommendation

    a. In proving an increase in work productivity, further research is needed by adding other different variables or using a different analysis

    b. The Owner or manager of SMEs in Garut need to pay more attention to their worker need such as providing incentives, health insurance and promotions for employees who excel in order to generate high motivation and achieve higher productivity, besides that in terms of the work environment the company must facilitate the work environment as well as possible so that employees feel comfortable at work so as not to hinder the work process carried out by employees

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Analysis Of The Influence Of Monetary Policy On Inflation In Indonesia, 1997-2021.

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Abstract
Inflation can be defined as a general and continuous increase in the price of goods and services over a certain period of time. Deflation is the opposite of inflation, which is a general and continuous decline in the price of goods.This study analyzes the case of inflation in Indonesia, the underlying reason for this study is the problem of rising price levels (inflation) is a classic problem in the economy. This study aims to analyze the influence of each variable in the model on inflation. In this study using OLS regression with data sources from the Central Statistics Agency. the variable used is inflation which is the dependent variable and the variable is the money supply, exchange rate, Foreign Investment, bi rate. In the regression model, it is known that the variable exchange rate and Bi Rate affect inflation in Indonesia in 1997-2021. It is known that the test F is 0.0000 which means that the variables of the money supply, exchange rate, Foreign Investment, Bi Rate on inflation are known. R-Square is 0.871261 or 87.12%, influenced by variables in the model and the remaining 12.88% influenced by variables outside the model.

Keywords— Bi Rate, Exchange Rate, Foreign Investment, Inflation, Money Supply

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I. INTRODUCTION

Inflation is a problem that haunts the economy of every country. ever-increasing developments put a drag on economic growth in a better direction. Economic development is an effort to improve the standard of living of society which is often measured through the high and low income of the population each year or per capita income.

Inflation is a monetary phenomenon which is a process of price increase, namely the tendency that prices increase continuously. This does not mean that the prices of various goods go up by the same percentage. The increase may not be at the same time. Most importantly, there is a continuous increase in the general price of goods during a certain period, the price increase that occurs only once (albeit with a considerable percentage) is not inflation, unless reflected in the state of excess supply money. While from the real sector, inflation is caused by the demand for goods against the offer (excess demand for goods). Inflation is the tendency of prices to attract generally and continuously (Boediono, 2005:155).

How to prevent inflation according to Saputra, (2016) is by using policies related to the increase in production including monetary policy, fiscal policy, output policy and pricing policy and indexing. Interest rates are a benchmark for a country's economic activities that can affect the turnover of banking financial flows, inflation, investment and currency movements in a country. In raising and lowering interest rates must take sides and prioritize the welfare of the people in the country (Kurniasari, 2011).

Inflation in Indonesia is likened to an endemic disease and is rooted in history. Inflation in Indonesia had reached its highest level during the time of President Sukarno, because fiscal and monetary policies were not at all prudent (money needs to be printed). In Suharto's time, the government tried to suppress inflation, but it could not be below 10% a year on average, among others because Bank Indonesia still has a dual mission, one of which is as an agent of development that can disburse unlimited liquidity loans. When in the reform period, starting with the Habibie government, the function of Bank Indonesia prioritizes the preservation of the value of the rupiah. However, history and because people's inflationary expectations reflect history, core inflation is still greater than 5% a year. Signs of Indonesia's economy is declining is in 1997 where that was the beginning of the crisis. Mid-1997 Indonesia experienced an economic crisis due to the weakening of the rupiah exchange rate against the United States dollar and reached a low point up to Rp. 18,000-per US$ in 1998. After the crisis in 1997, Indonesia reached its highest peak inflation rate of 77.63%. Inflation occurs due to increased speculation on the exchange rate and soaring market demand due to price uncertainty. However, inflation decreased dramatically to 2.01% in 1999, while in 2000 the inflation rate then jumped again and exceeded the target of 9.35%. In general, from 1998 to 2021 (research period) Indonesia has experienced rising and falling inflation. With the highest inflation rate in 1998 at 77.63% and the lowest inflation rate was in 1999 with an inflation rate of 2.01%.

Table 1. Inflation rate Data for 1997-2021

Year	Inflation rate
1997	11,1
1998	77,6
1999	2
2000	9,4
2001	12,55
2002	10,03
2003	5,16
2004	6,4
2005	17,11
2006	6,6
2007	6,59
2008	11,06
2009	2,78
2010	6,96
2011	3,79
2012	4,3
2013	8,38
2014	8,36
2015	3,35
2016	3,02
2017	3,61
2018	3,13
2019	2,72
2020	1,68
2021	1,87

Source: BPS

Indonesia as a country with an open economy that cooperates in trade with foreign countries is very affected by inflation that occurs with its trading partner countries. When inflation in other countries increases, it will affect its own imports and domestic prices. When the price of imported goods increases, domestic prices will increase also because of the high cost of imported goods as raw materials for production, especially goods that cannot be produced by a country. Interest rate is one indicator of healthy or unhealthy economic condition of a country. High and low interest rates will greatly affect the economy. High interest rates will encourage investors to invest in banks instead of investing in higher-risk industrial sectors so that inflation can be controlled. Conversely, when interest rates fall, people are more likely to hold money rather than save in banks that cause the money supply to increase. This causes the price of goods to increase.

The money supply is the responsibility of the monetary system and must be controlled so that the amount in circulation is not too much or less than the economic capacity of a country which consists of cash plus cash and quasi money (BPS, 2019).

II. LITERATURE REVIEW

A. *Money Supply*

The money supply includes kertal money in circulation, giral money, and quasi money. Kartal money is money issued by the Central Bank consisting of banknotes and coins. There kartal money goes to the state treasury. The emergence of giral money and kartal money comes from money circulated by the central bank, because the money circulated is held by the public partly for the purpose of consumption and partly for the purpose of saving or saving. The money supply consists of kartal money and giral money alone is commonly referred to as the money supply in the narrow sense (M1). The money supply consisting of kartal money, giral money, and quasi money is commonly referred to as the money supply in the broad sense (M2). The money supply M2 is a sum of m1 and M2 and quasi money (Soeratno, 2004:164).

When public demand for goods (aggregate demand) increases (for example due to increased government enforcement financed by printing money, or increased foreign demand for export goods, or increased private investment spending due to cheap credit), the general price level will increase. The price level is one of the factors that determine the demand for money (money demand). The price increase will then drive up the amount of money demanded by the public. In the end, the economy will reach a new equilibrium, when the amount of money demanded is again balanced with the amount of money circulated. An explanation that describes how price levels are determined and change as the money supply changes is called the quantity theory of money. Based on this theory, the amount of money in circulation in an economy determines the value of money, while the growth of the money supply is the cause of inflation.

B. Exchange Rate

The exchange rate of a currency or exchange rate is a comparison of the value of a country's currency against the currency of other foreign countries (Thobarry, 2009). Another definition of a currency exchange rate (exchange rate) is the exchange between two different currencies, that is, the comparison of the value or price of a currency between the two different currencies. The exchange rate usually changes, the change can be in the form of depreciation or appreciation. Depreciation of the Rupiah against the US Dollar means a decrease in the price of the Rupiah against the US Dollar, while the appreciation of the Rupiah against the US Dollar is an increase in the price of the Rupiah against the US Dollar (Anwary, 2011:17).

Exchange rate systems can be classified according to the rate at which the exchange rate is controlled by the government. Exchange rate systems usually fall into one of the following categories, namely fixed exchange rate, freely floating exchange rate, managed float exchange rate, pegged exchange rate (Madura,2010:171).

The balance of the currency exchange rate will change at any time according to changes in the demand and supply of that currency. Thus, the factors that affect the change in demand and supply of the currency will also affect the fluctuations in the exchange rate of the currency. Factors that affect the fluctuation of the currency exchange rate of a country with other countries, namely (Madura, 2010:99).

C. Foreign Investment

Foreign investment (PMA) is a form of investment by building, buying a total or acquiring a company. Investment in Indonesia is established through law no.25 year 2007 on investment Aing (PMA). Foreign investment in this law is the activity of investing capital to conduct business in the territory of the Republic of Indonesia carried out by foreign investors, either using foreign capital entirely or in cooperation with domestic investors (Article 1 of law no.25 of 2007 on investment).

Foreign investment (PMA) or foreign investment is the activity of capital flows obtained from outside parties moving into the field of Foreign Investment. The United Nations Conference on Trade and Development (UNCTAD) defines foreign investment as investments carried out by companies in the country against companies in other countries for the purposes of managing company operations in that country (Arifin et al, 2008 in Fadilah, 2017).

According to Ma'ruf and Wihastuti (2008), endogenous growth theory explains that investment in physical capital and Human Capital play a role in determining long-term economic growth. The government's contribution to economic growth can be explained through its influence in making changes in consumption or expenditure on public investment and receipts from taxes (Ma'ruf and Wihastuti, 2008). This group of theories also considers that the existence of infrastructure, laws and regulations, political stability, government policies, bureaucracy, and the basis of international exchange as important factors that also affect economic growth (Ma'ruf and Wihastuti, 2008).

Foreign Direct Investment (FDI) occurs when a company from one country invests its capital in a long period of time to a company in another country. The country of origin of the company that invests the capital is called host country while the country where the intended investment is called home country (Igamo, 2015).

D. BI Interest Rate

According to Cashmere (2014: 14) a Bank is a business entity that collects funds from the public in the form of deposits and distributes them back to the public in the form of credit and or other forms in order to improve the standard of living of the people. While the banking business includes three activities, namely collecting funds, distributing funds, and providing other bank services. The activities of collecting and distributing funds are the main activities of the bank while providing other bank services are only supporting activities.

The implementation of credit activities of all banks operating in Indonesia must follow the rules set by Bank Indonesia (BI) as a bank supervisory institution. One of them is the determination of interest rates, where the implementation of banking loans is based on the benchmark interest rate issued by Bank Indonesia through the Bank Indonesia Rate.

According to Cashmere (2013: 114) understanding loan interest rate is the interest given to the borrower or the price to be paid by the borrower customer to the bank. According to Irham Fahmi (2013: 88) the understanding of the loan interest rate is the amount of money required to the party who borrowed it with a calculation based on the percentage and done based on the period of time specified.

Interest rates play several important roles in the economy, Rose (2006: 115) namely: 1. Interest rates help ensure deposits can flow to investment to support economic growth. 2. Interest rates distribute funds to eligible credits, providing borrowed funds to investment projects that generate the highest estimated rate of return. 3. Interest rates bring the supply of funds into balance with the demand for funds from the public. 4. S interest rate as an important tool for the government to influence the amount of deposits and investments. If economic growth is very slow and unemployment increases, then the government can use its policy by lowering interest rates in order to stimulate lending and investment. On the other hand, if the economy experiences a high inflation rate, the government uses its policy to raise interest rates to slow down lending and investment rates to increase deposits.

III. RESEARCH METHODOLOGY

This study will observe the effect of monetary policy on inflation in Indonesia, using multiple regression analysis tools

$$INF_t = JUB_t + KURS_t + INV_t + SBI_t + \varepsilon_t$$

INF = Inflation

JUB = Money supply

INV = Foreign Investment

SBI = SBI interest rate

ε = Error Term

β_0 = Constant

$\beta_1, . \beta_4$ = Independent variable regression coefficient

t = Year to t

IV. RESULT / FINDING

This study uses multiple linear regression method. Multiple linear regression test is done to determine how much influence the independent variable to the dependent variable. This test uses the Ordinary Least Square (OLS) method with the Eviews 10 application.

The results of multiple linear regression the relationship between the variables money supply, PMA, exchange rate, BI interest rate to inflation obtained the following results:

Table 2. Multiple Linear Regression Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-27.71337	7.088344	-3.909709	0.0010
JUB	5.05E-06	6.99E-06	0.722441	0.4793
KURS	0.001820	0.000924	1.970273	0.0644
PMA	-0.000315	0.000363	-0.867195	0.3972
BI_RATE	2.038714	0.224861	9.066537	0.0000
R-Squared	0.871261			
F-Statistic	0.000001			

Source: Eviews Output Results

Based on the results of the regression test in the table above, the equation can be written as follows:

INF = -27.71337 + 5.05 E-06 JUB + 0.001820 exchange rate-0.000315 PMA + 2.038714 Bi Rate. The value of the Jub coefficient of 5.05 E-06 which means that the Jub increases every 1 unit will increase inflation by 5.05 e - 06 units, the value of the exchange coefficient of 0.001820 which means that the exchange rate increases every 1 unit will increase inflation by 0.001820 units, and the value of the PMA coefficient of-0.000315 which means that the PMA increases every 1 unit will decrease inflation by 0.000315 units. The value of the BI rate coefficient is 2.038714 which means that the Bi Rate increases every 1 unit, it will increase inflation by 2.038714 units.

Classical Assumption Test
  a) *Normality Test*

Table 3. Normality Test Results

Jarque Bera	0,921383
Probability	0,630847

Source: Eviews Output Results

Based on the test results in the table above, it is known that the probability value of $0.630847 > 0.05$ (UTC) and the value of Jarque Bera is $0.921383 < 2$ which means that the data in this study is normally distributed.

  b) *Autocorrelation Test*

Prob. F(4,14)	0,7665
Prob. Chi-Square (4)	0,0678

Source: Eviews Output Results

Based on the test results in the table above, it is known that the probability value of chi-square is $0.0678 > 0.05$ (UTC) which means that there is no autocorrelation problem in this research

  c) *Multicollinearity Test Data*

Table 4. Multicollinearity Test Results

Variable	Nilai VIF
C	NA
JUB	6.437375
KURS	3.433691
PMA	7.140107
BI_RATE	1.668426

Source: Eviews Output Results

Based on the test results in the table above, it is known that the value of VIF for variable JUB, exchange rate, PMA, BI rate value of VIF < 10 which means that there is no multicollienarity problem in this research.

d) Heteroscedasticity Test Data

Table 5. Heteroscedasticity Test Results

Prob. F(14,8)	0,0288
Prob. Chi-Square(14)	0,9472

Source: Eviews Output Results

Based on the test results in the table above, it is known that the probability value of chi-square is 0.9472 > 0.05 (UTC) which means that there is no problem of heteroskedasticity in this research data.

V. DISCUSSION

a.   In the regression model, it is known that the exchange rate and interest rate variables affect inflation in Indonesia in 1997-2019. Known test F of 0.0000 means the variable money supply, exchange rate, Foreign Investment, Bi Rate to inflation. R-Square is 0.871261 or 87.12%, meaning 87.12% is influenced by variables in the model and the remaining 12.88% is influenced by variables outside the model.

b.   In this OLS regression the value of VIF > 10 is stated that there is no multicolonearity problem in the prediction model.

c.   The result of normality Residua test is 0.921383 with P value of 0.630847 > 0.05 so that h0 is accepted. Which means that the residual attribution is normal

d.   Note the value of prob Chi Squaare is equal to 0.6175 > 0.05 so that h0 is received which means there is no problem of serial auto corelasi.

e.   At the value of OBS R square is equal to 0.1275 < 0.05 then H0 is rejected which means that modelregresi is heterokedasticity

f.   T-statistic test

Table 6. t-statistical test results

Variable	t-Statistic	Prob.
C	-3.909709	0.0010
JUB	0.722441	0.4793
KURS	1.970273	0.0644
PMA	-0.867195	0.3972
BI_RATE	9.066537	0.0000

Source: Eviews Output Results

Based on the results of testing the probability of variable JUB of 0.4793 > 0.10 (UTC) which means that the JUB has no significant effect on inflation. The results of the test are known that the value of the probability of the exchange rate of 0.0644 < 0.10 (UTC) which means that the exchange rate has a significant effect on inflation. The results of the test is known that the probability value of PMA is 0.3972 > 0.10 (ironic) which means that PMA has no significant effect on inflation. The results of the test are known that the BI-rate probability value of 0.0000 < 0.01 (UTC) which means that the bi rate has a significant effect on inflation.

F-statistical test

g.   Based on the results of the test, it is known that the probability value of F is 0.000000 < 0.05 (UTC) which means that JUB, exchange rate, PMA, BI RATE jointly affect inflation.Koefisien Determinasi (R-Squared)

The test results obtained R-squared value of 0.871261 which means the variable JUB, exchange rate, PMA and BI RATE can affect the inflation variable of 87.12% and the rest of 12.88% explained by other factors that are not contained in this study.

VI. CONCLUSION AND RECOMMENDATION

Inflation is a problem that haunts the economy of every country. ever-increasing developments put a drag on economic growth in a better direction. Economic development is an effort to improve the standard of living of society which is often measured through the high and low income of the population each year or per capita income.. the results of the probability test variable JUB is 0.4793 > 0.10 (UTC) which means that the JUB has no significant effect on inflation. The results of the test are known that the value of the probability of the exchange rate of 0.0644 < 0.10 (UTC) which means that the exchange rate has a significant effect on inflation. The results of the test is known that the probability value of PMA is 0.3972 > 0.10 (ironic) which means that PMA has no significant effect on inflation. The results of the test are known that the BI-rate probability value of 0.0000 < 0.01 (UTC) which means that the bi rate has a significant effect on inflation. the test results are known that the probability value of F is 0.000000. The test results obtained R-squared value of 0.871261

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Determinants Of The Human Development Index In Central Kalimantan Province

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Abstract

The Human Development Index is a way of measuring how far humanity has progressed. Considering Central Kalimantan Province is located in eastern Indonesia, it has weaknesses in its efforts to enhance human life quality. The government's efforts to improve the quality of human life are attempting year after year, yet the results demonstrate that the human development index remains deficient. The aim of the research is to see how the Human Development Index is determined by factors including poverty percentage, primary sector GRDP, secondary sector GRDP, and tertiary sector GRDP. Panel data analysis was used as the analytical approach in this study. The focus of this study is Central Kalimantan Province, and it is based on secondary data from the Central Agency on Statistics. The Fixed Effect Model was chosen as the model based on the test results for optimum model selection. According to the findings of this study, the poverty percentage, primary sector GRDP, and tertiary sector GRDP all have a significant effect on the Human Development Index in Central Kalimantan during 2010 to 2020. The secondary sector's GRDP has no effects on the human development index. For example, in the manufacturing sector, there are challenges, such as low human resource quality in grasping current processing technologies and the majority of the workers having only completed elementary school. Because it directly affects the development of human resources and societal welfare, the secondary sector requires additional focus.

Keywords— Human Development Index; poverty percentage; primary sector GRDP; secondary sector GRDP; tertiary sector GRDP

I. INTRODUCTION

In general, life welfare is described as a cycle that includes a variety of dimensions of basic human living in community groups, lifestyle, and social connections, all of which result in a better state of being (Sari & Pratiwi, 2018). The quality of human resources is reflected in an increase in educational Figs, an increase in the quality of health services in an equal manner, and an improvement in the economy of a region. The Human Development Report, which was originally published in 1990, has introduced innovative strategies for improving human well-being that are superior than economic growth. The focus of human growth or advancement is more on the wealth of human life than the riches of human affluence. The human progress approach gradually came to the realization that monetary indicators of progress, such as GDP per capita, were insufficient. The human development index (HDI) was created in the inaugural human development report as a measure of performance in the fundamental areas of human development amongst nations (Çağlayan-akay & Van, 2017).

The Human Development Index is a widely utilized measurement by governments around the world today (HDI). The Human Development Index is interpreted by the Central Agency on Statistics as a representation of how the people might acquire development outcomes such as income, health, education, and etc. A basic 3-dimensional approach to human development includes a long and healthy life, knowledge, and a reasonable level of living. Life expectancy at birth is used to represent the health dimension, while indicators of average length of schooling and school expectations are used to represent the education dimension, and adjusted per capita expenditure is used to represent the decent living standards dimension.

The province of Central Kalimantan is located in Indonesia's eastern region, and it has flaws in its efforts to improve human life quality. The government's efforts to improve the quality of human life have been ongoing year after year, yet the results demonstrate that the human development index remains low. When examined nationwide in 2021, the Central Kalimantan Human Development Index as a whole attained high rank. However, when the data is broken down by district/city, there is still a discrepancy, as shown in Table 1.

Table 1: Human Development Index by Central Kalimantan District/City (2019-2021)

District/City	[New Method] Human Development Index by District/City		
	2019	2020	2021
Central Kalimantan	70,91	71,05	71,25
West Kotawaringin	72,85	72,87	73,07
East Kotawaringin	71,16	71,31	71,38
Kapuas	69,38	69,48	69,63
South Barito	70,1	70,22	70,54
North Barito	70,52	70,59	70,79
Sukamara	67,95	68,03	68,27
Lamandau	70,51	70,51	70,58
Seruyan	67,57	67,58	67,67
Katingan	68,55	68,68	68,89
Pulang Pisau	68,34	68,45	68,53
Gunung Mas	70,65	70,81	71,03
East Barito	71,34	71,39	71,47
Murung Raya	67,89	67,98	68,12
Palangka Raya	80,77	80,77	80,82

Source: BPS Kalteng several editions, processed

Palangka Raya City is the only region with a such a high HDI rating (80.82). This is impacted by Palangka Raya's role as the capital of Central Kalimantan Province, which means that this region has better infrastructure and community welfare guarantees than other areas in Central Kalimantan. Seruyan Regency, on the other side, has the lowest HDI score in Central Kalimantan Province, with a score of 67.67. Seruyan Regency is a new territory formed through regional expansion, therefore it is still in the process of regional development; in other words, the low HDI statistic is the result of programs in the three essential dimensions that have yielded few results. In terms of education, people who got education up to the high school level or its equivalent had a lower average population than those who had education at the elementary and junior high school levels. This is owing to a lack of access to education, high costs, and a desire to provide for one's family (Kanwil DJPb Kalteng, 2021).

Based on the foregoing, this research will look at the effect of the percentage of people living in poverty, primary sector GRDP, secondary sector GRDP, and tertiary sector GRDP on the Human Development Index of Central Kalimantan Province during 2010 to 2020.

This study varies from earlier studies in two ways. The first has to do with the time frame for the observation. The panel data analysis approach is typically used for studies on human development that last under ten years. The study covered the years 2010 through 2020. Second, the GRDP variables for the primary, secondary, and tertiary sectors become variables that are tested using the approach. The average GRDP variable utilized in earlier studies only accounts for GRDP per capita, GRDP overall, and just one specific economic sector. As a result, the Province of Central Kalimantan acquired the alternative information required to determine which aspects may be developed and concentrated on to create prosperity.

II. LITERATURE REVIEW

A. Grand Theory

In order to realize quality of community life, social welfare, as according Zastrow (2000), is a system that consists of programs and services that assist individuals in addressing fundamental requirements including social, economic, educational, and health (Kresna, 2019). In accordance with the goals of families and society, the United Nations further defined social welfare as organized activities aimed at assisting people or communities in meeting their fundamental requirements. According to Nasikun (1993), the indicators of a sense of security, welfare, freedom, and identity show that the idea of welfare has the same meaning as the concept of human dignity (Rosni, 2017).

There are quite a lot of success indicators that may be used to gauge a person's quality of life. The community's standard of living, as evidenced by reduced poverty, improved health, the attainment of a high level of education,

and an increase in local output, serves as a proxy for welfare for the lower-middle class. The improvement in the lower middle class community's income level is reflected in each of these metrics (Thomas, 2005).

B. Poverty and Human Development Index

Poverty is considered as a multidimensional problem that is difficult to quantify, so it is vital to agree on the method of measurement. The ability to meet basic requirements is a notion that is widely used by many countries around the world. Suhariyanto, (2011) defines poverty as an inability to meet fundamental food and non-food needs due to a lack of resources. Food commodities contribute approximately three-quarters of the poverty line. The phenomena of rising food prices has the potential of reducing consumption of healthy food, as low-income people are forced to try and eat within economical expenses, among other things by lowering the quality of the food consumed (Pudjianto & Syawie, 2015). Poor food quality contributes to the prevalence of malnourished people, and it has the potential to distort the quality of human resources as a result of suboptimal human development achievements. As a result, it is possible to state that poverty and human development have an inverted or negative relationship. As according Panjaitan & Nasution, (2015) the percentage of people living in poverty has a significant and negative relationship with the human development index achievement in North Tapanuli. A reduction in the poverty rate will have an impact on the region's human development achievements.

C. GRDP and Human Development Index

The Gross Regional Domestic Product (GRDP) is a measure of economic growth that can be used to characterize the state of a community's well-being. Simon Kuznets proposes that high output per capita is one of the criteria of a country's economic progress. (Todaro & Smith, 2006). High output growth causes changes in consumption in terms of people's purchasing power, which is the per capita economic growth in question. In other words, rising economic growth will raise output per capita and alter consumption patterns (in this case, boosting people's purchasing power). People's purchasing power is one of the dimensions of human development, therefore their high purchasing power has the ability to raise the Human Development Index. As a result, in theory, GRDP and human development are positively or directly proportional. Based on its findings, Bangun, (2020) indicates that GRDP has a positive impact on the Human Development Index in North Sumatra. Zamruddin Hasid, (2019) concluded, claiming that the Agricultural Sector's GRDP has an impact on the HDI in West Sulawesi and contributes significantly to the establishment of regional GRDP.

III. RESEARCH METHODOLOGY

A. Research Instruments

Using secondary data obtained from information documentation from the Central Agency on Statistics and analyzed with a quantitative approach, this study aims to investigate the effect of the Poverty Percentage, Primary Sector GRDP, Secondary Sector GRDP, and Tertiary Sector GRDP on the Human Development Index. Fig 1 illustrates the research design.
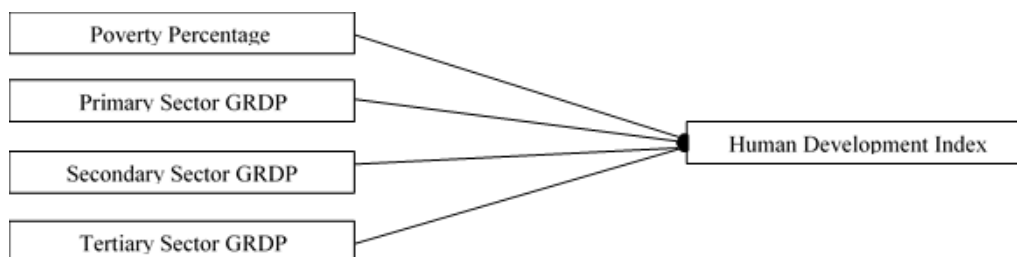
Fig 1. Research Design

B. Research Instruments

Quantitative data methodologies are used in the research instrument. For the years 2010-2020, secondary data was gathered from the Central Agency on Statistics. The Human Development Index is the study's dependent variable. The poverty percentage, primary sector GRDP, secondary sector GRDP, and tertiary sector GRDP are all independent variables in this study.

Table 2. Definition of Variables

Variable	Definition
Human Development Index	A instrument for interpreting human development achievements based on the fundamental characteristics of living standards. The HDI of Central Kalimantan Province was calculated for the period 2010-2020. The data was gathered from the Central Kalimantan BPS's official website.
Poverty Percentage	The percentage of people living on the poverty line, or simply the proportion of people who are poor. The unit of measurement is the percentage.
Primary Sector GRDP	A sector that generates exclusively natural resources, such as land and everything on it, rather than processing raw materials. This sector includes agriculture, as well as mining and quarrying. The GRDP is calculated using constant pricing per line of business from 2010. Millions of rupiah are the unit of measurement.
Secondary Sector GRDP	The industry that transforms raw resources from the primary and secondary sectors into higher-value commodities. Buildings, manufacturing, and electricity, gas, and water supply are all included in this sector. The GRDP is presented using 2010 constant prices per business field. The unit of measurement is million rupiah..
Tertiary Sector GRDP	A sector whose output is in the form of services rather than physical goods. Trade, hotel and restaurant sector, transportation and communication sector, finance sector, rental and enterprise services sector, and services sector are all included in this sector. The GRDP is presented using 2010 constant prices per business field. The unit of measurement is million rupiah.

C. Data Analysis Technical

To acquire the regression findings, the study data was analyzed using the EViews 10 application. The Human Development Index was used to evaluate economic wellbeing in this study, and it also served as the dependent variable. The Poverty Percentage, Primary Sector GRDP, Secondary Sector GRDP, and Tertiary Sector GRDP are assumed to influence the Human Development Index of Central Kalimantan Province. In general, the panel regression model's formula is as follows:

$$IPM_{it} = \beta_0 + \beta_1 POV_{it} + \beta_2 logPDRB\ PRIM_{it} + \beta_3 logPDRB\ SEK_{it} + \beta_4 logPDRB\ TER_{it} + \varepsilon_{it}$$

Where :

IPM	= Human Development Index
Pov	= Poverty Percentage (percent)
$PDRB\ PRIM$	= Primary Sector GRDP (million rupiah)
$PDRB\ SEK$	= Secondary Sector GRDP (million rupiah)
$PDRB\ TER$	= Secondary Sector GRDP (million rupiah)
log	= Logarithmic operators based on e
ε	= Error term
β_0	= Constant
$\beta_1 \beta_2 \beta_3 \beta_4$	= Independent variable regression coefficient
i	= Observation in the region of i
t	= t-year period

IV. RESULT / FINDING

A. Chow Test

The chow test is used to assess whether of the Common Effect Model and the Fixed Effect Model is the best to utilize. If the probability value of Cross-section F and Cross-section Chi-square > 0.05, the F-Stat/Chow test is approved, and the regression model chosen is the Common Effect Model (CEM). H0 is rejected if the probability value of Cross-section F and Cross-section Chi-square is less than 0.05, and the regression model selected is Fixed Effect Model (FEM).

Table 3. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	246.308525	(13,136)	0.0000
Cross-section Chi-square	492.873221	13	0.0000

Source: The author used Eviews to process the data, 2022.

Based on the results of the Chow test in Table 3, the probability value is 0.0000 < 0.05, implying that the Fixed Effect model is the preferred model.

B. Hausman Test

The Hausman test compares the Fixed Effect Model and the Random Effect Model in order to determine which is the best. If the probability value of a random cross-section > 0.05, Hausman's test conditions are met, and H0 is accepted. The regression model used is the Random Effect Model (REM). H0 is rejected if the random cross-section probability value is less than 0.05. The Fixed Effect Model was chosen as the regression model (FEM).

Table 4. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.024786	4	0.0000

Source: The author used Eviews to process the data, 2022

Table 4 shows that the probability value for the Hausman test is 0.0000 < 0.05, indicating that the model chosen is the Fixed Effect Model.

C. t-Test

The partial coefficient test, often known as the t-test, is used to measure the significance of an independent variable's influence on a dependent variable. If the P-value > then H0 is acceptable for the partial coefficient / t test, indicating that the independent variable has no influence on the dependent variable. H0 is rejected if the P-value is less than one, indicating that the independent variable has an influence on the dependent variable.

Table 5. Results of t-Test / Partial Coefficient

Variable	Prob.	P-value	Description
Pov	0,0157	$P < 0,05$	Significant
Log(PDRB_primer)	0,0009	$P < 0,05$	Significant
Log(PDRB_sekunder)	0,7011	$P > 0,05$	Not Significant
Log(PDRB_tersier)	0.0002	$P < 0,05$	Significant

Source: The author used Eviews to process the data, 2022

The t-test findings in Table 5 reveal that the variables of poverty percentage, primary sector GRDP, and tertiary sector GRDP all have an influence on the Human Development Index individually.

D. F Test

The F test was used to see if the independent factors had an influence on the dependent variable at the same time (simultaneously). If the P-value $> \alpha$, the criteria for accepting H0 is that the independent variables have no influence on the dependent variable simultaneously (simultaneously). When the H0 condition is rejected, i.e. when the P-value is less than α, it implies that the independent variable has a simultaneous effect on the dependent variable (simultaneously).

Table 6. F-Test Results

Variable	Prob (F-Statistic)	Criteria	Conclusion
Pov, log(PDRB_primer), log(PDRB_sekunder), log(PDRB_tersier)	0,000000	$P < 0,05$	Take effect

The probability value (F-Statistic) of the F test in the table is 0.000000 < 0.05, indicating that the variables poverty percentage, primary sector GRDP, secondary sector GRDP, and tertiary sector GRDP all have an influence on the Human Development Index simultaneously time.

E. Determination Coefficient Test (R^2)

According to Widarjono, the Coefficient of Determination (R-Squared) test was used to explain the proportion of variance explained by the independent variable. The coefficient of determination is a number that runs from 0 to 1. The closer you get to one model, the better, since it demonstrates how appropriate or appropriate a regression line is and how much the independent variable's change may explain the dependent variable's variation.

Table 7. Coefficient of Determination Test Results (R^2)

R-square	Adjusted R-square	S.E. of Regression
0,987261	0,985669	0,459375

Source: The author used Eviews to process the data, 2022

Table 7 shows that the variables poverty percentage, primary sector GRDP, and tertiary sector GRDP have an effects of 98.73 percent on the Human Development Index, whereas factors outside the model had an effects of 1.27 percent.

F. Test for Significance of Regression Coefficients

Because this analysis integrates time series data represented by observations from 2010 to 2020 with cross section data representing all districts/cities in Central Kalimantan, the panel data approach was adopted. Table 8 shows the outcomes of panel data analysis regression using the chosen model approach.

Table 8. Regression Results of Selected Model FEM

Variabel	Coefficient	Std. Error	t-Statistic	Prob.
C	-54.22142	6.519891	-8.316309	0.0000
Pov	-0.220140	0.090008	-2.445781	0.0157
Log (PDRB_primer)	3.895725	1.144615	3.403524	0.0009
Log (PDRB_sekunder)	0.399192	1.037919	0.384608	0.7011
Log (PDRB_tersier)	4.353975	1.126589	3.864742	0.0002

Source: The author used Eviews to process the data, 2022

V. DISCUSSION

A. The Effects of Poverty Percentages on The Human Development Index

With a coefficient of 0.220140, the poverty percentage has a negative influence on the human development index in the province of Central Kalimantan throughout the 2010-2020 period, according to the regression results in Table 8. This indicates that if the percentage of people in poverty rises by 1%, the human development index will decrease by 0.220140. This finding is in line with Panjaitan & Nasution, (2015) research, "Application of Path Analysis in Analyzing Factors Affecting the Human Development Index of North Tapanuli Regency," which concluded that when the poverty percentage increases, the human development index decreases. Arafat et al., (2020) published research titled "Factors Affecting the Human Development Index in Central Kalimantan Province" that indicated that in cateris paribus conditions, if the percentage of poverty decreased, the human development index would increase in average.

According to the Central Agency on Statistics, the percentage of people in poverty in Central Kalimantan has been declining since March 2021, and it now ranks fifth lowest in the country, down from 5.94 percent to 5.16 percent. The government claims that through implementing different social assistance programs such as financial aid and non-monetary support in the form of expenditure on basic needs, it has been successful in eliminating poverty in Central Kalimantan (RRI, 2021). On the other side, the Human Development Index for September 2021 increased by 71.25 points, with complete support from all dimensions. Human development in Central Kalimantan is continuing to advance, as seen by the trend over the previous decade. Although, because to the Covid-19 epidemic, there was a slowdown in 2020 (Gumi, 2021).

B. The Effect of Primary Sector GRDP on Human Development Index

With a regression coefficient of 3.895725, the primary sector GRDP variable has a positive effect on the human development index of Central Kalimantan over the 2010-2020 period, as shown in Table 8. This indicates that if the primary sector's GRDP increases by 1 million rupiah, the human development index increases by 3.895725 as well. This finding is also supported by previous research conducted by Utama et al., (2015) under the title "The Influence of GRDP, Capital Expenditures, and Poverty on the Human Development Index (Case Study: Ex. Residency Besuki)," which found that GRDP has a significant impact on the human development index in the former Besuki Residency area.

The primary sector GRDP has an impact on the human development index in Central Kalimantan since farming and oil palm plantation are the main sources of income for the inhabitants of Central Kalimantan. Meanwhile, most people in the Katingan region, particularly in Central Katingan, work as farmers and miners in the mining and quarrying industry. Gold and puya (red zircon sand) are the most common mining products (Kanwil DJPb Kalteng, 2021).

C. The Effect of Secondary Sector GDP on Human Development Index

In Central Kalimantan, the secondary sector's GRDP has no effects on the human development index. For example, in the manufacturing sector, there are challenges, such as low human resource quality in grasping current processing technologies and the majority of the workers having only completed elementary school (Bappenas, 2016). Furthermore, the electrical industry in Central Kalimantan is still plagued by supply issues. Central Kalimantan power plants are part of the Central Kalimantan energy system, which is still heavily reliant on supplies from South Kalimantan. Meanwhile, current power capacity is still insufficient to fulfill the demands of two provinces. As a result, in Central Kalimantan, blackouts are a typical occurrence (MMCKalteng, 2019).

D. The Effect of Tertiary Sector GDP on Human Development Index

With a regression coefficient of 4.353975, the tertiary sector GRDP variable has a positive effect on the human development index of Central Kalimantan over the 2010-2020 period, as shown in Table 8. In other words, if the tertiary sector's GRDP increases by 1 million rupiah, the human development index improves by 4.353975. The tertiary sector's GRDP has an impact on the human development index considering sectors including wholesale and retail trade, repair and car maintenance are the second largest absorbers of labor, accounting for 17.50 percent. Government Administration, Defense, and Mandatory Social Security are the third-largest contributors, accounting for 7.66 percent of the total (Kanwil DJPb Kalteng, 2021).

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on the findings and discussions mentioned in a previous step, it is possible to conclude: (1) The Fixed Effect Model was chosen as the model. (2) The results of the t-test show that the variables of poverty percentage, primary sector GRDP, and tertiary sector GRDP individually have an impact on the Human Development Index. (3) Poverty percentage, primary sector GRDP, secondary sector GRDP, and tertiary sector GRDP all impact the Human Development Index simultaneously time. (4) The variables poverty percentage, primary sector GRDP, and tertiary sector GRDP have an effects of 98.73 percent on the Human Development Index, whereas factors outside the model had an effects of 1.27 percent. (5) With a coefficient of 0.220140, the poverty percentage has a negative influence on the human development index in the province of Central Kalimantan throughout the 2010-2020 period, according to the regression results in Table 8. (6) With a regression coefficient of 3.895725, the primary sector GRDP variable has a positive effect on the human development index of Central Kalimantan over the 2010-2020 period, as shown in Table 8. This indicates that if the primary sector's GRDP increases by 1 million rupiah, the human development index increases by 3.895725 as well. (7) In Central Kalimantan, the secondary sector's GRDP has no effects on the human development index. For example, in the manufacturing sector, there are challenges, such as low human resource quality in grasping current processing technologies and the majority of the workers having only completed elementary school. (8) With a regression coefficient of 4.353975, the tertiary sector GRDP variable has a positive effect on the human development index of Central Kalimantan over the 2010-2020 period, as shown in Table 8. In other words, if the tertiary sector's GRDP increases by 1 million rupiah, the human development index improves by 4.353975.

B. Recommendation

The government of Central Kalimantan has to focus more on the secondary sector, which consists of buildings, the manufacturing industrial sector, as well as the energy, gas, and clean water sectors. The capacity of facilities like power, internet, gas, and clean water must be improved in order to promote the growth of high-quality human resources and enhance community welfare. As a result, human growth may be made sustainable.

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Categorization Of Digital Cooperative Features Using Kano Model

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Abstract

Cooperatives that initially carried out their organizational activities manually began to need to digitize their organizational activities. The transformation of cooperatives into digital cooperatives is because of the demand to serve the needs of better data and report management from an increasing number of members and support the business lines that cooperatives carry out to provide more significant benefits for cooperatives and their members. eKopz, as a student startup, answers this need by collaborating with a cooperative financial partner who needs a digital service platform. The research wants to understand and satisfy eKopz consumers by prioritizing the features classifications available on the eKopz platform. This study uses the Kano Model to determine the degree of priority classification of all the features available in the market today, then confirms it to several administrators and members of cooperatives in the city of Bandung. The result shows that no features fall into the Must-be category, which means that the currently available digital cooperative platform is considered a nice-to-have application. The rest of features are Performance and Attractive features dominantly. Insights from research can help eKopz and similar businesses find and research killer features that make a high urgency of adopting a digital cooperative platform.

Keywords—digital cooperative; data and report management; Kano Model; marketplace platform

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I. INTRODUCTION

A Cooperative is an organization that all members own, and each member has one vote in the election of the board of directors in the cooperative. Cooperatives offer a variety of services aimed at serving their members. Operationally, cooperatives differ from economic activity, how management and its members interact. There are various classifications of cooperatives, ranging from financial cooperatives, consumer cooperatives, worker cooperatives, producer or marketing cooperatives, housing cooperatives, and other types of cooperatives adapted to their members (Cook and Chaddad, 2004). The type of financial cooperative is the most dominant in Indonesia, covering 70% of the total number of cooperatives. Financial cooperatives offer financial services for their members, such as saving members' monthly dues, deposit taking, and loans. The benefits offered are to provide lower loan interest than bank interest for members who make loans to cooperatives and give the best return in the form of residual profits—business at the end of the operating year.

Along the way, several financial cooperatives with many members began to diversify by carrying out several business activities that benefited the cooperative. This cooperative began selling daily necessities that members could buy through the cooperative and sold services and products to external parties outside of the cooperative's members. In operational and financial monitoring, this cooperative begins to require the support of digital tools for data and report management and even requires an online platform to reach members and externals in their business lines that sell cooperative products and services. Financial cooperatives and other cooperatives are considering adopting digital tools and transforming them into digital cooperatives to be more competitive and effective in member operations and services. On the other hand, the Government of the Republic of Indonesia, through the Ministry of Cooperatives and Small and Medium Enterprises, promotes digital cooperative programs in all cooperatives in Indonesia.

Ekopz is a students' startup in a private university in Bandung that provides data management and reporting services for manual cooperatives to become digital cooperatives and provides an online sales platform. Besides eKopz, several startup companies offer data management services like eKopz for cooperatives, such as Nectico, Medina, Kodi, Olah, and Smartcoop. In their second year this year, eKopz already has a financial cooperative owned by a large organization in Bandung as a client on a pilot project that will adopt the eKopz digital cooperative platform. This client is a hybrid cooperative that started as a financial cooperative and then also as a consumer cooperative by selling goods for their members and external parties. In this pilot project, eKopz understands the cooperative's demands and needs for the addition and improvement of features to be carried out continuously to satisfy its customers. This project is also significant so that eKopz can compete with similar companies in the future. Currently, eKopz needs to understand their client and other potential cooperatives to provide better value

propositions through features in the application that align with the data and report management and marketplace platform needs for selling cooperatives' products.

Digital cooperatives must provide ease of use for members, management, and external stakeholders in using the application because of the integrated system. This research wants to understand the features needed in the application platform for data management services and cooperative reports. This case will classify the various available features in the market provided by competitors and the attributes built and developed by eKopz in the current pilot project. This study uses the Kano method to confirm and classify several collected features to the administrators and members of several cooperatives in the city of Bandung. It is rare to find research that discusses cooperatives in terms of the digital features needed to become a modern cooperative. The Kano method has the advantage of classifying items or features based on the degree that is considered satisfactory for the targeted consumers (Chaddad & Cook, 2004). The priority framework provided by the Kano model can be a valuable input for eKopz to focus on building and developing their digital platform now and in the future.

II. LITERATURE REVIEW

A. Digital Cooperative

A cooperative system was recognized in 1844 in England, named Rochdale Society of Equitable Pioneers. Cooperatives are self-governing organizations with democratic characters to meet the members' needs and promote social equity (Mojtahed, 2007). A cooperative is an organization owned by its members with a specific purpose or a consensus to benefit its member (Sexton and Iskow, 1993). Cooperatives have several reasons and goals that emphasize cooperation for mutual benefit and base, avoiding competition and selfishness in their activities. Cooperative has its business role, many different types, and functions in society and economy (The Role of Cooperatives in Business).

Cooperatives are the pillars of the Indonesian economy and are also considered an appropriate economic model. It is also a driver of potential financial resources for the welfare of members and society. Cooperatives prioritize common interests and provide welfare to members and organizations. In addition, it also contributes significantly to the economy (one of which contributes to GDP, employment, increased exports, income distribution). The cooperative principles adopted in Indonesia are open and voluntary membership, democratic control, limited interest and share capital, the proportion of surplus distribution, cash trading, education and training, political and religious neutrality. The Ministry of Cooperatives and SMEs of Indonesia is prioritizing the cooperative modernization agenda by consistently overseeing the achievement of the target of 500 modern cooperatives by 2024 (The Minister of Cooperative & Small Medium Enterprise, 2020) by transforming them into digital cooperatives. Digital cooperatives are considered a challenge for today in facing the all-digital era of the industrial revolution 4.0.

B. Features in Digital Cooperative Application

Digitalization in cooperatives is by integrating business processes that maximize performance capabilities and resource utilization. Cooperative is unique because it is a sharing economy with various stakeholders and multi-dimensional performance. According to the ministry's report, the current condition of cooperatives in Indonesia is that, on average, 50% of cooperatives are inactive, and the rest are active. However, their condition is not operationally and business healthy. This information came through the measurement of collective performance, which must be reported by each cooperative to the government. The results show resource gaps, low data accuracy, less attractive for young people to join, less efficient work. These conditions demand the support of digital tools or platforms that can improve cooperative performance, such as having more accurate transactions, monitoring and reporting speed, integration between functions and units, and having simpler business processes (The Minister of Cooperative & Small Medium Enterprise, 2020).

Digital cooperatives must support by essential features that are useful for cooperative management to meet the needs of every cooperative, starting from the requirements of data archiving, administrative records, bookkeeping, reports, and calculating the patronage refund, including for other purposes by external stakeholders. Digital cooperatives can provide solutions for managing cooperative information needed by cooperative management to dashboards for stakeholders, from membership, various transactions, reporting systems to cooperative performance appraisals [6]. Digital cooperatives must provide convenience for all cooperative activities for members, administrators, and external stakeholders at any time and situation.

C. The Kano Model

The Kano model uses two dimensions, namely in terms of satisfaction to functionality by Noriaki Kano (Kano, 1984), who initiated the Kano Model framework in 1984. The Satisfaction dimension uses levels from delight and excitement to total dissatisfaction, namely frustration from consumers. Dimensions of functionality, called an

investment, implementation, or sophistication, means how much consumers will get from a given feature, how well these features were implemented, and how much invested in its development; this dimension is measured from none to none the best level. These two dimensions in the Kano Model will jointly determine how consumers feel about the product's features.

Kano's model uses four categories based on how consumers react to the available functionality levels. The first category is Must-be, a product feature expected by consumers, but if it is not available, the product is considered incomplete or just plain wrong. The Must-be feature is also often referred to as Basic Expectation, which means that consumers need the must-be features to be available but does not satisfy consumers. If this feature is not available, consumers will be dissatisfied, as is the make calls function on the phone. Companies need to ensure that the basic level of expectation of the product has been achieved so that it does not require further investment for this must-be feature. The second category is One-Dimensional or Performance, which is considered a feature that gives satisfaction to consumers; where this feature is better or more widely available, the more satisfied consumers will be. The consequence is that adding more functionalities means the more significant the investment and resources required. The third category is Attractive or an unexpected feature, i.e., if it is available, it can cause a positive reaction. The reaction that arises from the feature is that it has a scale from mild appeal to absolute delight, which can be said to be something attractive. Consumers can perceive attractive features as an excellent reason to come and buy them. Companies can invest in each feature at a certain point without over-killing the feature. The fourth category is Indifferent, or which we feel indifferent. The presence or absence of this feature in the product will not make a real difference to consumers' reactions. Knowing features that fall into the indifferent category means helping companies to see that no matter how much effort is put into those features, consumers will not care about them. Not throwing investment funds into this feature is considered a money sink. There is a fundamental fact that Kano categories of features can change over time; they are not static

III. RESEARCH METHODOLOGY

This study wants to understand the degree of application features on the digital cooperative platform into a prioritization framework. The method chosen is descriptive quantitative using a survey by following the rules in the Kano Model. This study uses three steps: selecting features that came from incumbents in digital applications for cooperation and eKopz's features. The second step is getting data from potential customers, which are chosen respondents (users); they are administrators and members of several cooperatives because they will become users of the application that consists of 3 cooperatives (19 of cooperative's members and 19 from the administrators, the total was 38 respondents). All possible feature turned into the list of questions is provided in table 2. The last step is analyzing the results from the discrete and continuous analysis.

Kano model aims to categorize the attributes of a product or service based on how well the product can meet customer needs. The Kano model focuses on reducing product features focused on customer needs. The Kano model also maps customer responses in the questionnaire. The mapping can produce answers according to service attributes divided into six categories, as shown in Fig 1 and Table 1 below.
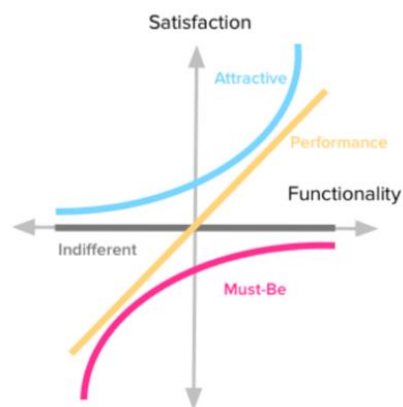
Fig 1. Kano Diagram (taleproduction.com)

Table 1. The Kano Model Evaluation Table

Customer requirements →		Dysfunctional (negative) question				
↓		1. like	2. must be	3. neutral	4. live with	5. dislike
Functional (positive) question	1. like	Q	A	A	A	O
	2. must-be	R	I	I	I	M
	3. neutral	R	I	I	I	M
	4. live with	R	I	I	I	M
	5. dislike	R	R	R	R	Q

Customer requirement is ...

A: Attractive   **O:** One-dimensional
M: Must-be   **Q:** Questionable
R: Reverse   **I:** Indifferent

Source: Burchill (1993)

The questionnaire has two kinds of questions: functional and dysfunctional questions to determine customers' perceptions of the product's attributes. The functional question form (positive) asks about how customers feel if they have the feature, and the Dysfunctional question form (negative) asks customers' feelings if they don't have the feature or the absence of the functionality (Moorman, 2013). The possible answer that customers or respondents can choose is I like it, expect it, neutral, tolerate it, and dislike it (Burchill, 1993). Their answer to those two questions will allow us to categorize each feature.

The results of questionnaire data collection were transferred to the evaluation table to determine the criteria for each attribute. The evaluation table combines all answers from the functional dan dysfunctional questions in its rows and columns, as seen in table 1. Using this question format, we make every answer pair lead to one of those categories. The two questions can then be classified into six categories, namely: A = Attractive, M = Must-be, O = One-dimensional, I = Indifferent, R = Reverse, and Q = Questionable. Reverse (R) would be better if the system did not exist or probably not interested in feature offering. Questionable (Q) indicates that the attributes assessed by respondents are inconsistent or respondents showed conflicting responses.
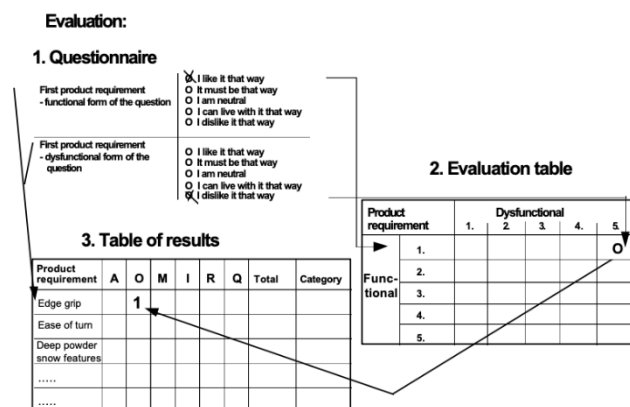
Fig 2. The Kano Evaluation Process Discrete Analysis (Burchill (1993))

We tested the questionnaire to check the validity and reliability of all functional and dysfunctional questions. The results showed all 18 features have r-count $\geq 0{,}320$, with n = 38, = 0.05 and the value of r (0.05,38) from the distribution table of values = 0.320.

We examine the results with two levels of analysis: discrete and continuous. We used two methods due to the lack of standard procedures and how they help map respondents' responses to Kano categories. The discrete analysis starts the overall result's sense and the simplest way to work in the Kano Model by categorizing all answers using the evaluation table, then tallying the total answers in each category for each feature, finding the most frequent response. The last is the following rule (left most wins): Must-be > Performance > Attractive > Indifferent.

The continuous analysis (Du Mochel, 1993) translated answers into a numerical value from -2 to 4 of the potential satisfaction scale. The higher the number, the more answers suggest how much the respondent wants the feature. The Functional's response scale is -2 (Dislike), -1 (Live with), 0 (Neutral), 2 (Must-be), 4 (Like); and Dysfunctional scale is -2 (Like), -1 (Must be), 0 (Neutral), 2 (Live with), 4 (Dislike). The continuous analysis helps to weaken the Reverse and Questionable answers and more positive end for Must-be and Performance feature; also, it does not need a standard evaluation table like in discrete output. The output of the continuous analysis is a two-dimensional plane on its positive quadrant (the strongest responses). The prioritization rule of thumbs in continuous is the same with discrete analysis

IV. RESULT / FINDING

This research collects up to 18 attributes from 38 respondents who have filled out the questionnaire completely.

Table 2. Digital Cooperation's Features Were Checked Using the Kano Model Questionnaires

Feature Code	Description
X1	Automated financial reports
X2	Automatic transaction reports
X3	Import list of members
X4	Adding members or administrators
X5	Member verification
X6	Edit member information.
X7	Admin access rights
X8	Loan approval
X9	Online billing notification.
X10	Automatic the patronage refund report
X11	Real-time deposit balance information
X12	Bill payment top-up information.
X13	Online loan application.
X14	Save reminder notification
X15	Financial report information
X16	Public online shop
X17	News about cooperative activities
X18	News about cooperative finance

Source: Authors' data analysis, 2022

After calculating and weighing the responses obtained from the questionnaire, the results of the discrete analysis can be seen in Table III below. It tells that all features do not have the Must-be attributes. It shows sixteen attributes are Attractive features, one attribute X11 real-time deposit balance information is a Performance feature, and X1 automated financial report is an Indifferent feature. The performance feature means that X11 real-time deposit balance information is the one the customers like and dislike not having.

None of the Must-be or basic features found means those respondents dislike not having them, or they go from bearing to expecting to have those features. The linear Performance graph inferred that the X11 could be more detailed or better in the respondent's perspectives. There are sixteen Attractive features assumed respondents like to have those features that are not expected at this time. We have one indifferent feature, X1 automated financial reports, that respondents felt no real difference in their response; most respondents' answers where I am neutral, or I can tolerate it.

Table 3. Discrete Output

FEATURES	M	P	A	I	R	Q	CATEGORY
X1: Automated financial reports	7,5%	20,0%	27,5%	32,5%	5,0%	7,5%	I
X2: Automatic transaction reports	5,0%	27,5%	42,5%	17,5%	7,5%	0,0%	A
X3: Import list of members	10,0%	22,5%	42,5%	10,0%	7,5%	7,5%	A
X4: Adding members or administrators	10,0%	22,5%	37,5%	25,0%	0,0%	5,0%	A
X5: Member verification	12,5%	15,0%	45,0%	27,5%	0,0%	0,0%	A
X6: Edit member information.	12,5%	25,0%	42,5%	15,0%	0,0%	5,0%	A
X7: Admin access rights	10,0%	12,5%	42,5%	25,0%	5,0%	5,0%	A
X8: Loan approval	15,0%	25,0%	30,0%	27,5%	2,5%	0,0%	A
X9: Online billing notification.	0,0%	17,5%	40,0%	32,5%	7,5%	2,5%	A
X10: Automatic the patronage refund report	10,0%	22,5%	37,5%	17,5%	7,5%	5,0%	A
X11: Real-time deposit balance information	15,0%	30,0%	30,0%	22,5%	2,5%	0,0%	P
X12: Bill payment top-up information.	5,0%	25,0%	35,0%	30,0%	2,5%	2,5%	A
X13: Online loan application.	5,0%	22,5%	35,0%	25,0%	5,0%	7,5%	A
X14: Save reminder notification	7,5%	20,0%	45,0%	20,0%	2,5%	5,0%	A
X15: Financial report information	25,0%	30,0%	32,5%	10,0%	0,0%	2,5%	A
X16: Public online shop	2,5%	12,5%	40,0%	37,5%	7,5%	0,0%	A
X17: News about cooperative activities	7,5%	25,0%	42,5%	22,5%	2,5%	0,0%	A
X18: News about cooperative finance	10,0%	22,5%	45,0%	20,0%	0,0%	2,5%	A

Source: Authors' data analysis, 2022

Features or attributes that appear in digital cooperative applications are almost the same as applications used by business companies. It turns out that for cooperatives, features that can assist in reporting and monitoring their business activities are considered not mandatory. These attributes are deemed not included in the Must-Be or basic features, as is the case in business companies that consider them a must-have attribute. The absence of attributes in Must-Be means a product that does not attract consumers' attention. The urgency of its existence is still considered low and viewed as a delighter product. This result is like another research conducted by (Sisilia & Peranginangin, 2019) which compares non-formal education products with formal ones where non-formal products do not have Must-Be attributes. They are considered only as product delighters by consumers.

Table 4. Continuous Output

FEATURES	Dysfunctional (X-Axis)	Functional (Y-Axis)	CATEGORY
X1: Automated financial reports	1,89	2,92	A
X2: Automatic transaction reports	2,03	3,18	P
X3: Import list of members	2,27	2,84	P
X4: Adding members or administrators	2,11	3,00	P
X5: Member verification	2,00	2,80	A
X6: Edit member information.	2,16	3,32	P
X7: Admin access rights	1,82	2,68	A
X8: Loan approval	2,25	2,85	P
X9: Online billing notification.	1,46	2,56	A
X10: Automatic the patronage refund report	2,16	2,58	P
X11: Real-time deposit balance information	2,45	3,00	P
X12: Bill payment top-up information.	1,90	2,79	A
X13: Online loan application.	2,11	2,70	P
X14: Save reminder notification	2,16	3,11	P
X15: Financial report information	2,87	3,18	P
X16: Public online shop	1,20	2,25	A
X17: News about cooperative activities	2,18	3,10	P
X18: News about cooperative finance	2,10	3,28	P

Source: Authors' data analysis, 2022
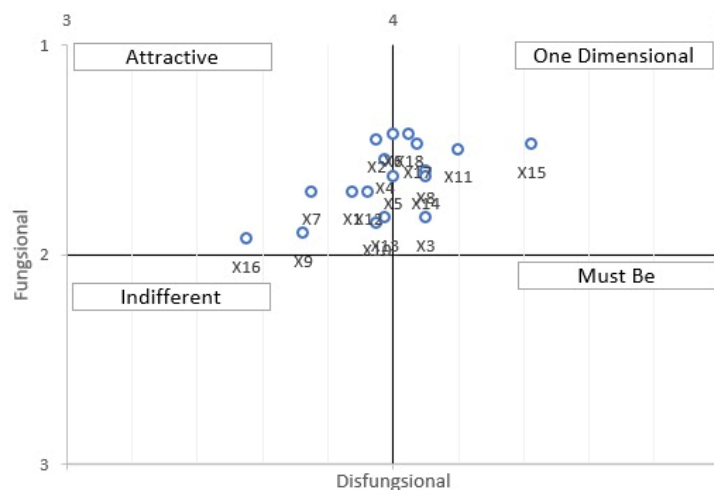
Fig 3. Continuous Output (Authors' data analysis, 2022)

V. DISCUSSION

As shown in table 4 and fig. 3 above were results from continuous analysis where several attributes are spread across the Attractive and One-Dimensional or Performance zones. There are still none for Must-be feature, twelve (X2, X3, X4, X6, X8, X10, X11, X13, X14, X15, X17, and X18) of Performance features, six (X1, X5, X7, X9, X12, and X16) of Attractive feature, and none of the Indifferent attribute were found in this study.

Table 5. The Different Output from Discrete and Continuous Analysis

Features	Discrete Output	Continuous Output
X1: Automated financial reports	I	A

X2: Automatic transaction reports	**A**	**P**
X3: Import list of members	**A**	**P**
X4: Adding members or administrators	**A**	**P**
X5: Member verification	A	A
X6: Edit member information.	**A**	**P**
X7: Admin access rights	A	A
X8: Loan approval	**A**	**P**
X9: Online billing notification.	A	A
X10: Automatic the patronage refund report	**A**	**P**
X11: Real-time deposit balance information	**P**	**P**
X12: Bill payment top-up information.	A	A
X13: Online loan application.	**A**	**P**
X14: Save reminder notification	**A**	**P**
X15: Financial report information	**A**	**P**
X16: Public online shop	A	A
X17: News about cooperative activities	**A**	**P**
X18: News about cooperative finance	**A**	**P**

Source: Authors' data analysis, 2022

Table 5 shows the difference output from two data analysis methods in Kano Model: Discrete and Continuous analysis (Zacarias, 2015). The first level for understanding the results of data analysis is provided by discrete analysis. After the same data was analyzed using the continuous method with a scale of -2 to 4, it further strengthened the positive value towards the must-be zone (follow the rule: Must-be > Performance > Attractive > Indifferent). Eleven attractive features in discrete analysis become Performance features in the continuous method. Thus, the eleven Performance features are that consumers think they like having it in cooperative digital applications and do not like it if it is unavailable. Fig 1 of the Performance feature shows a linear reaction relationship between the satisfaction and functional dimensions; The context of "more is better" in the Performance features is what consumers expect, if not over-killing those features. The same thing also happens to X1 in the discrete output, which is Indifferent and becomes an Attractive feature in the continuous output. The rest are still in the same output category between the discrete and continuous analysis results

VI. CONCLUSION AND RECOMMENDATION

Kano model output tells eKopz about chosen attributes to be developed. The Kano categorization that appears is the dominant feature in the Performance and Attractive categories. eKopz can focus on investing its resources to build and provide Performance features to satisfy its customers. Maintaining Attractive features helps to be a positive reaction to attract potential consumers. Although the basic or Must-be features have not appeared when this research is conducted, eKopz can consider several Performance features for further investigation so that they can rise to the Must-be level.

The limitation of this study is that it is limited to three large cooperatives in the Bandung region with a relatively small number of respondents. The results obtained today can provide an initial overview of academics and stakeholders who need information on manual cooperatives migrating into digital cooperatives.

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Analysis of the Wage, Investment, Human Development Index, and Number of Industry on Labor Productivity in East Java Province 2016-2020

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Abstract

Labor productivity is a description of the output produced by each worker in a certain year. Labor productivity is one indicator to measure economic performance in a region. This study aims to estimate the effect of regional minimum wages, investment, human development index, and number of industries on labor productivity in districts or cities in East Java province during the 2016-2020 period. The data used in this study is secondary data that is quantitative in nature obtained from the Badan Pusat Statistik (BPS). The data analysis method used is panel data regression which combines time series data and cross section data. The results with the Fixed Effects Model (FEM) approach show that the number of industries has a negative effect on labor productivity. Meanwhile, the regional minimum wage, investment, and human development index have no effect on labor productivity in districts or cities in East Java province during the 2016-2020 period.

Keywords— regional minimum wage; investment; human development index; number of industries; labor productivity.

I. INTRODUCTION

Manpower is one of the important factors in economic development in developing countries such as Indonesia, improving the quality of labor will increase production and the economy which is very important for the achievement of community welfare. Labor productivity is related to the welfare of the workforce. Increasing labor productivity can increase income, so that welfare can be achieved (Indra *et al*., 2017).

Sari & Oktora (2021), Labor productivity describes the output produced by each worker in a certain year. The higher the productivity, the more productive the workforce is, so that economic growth can be achieved if the availability of reliable and quality labor is available. In addition, labor productivity is also one of the indicators used to measure progress towards achieving the Sustainable Development Goals (SDGs) on the eighth point, namely promoting inclusive and sustainable economic growth, productive and comprehensive employment opportunities, and decent work for everyone.

East Java is one of the provinces in Indonesia which has a rapidly growing economic activity. This region has various natural, economic, and socio-cultural resources which are a challenge and also an obstacle in achieving equitable economic development in East Java Province. According to Badan Pusat Statistik (BPS), the number of workers in East Java Province in 2020 reached 20,962,967 people. This high number of workers is a challenge for the East Java government to maximize labor productivity in order to achieve the desired economic growth. The measure of labor productivity can be calculated from the amount of GRDP per worker in an economic activity. Labor productivity in East Java Province in 2016-2020 is presented in Table 1.

Table 1. Labor Productivity in East Java Province

Year	Number of Manpower (Person)	GRDP (Million Rupiah)	Productivity (Million Rupiah/Person)
2016	18449854	1386443090	75,15
2017	19014273	1424066080	74,89
2018	19735051	1548451430	78,46
2019	19909379	1634456380	82,09
2020	19833978	1578010560	79,56

Source: Badan Pusat Statistik, (2021) processed

Based on Table 1., it can be seen that labor productivity in East Java Province reached the highest in 2019 of 82.09 million/person. However, in the following year it fell to 79.56 million/person. This is due to the efficiency of the workforce carried out by the company because its business or production is affected by the Covid-19 pandemic. In addition, this pandemic has also reduced various economic activities in each region, so that economic performance has declined in various sectors.

Various factors can affect labor productivity in an area, one of which is the applicable minimum wage. Wage policy has become an important issue in employment issues in several developed and developing countries. The purpose of the wage policy is to cover the living needs of the workers. Thus, the minimum wage policy can increase labor productivity, because it can be an encouragement or encouragement to work, especially if wages are high (Sari & Oktora, 2021).

The next factor that is thought to have an effect on labor productivity is capital or investment. Sufficient capital will lead to economic growth and will improve people's welfare. Capital or Investment can make a better contribution to the process of development and economic growth. Direct investment can encourage the economy in a region, this will increase people's income and consumption levels in the region. Companies will respond to the increasing number of requests by increasing their workforce in order to increase their production output. Thus, labor productivity will also increase (Putri & Soelistyo, 2018).

In addition to wages and capital, the Human Development Index (HDI) is also thought to have an effect on labor productivity. HDI is an important indicator to measure success in efforts to build the quality of human life, HDI can determine the ranking or level of development of a region. Thus, if the HDI in an area is high, then the quality of human beings is also high, so that they are able to carry out productive activities well and labor productivity will also increase. (Todaro & Smith, 2003).

The last factor is the number of industries, an increase in the number of companies in an area that produces the same goods is expected to increase the amount of production so that the value of output in an area will increase. The company will increase its production capacity with a certain amount of capital. Likewise with the workforce, if the workforce used by the company is large, it will produce greater output, so that the productivity of its workforce will also increase (Sari & Oktora, 2021).

The purpose of this study is to estimate the direction and magnitude of the effect of the minimum wage, investment value, human development index, and number of industries on labor productivity in all districts or cities in East Java Province in 2016-2020 with using panel data regression.

II. Literature Review

Economic development and development is strongly influenced by labor productivity in the region. Productivity is one of the indicators used to assess the development performance of a region. In addition, labor productivity is one of the keys to promoting economic growth and increasing the standard of living of a region. The high absorption of labor that is not followed by poor productivity will lead to a low standard of living of workers. On the other hand, high employment absorption followed by high labor productivity will drive the economy to be more advanced (Todaro & Smith, 2003).

Badan Pusat Statistik (2021), labor productivity is the comparison between a work achieved (output) with the overall resources used (input) to increase economic growth and achieve national development targets. Mishkin (2012), argues that labor productivity is a comparison of the results achieved from the role of labor per unit time, so that labor productivity is simply a measure of the effectiveness of labor in producing products in a certain time unit. In addition, labor productivity is also used as an indicator of the welfare of an economy. According to Mishkin (2012), productivity is very important for a country, because a country's ability to increase its standard of living over time depends almost entirely on its ability to increase output per worker. Increased productivity can be driven by increasing working hours, training, education, income or remuneration, job security guarantees, as well as comfortable, safe and healthy working conditions.

During the 2009-2012 period in Malaysia, Nahar et al. (2015), using panel data regression with the Fixed Effects approach found that human capital has a positive effect on labor productivity. Fadillah et al. (2020) also found that the provincial minimum wage had a positive effect on labor productivity, while the HDI had no effect on labor productivity in Indonesia in 2014-2019. Meanwhile, Sari & Oktora (2021) found that wages and the human development index had a positive effect on labor productivity in all provinces on the island of Java in 2010-2015. Katovich & Maia (2018) using a Random Effects Model (REM), found that the minimum wage had a positive effect on labor productivity in Brazil in 1996-2014. Rahman & Octaviani (2020) found that life expectancy had an effect on labor productivity Indonesia in 2011-2015.

Samargandi (2018) in 1980-2014 in Middle East and North Africa (MENA), using Ordinary Least Square (OLS) regression analysis found that human capital (education and health) had a positive influence on labor productivity. Putri & Hasmarini (2021) found that education and the minimum wage had a positive effect on the labor productivity of the Jenang Industry in Kudus in 2020. Meanwhile, Rahmadi et al. (2019) also found that wages had a positive effect on labor productivity in Muara Enim Regency in 2017.

Based on the theoretical basis and the results of previous research, the hypothesis in this study is that all independent variables in this study, namely the regency or city minimum wage, investment, Human Development Index (HDI), and number of industries have a positive effect on labor productivity in all regencies or cities in East Java Province 2016-2020.

III. RESEARCH METHODOLOGY

The dependent variable in this study is labor productivity in each Regency or City in East Java Province in 2016-2020. Labor productivity is calculated through the ratio of GRDP to 2010 constant prices divided by the number of workers. The unit for this variable is million rupiah per person. Meanwhile, the independent variables used in this study are 1. regency or city minimum wage, investment, Human Development Index (HDI), and number of industries. Source of data obtained from Badan Pusat Statistik.

This study will observe the direction and magnitude of the influence of HDI, investment, minimum wage, and the number of industries on labor productivity in each Regency or City in East Java Province in 2016-2020 using panel data regression analysis with the following equation:

$$logPTK_{it} = \beta_0 + \beta_1 logIPM_{it} + \beta_2 logINV_{it} + \beta_3 logUMK_{it} + \beta_4 logJI_{it} + \varepsilon_{it} \tag{1}$$

which:

PTK	= Labor Productivity (Million Rupiah/Life)
IPM	= Human Development Index (Index)
INV	= Investment (Rupiah)
UMK	= Regency or City Minimum Wage (Rupiah)
JI	= Number of Industries (Units)
log	= Logarithmic Operators
ε	= Error term
β_0	= Constant
$\beta_1 \dots \beta_4$	= Independent variable regression coefficient
i	= cross section
t	= time series

IV. RESULT / FINDING

The results of panel data regression estimation using the Common Effects Model (CEM), Fixed Effects Model (FEM), and Random Effects Model (REM) approaches along with the selection of the best estimator model using the Chow Test and Hausman Test are presented in Table 2 below:

Table 2. Econometric Model Estimation Results

Variable	CEM		FEM		REM	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-24.277	0.000	11.387	0.085	-10.201	0.002
Log(IPM)	4.624	0.000	-2.535	0.223	3.421	0.001
Log(INV)	0.011	0.463	-0.004	0.557	0.000	0.977
Log(UMK)	0.570	0.004	0.299	0.116	-0.035	0.760
Log(JI)	0.035	0.443	-0.190	0.008	0.037	0.439
R^2	0.492		0.972		0.102	
Adj. R^2	0.481		0.964		0.082	
F-stat.	44.629		122.573		5.203	

| Prob.(F-stat) | 0.000 | 0.000 | 0.001 |

Model Selection Test:

(1)   Chow
Cross-section F(37, 147) = 66.983; Prob. F = 0.000

(2)   Hausman
Cross-section random $\chi^2(4)$ = 29.855; Prob. χ^2 = 0.000

Source: EViews regression output results, processed.

Based on the results of the model selection test, it is known that the selected model is the Fixed Effects Model (FEM). The results of the complete FEM estimation are presented in Table 3.

Table 3. Estimated Results of Fixed Effects Model

$$logPTK_{it} = 11{,}387 - 2{,}535\ logIPM_{it} - 0{,}004\ logINV_{it} + 0{,}299\ logUMK_{it} - 0{,}190\ logJI_{it}$$
$$(0{,}008)^*$$

R^2 = 0,972; DW = 2,779; F-stat = 122,573; Prob.(F-stat) = 0,000

Source: EViews regression output results, processed. Note: *Significant at = 0,01; ** Significant at = 0,05; *** Significant at = 0,10.

The fit statistic shows that the model exists, as can be seen from the empirical probability F statistic, which is 0.000 (< 0.01), with R^2 of 0.972. This means that overall the independent variables, HDI, investment, minimum wage, and number of industries are able to explain 97.2% of the variation in labor productivity.

Separately, only the number of industries has a significant effect on labor productivity with an empirical probability t of 0.008 (< 0.01). The variables HDI, investment, minimum wage have no significant effect on labor productivity, because they have an empirical probability of 0.223 (> 0.10); 0.557 (> 0.10); and 0.116 (> 0.10).

The variable number of industries has a regression coefficient of -0.19. The pattern of the relationship between the number of industries and labor productivity is logarithmic, so that if the number of industries increases by 1%, then labor productivity will decrease by 0.19%.

V. DISCUSSION

Based on the results of the validity of the effect, HDI has no effect on labor productivity in every region in East Java in 2016-2020. This result contradicts the research hypothesis which states that HDI has a positive effect on labor productivity. However, this result is in line with the findings of Yuniasih et al. (2013) which states that human capital has no effect on labor productivity. East Java Province is one of the major provinces in Indonesia, East Java is also the largest contributor to Gross Domestic Product in Indonesia. However, high economic performance only occurs in areas with advanced industries such as the Residency of Surabaya. This is in contrast to coastal areas such as in Ngawi and Pacitan where in these areas still rely on traditional economies such as the fisheries and agriculture sectors which have not been managed optimally, this condition is exacerbated by the low level of health and education infrastructure development, so that the HDI in this region tends to low and human quality has no effect on labor productivity.

The results of the t-test in this study stated that investment had no effect on labor productivity. Similar to the HDI, investment realization in East Java is only concentrated in areas with high economic performance. Meanwhile, in coastal areas, the investment value is still low, so that this disparity in investment between regions results in not all regions having sufficient capital to spur their economy and in the end the productivity of their workforce is not affected by investment. The results of this study are in line with the research of Baskoro et al. (2019) which states that the realization of foreign investment has no effect on labor productivity in the industrial sector in Indonesia.

The results of this study state that the minimum wage has no effect on labor productivity in East Java in 2016-2020. These results contradict the results of research by Battacharya et al. (2011) which states that real wages have a positive effect on labor productivity. Wages are an important part of driving labor productivity. With adequate wages, it will motivate workers to be more active in work and can be used to fulfill body nutrition so that their health is maintained. However, the condition of the workforce in most areas in East Java is still working

in the informal sector such as agriculture and plantations, so that the size of the wage does not affect labor productivity.

Based on the results of the validity of the effect, the variable number of industries was found to have a negative effect on labor productivity. Industry is an important role for the community's economy because industry is able to absorb a large workforce and can increase the GDP of a region. In practice, in terms of industrial capital, it is divided into two, namely capital-intensive industries and labor-intensive industries. Capital-intensive industry is an indicator that capital production has a greater ability than labor, so that the utilization of the latest technology is more than the labor used, so that high production output does not require a large number of workers. The results of this study are supported by the findings of Qu & Cai (2011) which states that the high number of capital-intensive industries in China actually reduces labor productivity in the industrial sector in the country.

VI. CONCLUSION AND RECOMMENDATION

Based on the data analysis that has been carried out using panel data regression analysis tools, several conclusions are obtained, namely as follows::

    a. Based on the results of the cross section panel data estimation, the best model was selected, namely the Fixed Effects Model (FEM).

    b. Based on the model existence test (F test), the estimated model exists, with the coefficient of determination (R^2) of 0.972. This means that overall the independent variables, HDI, investment, minimum wage, and number of industries are able to explain 97.2% of the variation in labor productivity.

    c. 3. Based on the effect validity test (t test) that has been carried out, the results show that the number of industries has a negative effect on labor productivity. Meanwhile, the Human Development Index (HDI), investment, and the regency or city minimum wage have no effect on labor productivity in each region in East Java Province in 200116-2020.

Based on the results of the analysis obtained, the suggestions that can be given are as follows:

    a. The Regional Government and the Manpower Office in each Regency or City are expected to be able to synergize in determining economic policies such as determining regional minimum wages in order to improve the welfare of the community. In addition, the East Java Provincial Government is expected to pay more attention to development in coastal areas in order to encourage the economy and attract more investors to invest their capital.

    b. 2.   The Manpower Office in each region is expected to provide special training so that the workforce in Kalimantan has special abilities and is more easily absorbed in important positions needed by the workforce.

    c. The government in each district or city in East Java is expected to encourage the development of other sectors that are still small and can develop so that they can contribute more to local revenue receipts.

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Analysis of The Effect Number of Industry, Population, and Value of Investment on Employment Opportunities in Kendal Regency

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Abstract
Employment problems are still a major problem in economic development due to the low quality of human resources, limited job o`pportunities, and high unemployment.The main indicator of employment problems is employment opportunities.This study aims to determine the effect of the number of industries, population, and investment value on job opportunities in Kendal Regency during 2017-2021. This research usespanel data and choose the modelrandom effects (REM).The results showed that kEmployment opportunities in Kendal Regency during the 2017-2021 period are influenced by the number of industries while population and investment do not affect job opportunities in Kendal Regency.

Keywords— Number of Industry, Population, Investment Value and Employment Opportunity.

6. INTRODUCTION

Economic development is one of the important factors that can considered by a country, especially a developing country, because a economy in developing countries is influenced by economic development in the country(Sukirno, 2006).Along with national economic development, according to Setiawan 2019 in(Darmawan et al, 2019)if there is a gap between the growth of the labor force and the willingness of various economic sectors to absorb labor to become job opportunities, it is still a major problem in the economic field. Job opportunities are not only related to problems in the economic field, but also in the social field. Employment problems are still a major problem in economic development due to the low quality of human resources, limited job opportunities, and high unemployment.Although the government has made efforts to overcome these problems, in reality the policies made have not been able to overcome the problems that occur. The main indicator of employment problems is employment opportunities. Factors that can affect job opportunities in Kendal Regency are the number of industries, population, and investment value.

Table 1.Kendal Regency Employment Conditions in 2017-2021

Year	Population	Workforce	Working	Idle	Unemployment Rate
2017	978,672	484,459	460.967	23,892	4.85
2018	964.106	487,366	457,814	29,552	4.83
2019	971.086	504.535	745.175	31,823	-47.7
2020	1,018,505	533,376	493.062	40,314	7.55
2021	1.025.020	534,030	493.732	40,298	7.54

It can be seen in table 1 that the population in Kendal Regency has increased from 2017 to 2021. The number of the workforce also increases every year, due to the rapid growth of the workforce but not supported by job growth. Meanwhile, the number of people working fluctuated from 2017 to 2019 and decreased in 2020 and increased again in 2021. This is because in 2020 there was a Covid-19 pandemic which resulted in the layoff of some people who worked so this also led to unemployment. with the highest number, namely in 2020 as many as 40,314 people.

Factors related to job opportunities are industry. According toRakhmawati and Boedirochminarni (2018)Industry is one of the drivers in creating new jobs. This shows that the more industries or the number of businesses, the more choices and job opportunities there will be that will create new job opportunities. The diverse industrial potential in Kendal Regency causes the industrial sector to become one of the economic pillars of Kendal Regency.

In addition to the number of industries, another factor that is an indicator of employment opportunities is the population. The population in Kendal Regency which always increases every year illustrates that the potential of

its human resources will have an increasingly large role in the economy, optimizing the potential of human resources in the economy is not easy, the labor force participation rate in Kendal Regency is on average 69, 93%, this shows that the potential of human resources in Kendal Regency is not optimal in supporting economic activities (BPS Kendal Regency, 2022).

Increasing the population must be balanced with an increase in employment opportunities so that people of productive age can be absorbed in the world of work. One of the efforts that can be made to increase employment in Kendal Regency is by building labor-intensive industries. Industrial development is inseparable from investment, both domestic investment (PMDN) or foreign investment (PMA). Government investment is made to provide public goods. One of the increases in investment in the industrial sector occurs because the Kendal Regency area will be projected as a labor-intensive industrial area.

According to previous research conducted Fara Eka Wahyuni, Wahyu Hidayat Riyanto, and Setyo Wahyu Sulistyonoby title "Analysis of the Effect of Education Level, Provincial Minimum Wage and Number of Industries on Employment Opportunities in East Java Province in 1995-2020" states the results of research using multiple linear regression analysis data with time series data that with the F test the variables of education level, provincial minimum wage and total industry has a simultaneous effect on job opportunities in East Java Province. Education level with a coefficient value of 0.334135, a t-statistic value of 3.349515 and a probability value of 0.0023. The minimum wage with a coefficient value of 0.701092, a t-statistic value of 2.603004, and a probability value of 0.0162. While the variable number of industries with a probability value of 3.890773, a t-statistic value of 2.157856, and a probability value of 0.0421.

Research conducted by SriDanawati, I KG Bendesa, dan Made SuyaMain nawith the title "The Effect of Government Expenditure and Investment on Employment Opportunities, Economic Growth and Income Inequality in Regency/City in Bali Province" through the calculation of the path coefficient in this study using the Moment of Structural Analysis (AMOS) program shows that government spending and investment have a positive and significant effect to job opportunities. Investment has a positive and significant effect on economic growth. Employment opportunities have a positive but not significant effect on economic growth. Investment has a positive but not significant effect on income inequality in districts/cities in Bali Province. Government spending, job opportunities, and economic growth have a positive and significant impact on income inequality in districts/cities in Bali Province.

The comparison between previous research and this research is that previous research has the same dependent variable, namely Job Opportunities. The difference from previous research is in the independent variable, this study uses the number of industries, population, and investment value and the latest time span. Each of the previous studies has a significant result or there is a positive influence on job opportunities which of course can be a strong basis for researchers to get the same results due to evidence from previous research. This study aims to determine and analyze the effect of the number of industries, population, and investment value on job opportunities in Kendal Regency in 2017-2021.

II. LITERATURE REVIEW

Law No. 13 of 2003 article 1states that the workforce is everyone who is able to do work both inside and outside the employment relationship to produce goods and services to meet the needs of the community. According to Suparmoko (inNalle and Hidayat 2015)The population of working age can be classified into two, namely the labor force and the non-labor force. The labor force is the population who have not worked but are ready to work or are looking for work at the prevailing wage level. The labor force consists of those who are working, those who are unemployed and looking for work. Meanwhile, what is meant by non-labor force are those who are still in school, taking care of the household, and receiving income.

Job opportunities are closely related to population. The more the population, the more people who are looking for work to fulfill their needs(Febriyanto, 2014). Employment opportunities have the meaning of employment or employment opportunities available to work as a result of economic activity (production). According to , Job opportunities are the number of workers who can be accommodated to work in companies or agencies. To estimate the need for labor in a certain period, both for each sector and the whole economic sector can use the concept of elasticity.

$$E = \frac{\frac{\Delta N}{N}}{\frac{\Delta Y}{Y}}$$

E= Elasticity of employment opportunities
N= Total increase in employment opportunities in the economic sector
N = Total employment opportunities in the economic sector
Y= Total production increase in the economic sector
Y= total production of the economic sector

One of the main goals of industrial development is to overcome unemployment which is expected to absorb labor. This is supported by Huda's opinion (in Indrawati, 2015) that the more the number of industries established, it is hoped that it will increase the opportunities for work so that the community's economy will also increase. Industrial development must actually be the main driver of increasing the rate of economic growth and at the same time can be a provider of jobs that are starting to not be accommodated in the agricultural sector. According to the Central Statistics Agency, an increase in the number of business units or the number of industries in a sector will increase the demand for labor due to the increase in the number of employment opportunities as a result of the growth in the number of business units.

Population is the main factor in the development of a region. So if there is a high population growth, the government must be able to provide facilities for the community so that people's lives are also prosperous. One of the facilities that must be available is employment because with the existence of employment opportunities, unemployed residents can be absorbed to work. For developing areas, a large population does not automatically become a large capital for development, it will become a burden of dependence for other residents, this role is supported by Marx's opinion, namely that the more the population, the higher the production and employment will also increase as a result of the large demand. manufactured goods. However, Dijrkheirn said differently. he said that high population growth will result in competition between residents in maintaining life so that job opportunities are getting narrower. The high number of labor force will directly or indirectly narrow the available job opportunities (Mantra, 2003).

Efforts to encourage investment are one of the steps that can be taken to create job opportunities. In theory, the greater the value of the investment made or invested in a company, the greater the additional use of labor. In addition, classical economic theory also argues that investment or capital formation will enhance capital tools in society so that it will increase the production of national income, will increase economic growth and finally increase employment opportunities for Sasongko and Suparmoko (in Tapparan, 2017). According to Sukirno (in Abbas.

III. RESEARCH METHODOLOGY

This research is a type of quantitative research by associative properties. The purpose of associative research is to find out the relationship between two or more variables, which is looking for the role, influence and causal relationship, such as between the independent variable and the dependent variable. In this study the independent variables consist of the number of industries, population, and investment value, while the dependent variable is employment opportunities.

The population in this study is Kendal Regency. In this study, the sampling technique of the collection is by using a saturated sampling technique. Based onSugiyono (2018)Saturated sampling technique is a sampling technique when all members of the population are sampled. This is done when the population is relatively small, less than 30, or the study wants to make generalizations with very small errors.

The type of data in this study is secondary data. Data sourced from the Central Bureau of Statistics of Kendal Regency and journals. Data was obtained through direct access from the Kendal Regency BPS website (kendalkab.bps.go.id). Data collection in this study was carried out using the documentation method, namely analyzing data on the number of industries, population and investment value in Kendal Regency in 2017-2021.

The data analysis technique used in this research is panel data regression analysis. The data model used is panel data, where panel data is a combination of cross section data and time series data, namely observations of several individuals who are observed in a certain period of time. The purpose of panel data analysis is to see the economic impact that cannot be separated between each individual in several periods, and this cannot be obtained

from using cross section data or time series data separately. Data analysis in this study begins with testing the best model to choose the right model. Based onWinarno (2015)There are three panel data regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). In determining the most appropriate and best model, it is necessary to test first based on the Chow Test and Hausman Test. Then a hypothesis test was conducted to determine the effect of the independent variable on the dependent variable in the study in the form of the R2 test, F test and t test.

$$EO_{it} = \beta_0 + \beta_1 NOI_{it} + \beta_2 POP_{it} + \beta_3 INV_{it} + \varepsilon_{it}$$

where:

EO	: Employment Opportunity (%)
NO I	: Number of Industry (Unit)
POP	: Total Population (Soul)
INV	: Investment (Trillion)
β_0	: Constant
$\beta_1 ... \beta_3$	: Independent variable regression coefficient
i	: Districts in Kendal Regency (20 Districts)
t	: Year t (2017-2021)

$\square$: Error Term

IV. RESULT / FINDING

The estimation results of the econometric model above and its complementary tests are summarized in Table 1. From the results of the Chow test and Hausman test in Table 1, the Random Effects Model (REM) was chosen as the best estimated model, as seen fromp-value (p-value), probability or empirical significance of F Chow test is 0.8600 (> 0.10) and p-value (p-value) probability or empirical statistical significanceχ^2 Hausman test is 0.2930 (> 0.10). The complete results of the estimated Random Effects Model and the inter-regional constants are presented in Table 2 and Table 3.

Table 2. Results of Chow Test and Hausman's Test

Variable	Regression Coefficient		
	Pls	FEM	BRAKE
C	3.604866	10.78184	3.604866
NO I	0.012309	0.012427	0.012309
POP	0.000000	-0.000139	0.000000
INV	-0.001843	-0.003355	-0.001843
R^2	0.545800	0.608068	0.545800
AdjustedR^2	0.531607	0.496088	0.531607
F stats	38.45361	5.430123	38.45361
Prob. F stats	0.000000	0.000000	0.000000

Model Selection Test
(1) Chow
    Cross-section F(19.77) = 0.643856; Prob. F(19.77) = 0.8600
(2) Hausman
    Cross-section randomχ^2 (3) =3.722485; Prob.χ^2 (4) =0.2930

The model goodness test shows that the Random Effects Model (REM) estimated model exists, it can be seen that the p value (p value), probability, or statistical empirical significance of F is 0.0000 (< 0.01), with R2 or predictive power of 0.6080, meaning that 60.80% of variable variation Labor absorption can be explained by the

variables Number of Industry, Number of Population, and Investment. The rest, 39.2%, was influenced by other variables or factors that were not included in the model.

Table 3. Random Effects Model (REM) Estimation Model

$\overline{EO}_{it} = 3.604866 + 0.012309 NOI_{it} + 0.000000\ POP_{it} + -0.001843 INV_{it}$
$(0.0000)^*(0.4048)\ (0.2726)$
$R^2 = 0.6080$; DW = 4.4113; F = 5.430123; Prob. F = 0.0000

Information: *Significant at = 0.01; **Significant at = 0.05; *** Significant at = 0.10; The number in brackets is the probability value of the t statistic.

Separately, it can be seen that the Number of Industries (NOI) variable has an influence on Labor Absorption (EO) with p (p value), probability, or significance of 0.0000 (< 0.01) respectively. Population (POP) and Investment (INV) have no effect on Employment Opportunities (EO) with p (p value), probability, or significance of 0.4048 (> 0.10) and 0.2726 (> 0.10), respectively.

Variable Number of Industries (NOI) has a regression coefficient of 0.0123, with a linear-linear relationship pattern. This means that if the number of industries increases by 1 unit, then employment opportunities will increase by 0.0123 percent. On the other hand, if the number of industries decreases by 1 unit, then employment opportunities will decrease by 0.0123 percent.

Table 4. Regional Effects and Constants

No	Region	Effect	Constant
1	Plantungan	-1,416,431	2,188,435
2	Sukojo	2.025848	5.630714
3	Pageruyung	-1,287,401	2,317,465
4	Pateanre	0.420366	4.025232
5	Singorjo	-0.460752	3.144114
6	Balance	-3,224,835	0.380.031
7	Boja	3.406148	7.011014
8	Kaliwungu	2.189481	5.794347
9	South Kaliwungu	-0.002155	3.602711
10	Brangong	0.294502	3.899368
11	Pegandon	-2,703,971	0.900.895
12	Crap	-2,170,561	1.434305
13	Fat	-0.198664	3.406202
14	Ringinarum	-1,896,595	1,708,271
15	Weleri	1.626748	5.231614
16	Rowosari	2.174768	5.779634
17	Water spinach	0.214719	3.819585
18	Cepiring	0.535559	4.140425
19	Patebon	0.494854	4.099720
20	Kendal	-0.021628	3.583238

The constant value of each region can be seen in Table 4. The highest constant value is owned by Boja District, which is 7.011014. That is, related to the influence of the variables Number of Industry (NOI), Number of Population (POP), and Investment (INV) on Employment Opportunities (EO), Boja District tends to have higher job opportunities than other sub-districts. After Boja District, the sub-district area with the largest constant is Kaliwungu District.

The lowest constant value is owned by the Limbangan District, which is 0.380,031. Associated with the effect of the variables Number of Industry (NOI), Number of Population (POP), and Investment (INV) on Employment

Opportunities (EO), Limbangan District tends to have lower job opportunities than other sub-districts. Before Limbangan District, the sub-district area with the smallest constant was Pengandon District.

V. DISCUSSION

Based on the results of the Chow test and Hausman test, the panel data regression test in this study was carried out using the Random Effects Model (REM). Testing with the Random Effects Model (REM) was chosen becausep-value (p-value), probability or empirical significance of F Chow test is 0.8600 (> 0.10) and p-value (p-value) probability or empirical statistical significance χ^2 Hausman test is 0.2930 (> 0.10). The result of the variable value of the number of industries is very influential on job opportunities in Kendal Regency, indicated by the Prob value of 0.0000 less than 0.01 (P < 0.01). The value of the variable population and investment value does not affect employment opportunities in Kendal Regency, indicated by the Prob value of 0.4048 more than 0.01 (P > 0.10) and 0.2726 more than 0.01 (P > 0.10). The number of industries is very influential on job opportunities in Kendal Regency because of this..

The results of the t test show that the variable number of industries has a positive effect on employment.Every increase in the number of industries will have a direct positive effect on job opportunities. If the number of industries increases, there will be an increase in demand workforce, because the increasing number of industries will increase the One of the factors of production is labor The results of this study are related to research conducted bySaputra et al., (2021)which states that the number of companies has a significant effect on job opportunities.

Based on the results of the t test, it is known that the population has no effect on employment opportunities. This happens because the population is not proportional to the supply of work. High population growth has an impact on the lack of available jobs and can lead to increased unemployment.The results of this study are related to the results of research conducted byMahsunah (2018) Large population it is a great potential. According to Smith population growth able to promote economic growth. Residents viewed from the side employment is a supply for labor market in an area. If population growth and quality human resources do not get attention from the government, can lead to population growth uncontrolled. This is worrying increase the number of unemployed and increase the number of poor people.

Based on the results of the t-test investment has no effect on employment opportunities, this happens because of the lack of investment invested to create the industry. Investments are invested in several sectors, if investment in the industrial sector is high, job opportunities will be created. The results of this study are related to research conducted byHelen et al,. (2018)show thatindirect effect Investment on job opportunities is not significant, this is because investment in Malinau Regency is still focused on a few sectors so that it is not evenly distributed in all sectors so that its contribution is also still small to economic growth, uneven investment has an impact on less labor absorbed so that employment opportunities are also low.

Based on the calculation of the constant value, the area with the highest constant value is Boja District with a constant value of 7.011014. The reason for the high job opportunities in Boja District is due to the balance between the number of job opportunities and the workforce. Boja District has a higher number of industrial units than other sub-districts in Kendal Regency. So the job opportunities tend to be high. The area with a low constant value is the Limbangan District area with a constant value of 0.380,031. The reason for the low absorption of work in Limbangan District is because the number of job opportunities is still minimal. The number of industries is less compared to other regions, so the labor force absorbed is relatively low.

VI. CONCLUSION AND RECOMMENDATION

The results of research on job opportunities in Kendal Regency during the 2017-2021 period show that job opportunities are influenced by the number of industries, while population and investment do not affect job opportunities. There is a conclusion that can be used as a reference, namely the result of the value of the number of industries that greatly influences employment opportunities in Kendal Regency, marked by a Prob value of 0.00000 less than 0.01 (P < 0.01). The value of the variable population and investment value does not affect employment opportunities in Kendal Regency, indicated by the Prob value of 0.4048 more than 0.01 (P > 0.10) and 0.2726 more than 0.01 (P > 0.10). The number of industries is very influential on job opportunities in Kendal Regency because it is related to the absorption of labor. Population Number has no influence on Employment Opportunities because the population is not proportional to the job offer. And the investment value has no effect on job opportunities, because of the lack of investment invested to create the industry.

The subjects studied in this study only focused on data from Kendal RegencyIt is hoped that future researchers can provide samples for the research to be carried out. Future research is expected to use a different research area because job opportunities do not only exist in Kendal Regency, so the data can be generalized to other areas.

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Analysis Of The Effectiveness And Variance Of Direct Expenditure at Garut Regency Fire Department

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Abstract

This study aims to determine and analyze the effectiveness of the budget and to see how the variance of direct expenditure on the Garut Regency fire department from 2017-2020. The phenomenon that occurred from 2017 to 2019 the realization of the expenditure budget did not match the target. Meanwhile 2020, the target has decreased due to government policies that have reallocated the spending budget for handling COVID-19. The results of previous research from Silaban and Vanrio (2021) said the results of his research showed that the absorption of direct expenditure budgets during the Covid-19 pandemic had been running effectively but the results were not optimal because many direct expenditure budgets were diverted for handling and Covid-19 prevention. The problem in this study is how the level of effectiveness of the budget and how the criteria for the variance value of the direct expenditure budget are. The novelty of this research is the existence of a direct expenditure variance variable because no one has do this researched, so that is why the writers get interested to do it. The research method used is a qualitative method. And data collection is in the form of unstructured interviews, documentation, literature studies and direct observations with the head of the financial sub-section of the fire department. Based on the results of the study showing the budget period within the last 4 years (2017-2020) at the Garut Regency Fire Department for the effectiveness of budget use, the results of the overall analysis are effective, it indicates the planned program has been realized quite well. While the results of the calculation of the direct expenditure variance at the Garut Regency Fire Department in 2017-2020 are in the good category because the realization of spending does not exceed the set budget. The impact of this research is to provide information for the long term regarding budget measurement tools, making it easier for other researchers to study more deeply.

Keywords— Effectiveness; Expenditures Variants; Budget

I. INTRODUCTION

Budgeting is an important role in an organization/institution either central or regional. The regional government annually prepares a budget plan or what is called the Regional Revenue and Expenditure Budget. Thus, the use of regional budgets and revenues cannot be separated from local governments. Budget planning aims for public services that must be improved, so as to encourage regional economic growth and increase the effectiveness and efficiency of regional government administration. Estimates of conditions that will occur in the future are an important consideration in budgeting. The ability to see far ahead will determine the accuracy of the budget with its realization. The difference in variance between the budget and its realization is an indicator of the success of budgeting.

The budget according to the Law of the Republic of Indonesia No. 9 of 2020 concerning State Revenue and Expenditures in 2021 states that the State Revenue and Expenditure Budget for the 2021 fiscal year is prepared in accordance with the needs of the administration of the State government and the ability to collect state revenues in order to support the realization of a national economy based on economic democracy. with the principles of togetherness, efficiency, justice, sustainability, environmental insight, independence, and maintaining balance, progress and national economic unity.

Thus, the budget regulates government spending and serves as the basis for revenue and financing by the government for a certain period which usually includes an annual period. However, it is possible to prepare a budget for a period of more or less than one year. So in a government environment, the budget function has an important impact on accounting and financial reporting. According to Adisaputro and Anggraeni (2017: 4) "Budget or Budget is the preparation of a budget.

The Fire Department is one of the Regional Apparatus Performance Units in Garut Regency which plays an important role in peace and public order as well as community protection. Financial management at the Regency Fire Department must carry out financial control by the Head of the Garut Regency Fire Department so that the predetermined budget can cover all required activities, so that the set budget can be realized properly. In Law

Number 23 of 2014 concerning Regional Government, namely Regional Heads, and Regional Apparatuses are prohibited from spending at the expense of the regional budget for other purposes than those stipulated in the APBD. Thus, the budget obtained is like a budget from the government which must be demanded to maximize the budget and be realized properly and effectively and efficiently.

The phenomenon that occurs in the fire department isIn the period of 3 consecutive years from 2017, 2018 and 2019 the budget target increased but the realization of the budget was otherwise below the budget. While the budget and realization of the Fire Department's expenditure in 2020 decreased compared to the previous year due to government policies that reallocated the budget for handling COVID-19 for 3 years in a row from 2017, 2018 and 2019 the budget target increased, but On the other hand the realization was below the budget

The budget and realization of the Fire Department's expenditure in 2020 decreased compared to the previous year due to government policies that reallocated the budget for handling COVID-19. After the determination of covid-19 as a national virus outbreak, the government automatically made an adjustment policy. With the adjustment, many activities/programs that had been planned and budgeted for next year had to be canceled and postponed

Previous researchers conducted by Octania and Endang in the health department work unit office (2020) said that the level of effectiveness in the capacity of 90% which means that financial management of the budget is done well. While the research conducted during the covid-19 period conducted by Silaban and Vanrio (2021) said the results of his research showed that the absorption of direct expenditure budgets during the Covid-19 pandemic had been running effectively but the results were not optimal because many direct expenditure budgets were diverted for handling and Covid-19 prevention

The purpose of this study was to determine the level of effectiveness and the value of the variance in the realization of the direct expenditure budget. The reason the researcher only examines the direct expenditure budget is because direct expenditure is expenditure that is directly related to government programs, while indirect expenditure is expenditure that is not directly related to local government programs.This is important to do to evaluate the budget of the Garut Regency Fire Department. Making it easier to solve the problem to find out how the level of effectiveness of the budget and the criteria for the value of the variance between the direct budget and the realization of the budget at the Garut Regency Fire Department can be achieved.

II. LITERATURE REVIEW

A. Public Sector Accounting

The public sector is an economic sector that provides various public services to the community. To realize effective and efficient governance. There is no difference between the public sector and the private sector in achieving its goal of demanding quality human resources in carrying out financial management. However, the private sector cannot completely replace the public sector in some situations and activities, for example the function of the bureaucracy in government. Government agencies and State-Owned Enterprises, and Regional-Owned Enterprises are part of the public sector.

In the simplest system, a public budget is a document that describes a financial condition in an organization that includes information on revenues, expenditures, and activities.

B. Government Accounting Standards

Mardiasmo (2002) defines accounting standards as guidelines or principles governing accounting treatment in the preparation of financial statements for reporting purposes to users of financial statements.

C. Financial Statements

Kasmir (2018) Financial Statements are reports that show the company's current financial condition or within a certain period

D. Public Sector Budget

Mardiasmo (2018: 76) said that: "The public sector budget contains an activity plan which is described in the form of a plan for obtaining income and spending in monetary/money units".

E. Budget Realization Report

Mahsun (2017:45) states that: "The budget realization report is financial planning for the future which generally covers a period of one year and is expressed in monetary units".

F. Regional Expenditure

Government Regulation No. 12 (2019) Regional expenditures are all regional obligations that are recognized as a reduction in the value of net assets in the period of the relevant fiscal year.

G. Direct Expenditure

Baldic Siregar (2017) Direct expenditures are budgeted expenditures that are directly related to the implementation of programs and activities

H. Effectiveness

Effectiveness basically shows the results achieved in a program/activity related to the intended target. A program or activity is said to be effective, then the results must meet the stated goals. The thing to know is that effectiveness does not refer to the money used to achieve a goal. Effectiveness only determines that a program or activity has achieved the stated goals. According to Abdul and Iqbal (2019:163) that: "Effectiveness is the relationship between the output of a responsibility center and the goals or objectives that must be achieved".

To determine the percentage of targets that have been achieved, it can be measured by measuring effectiveness using the formula below:

$$\text{Effectiveness} = \frac{\text{Budget Realization}}{\text{Budget Target}} \times 100\%$$

Source: Adisasmita (2018:170)

Regarding the criteria for assessment and financial performance in the Decree of the Minister of Home Affairs Number 690,900-329 , the effectiveness criteria are determined by the presentation of measurements which can be seen in the following table:

Table 1. Effectiveness Criteria

Percentage	Effectiveness Criteria
>100%	Very effective
90%-100%	effective
80%-90%	Effective enough
60%-80%	Less effective
>60%	Ineffective

Source the Minister of Home Affairs Number 690.900.329

I. Analysis Of Expenditure Variance

Analysis of variance is an analysis of the difference between the realization of expenditure and the budget. Analysis of variance is quite simple but can provide very meaningful information. Based on the budget realization report presented, the reader of the report can find out directly the magnitude of the budget variance with its realization which can be expressed in the form of a nominal value or a percentage. categorized as disliked difference (Mahmudi, 2019:155). According to Mahmudi (2019:157) stated in this study the analysis of variance of the direct expenditure budget was formulated as follows:

$$\text{Variance} = \text{Actual Expenditure} - \text{Budget}$$

Measuring the value of the spending variance based on the following assessment criteria:

Table 2. Variance Criteria

Size	Variance Criteria
Actual Expenditure < Budget	Good
Realization ≥ Budget	Not Good

Source: Mahmudi (2019:157)

The results of previous researchers Dwi Novita Sari Erika Z showed that the level or criteria for the effectiveness of the budget for the Samarinda City Government from 2011-2015 varied. Where in 2014 it was included in the criteria of being quite effective, and in 2011, 2012, 2013 and 2015 it was included in the criteria of being less effective, because the realization of the expenditure budget had a big difference with the budget target. So there are some activities that are budgeted for but not realized effectively. while Lasupu (2021) research results show that the Effectiveness and Efficiency of Budget Execution at the National Unity and Political Agency of Tojo Una-Una Regency, on average, are included in the effective and efficient criteria according to the level of criteria according to the Decree of the Minister of Home Affairs Number 690,900,329.

III. RESEARCH METHODOLOGY

The method used by the researcher in this study is a descriptive method which was studied qualitatively. The object of research is the Garut Regency Fire Department, which is located at Jalan Merdeka No. 100, Tarogong Kaler, Garut, 44151. Researchers used data collection techniques in this study as follows: Field Research, unstructured interview.

Library Research. Operationalization of the variables in this study is the Effectiveness Ratio where the indicators are Budget Realization and budget targets, while the second variable, namely analysis of variance, contains indicators of expenditure realization and budget.

a. Researchers used qualitative data analysis by measuring the effectiveness ratio and the value of variance. The analysis of this research process is carried out as follows: Requesting data from the Garut Regency Fire Department for research materials that focus on measuring the level of effectiveness and efficiency of the budget using the financial ratio formula.

b. Checking the data is seen from its completeness to ensure the data can be processed at a later stage.

c. Classification of data, namely grouping data according to the instrument and the dimensions of the research variables

d. Calculating Financial Ratio Analysis from the Budget Realization Report from 2017-2021

IV. RESULT/ FINDING

The following is the data taken is the Budget Realization Report from the 2017-2020 Fire Department. The objects of research are Regional Expenditures, Indirect Expenditures and Direct Expenditures at the Fire Department.

Table 3. Garut Regency Fire Department Budget Realization Report 2017

Description	Budget (Rp)	Realization (Rp)	The remaining budget (Rp)	%
Expenditures Budget	9.602.538.592	9.425.720.625	176.817.967	98,16
Indirect	3.541.627.456	3.522.729.807	18.897.649	99,47

Direct	6.060.911.136	5.902.990.818	157.920.318	97,39

Based on the table above, it can be seen that the total budget and budget for the Garut Regency Fire Department in 2017 was Rp. 9,602,538,592, - with a realization of Rp. 9,425,720,625, - or 98.16% with the remaining budget of Rp. .176,817,967,-.

Table 4. Garut Regency Fire Department Budget Realization Report 2018

Description	Budget (Rp)	Realization (Rp)	The remaining budget (Rp)	
Expenditures Budget	13.156.752.988	12.660.941.243	495.811.745	96,23
Indirect	5.403.120.338	5.173.663.689	229.456.649	95,75
Direct	7.753.632.600	7.487.277.554	266.355.046	96,56

Based on the table above, it can be seen that the total budget and budget realization at the Garut Regency Fire Department in 2018 was a budget of Rp. 13,156,752,988, - with the realization of Rp. 12,660,941,243, - or 96.23% with the remaining budget. of Rp. 495,811,745,-.

Table 5. Garut Regency Fire Department Budget Realization Report 2019

Description	Budget (Rp)	Realization (Rp)	The remaining budget (Rp)	%
Expenditures Budget	14.343.776.450	13.906.545.274	437.231.176	96,95
Indirect	5.314.167.450	5.120.130.001	194.037.449	96,35
Direct	9.029.609.000	8.786.415.273	243.193.727	97,31

Based on the table above, it can be seen that the total budget and budget realization at the Garut Regency Fire Department in 2019 the budget was Rp. 14,343,776,450, - with the realization of Rp. 13,906,545,274, - or 96.95% with the remaining budget. of Rp. 437.231.176,-.

Table 6. Garut Regency Fire Department Budget Realization Report 2020

Description	Budget (Rp)	Realization (Rp)	The remaining budget (Rp)	
Expenditures Budget	10.123.135.136	9.998.199.411	124.935.725	98,77
Indirect	5.104.550.207	5.024.061.957	80.488.250	98,42
Direct	5.018.584.929	4.974.038.454	44.546.475	99,11

Based on the table above, it can be seen that the total budget and budget realization at the Garut Regency Fire Department in 2020 is a budget of Rp. 10,123,135,136, - with the realization of Rp. 9,998,199,411, - or 98.77% with the remaining budget. amounting to Rp.124.9355.725, -.

V. DISCUSSION

Based on the findings of the implementation of the budget from 2017 to 2020, the following is the discussion:

A. *Effectiveness Ratio*

To determine the percentage of targets that have been achieved, it can be measured by measuring effectiveness using the formula below:

$$\text{Effectiveness} = \frac{\text{Budget Realization}}{\text{Budget Target}} \times 100\%$$

The calculation of the effectiveness ratio of the Garut Regency Fire Department in 2017-2020 is as follows:

$$2017 = \frac{Rp.Rp9.425.720.625}{Rp.Rp9.602.538.592} \times 100\%$$

$$= 98{,}16\%$$

$$2018 = \frac{Rp.12.660.941.243}{Rp.13.156.752.988} \times 100$$

$$= 96{,}23\%$$

$$2019 = \frac{Rp.\,13.906.545.274}{Rp.\,14.343.776.450} \times 100\%$$

$$= 96{,}95\%$$

$$2020 = \frac{Rp.\,9.998.100.411}{Rp.\,10.123.135.136} \times 100\%$$

$$= 98{,}76\%$$

The analysis of the measurement of the effectiveness of the Garut Regency Fire Department in 2017-2020 can be seen in table 4.5 as follows:

Years	Budget Realization (a)	Budget Target (b)	Effectiveness Level ($\frac{a}{b} \times 100\%$)	Kriteria
2017	Rp. 9.425.720.625	Rp. 9.602.538.592	98,16%	Effective
2018	Rp.12.660.941.243	Rp.13.156.752.988	96,23%	Effective
2019	Rp.13.906.545.274	Rp.14.343.776.450	96,95%	Effective
2020	Rp.9.998.100.411	Rp.10.123.135.136	98,76%	Effective
Rata-Rata			97,53	Effective

Based on table 5.1 the Effectiveness Ratio of the Garut Regency Fire Department from 2017 is the same as in 2020 as follows:

a. In 2017 the Effectiveness Ratio of the Garut Regency Fire Service was 98.16%, which means that it is in the Effective criteria (80-100%). This is because in 2017 the Garut Regency Fire Department has just become a Department so that the budget is widely used well. However, in 2017 there were activities with the smallest realization, namely the provision of communication services, water resources and electricity by 76.55% because electricity and internet payments were adjusted to the usage that generated the amount of the bill

b. In 2018 the Effectiveness Ratio of the Garut Regency Fire Service was 96.23%, which means that in the effective criteria (80-100%) the effectiveness presentation decreased by 1.93% from the previous year but the criteria remained the same, this was due to the budget in 2017 which was not budgeted for in 2018, namely transportation and accommodation of fire engines from Japan.

c. In 2019 the effectiveness ratio of the Garut Regency Fire Department is 96.95%, which means the criteria are Effective (80-100%). This year the percentage of effectiveness again increased by 0.72% from the previous year. Based on the results of an interview with the Head of the Sub-Division of Finance Fire Departement stated that in 2019 there were several changes of Commitment Makers and Power User Budget officials within the Fire Department due to mutations and rotations so that they had to wait for the proposed replacement of new commitment-making officials which caused delays in the implementation of procurement activities. a problem for the Garut Regency Fire Department.

d. In 2020 the effectiveness ratio of the Garut Regency Fire Department is 98.76% with an Effective criteria (80-100%). In 2020 the presentation increased by 1.81%, the percentage increase was greater than the previous year. However, this year the percentage level of realization in coordination meetings and consultations outside the region has decreased by 0.88% from the previous year, so this is a problem for the Garut Regency Fire Department. Based on the results of an interview with the Head of the Finance Subdivision of the Fire Departement stated that in 2020 the obstacles that occurred in the realization of the budget included several budget changes, the existence of budget efficiency, the Covid-19 outbreak which caused delays in the implementation of activities related to the community at large such as socialization, as well as in activities coordination meetings and consultations outside the region experienced a decrease in the presentation of realization this was due to transportation payments in accordance with the needs that had to be paid and the Covid-19 outbreak situation, the implementation was also delayed and could not even be completed on time due to restrictions imposed by the government.

Based on the data and analysis above, it can be concluded that the Garut Regency Fire Department is quite good at using funds, so that the program can be achieved. In order for the budget level to be very effective, it is necessary to coordinate and cooperate between the relevant fields in the context of achieving a program. In addition, there is a need for better supervision in the preparation of the expenditure budget, so that the target or program budget plan that will be used can be realized to the maximum. This is in line with Mahmudi theory (2019: 86) that "Effectiveness is a measure of the success or failure of achieving the goals of an organization to achieve its goals, if an organization achieves its goals then the organization has been running effectively".

A. Expenditure Variance

To determine the criteria for spending variance, it can be measured using the formula below:

Variance = Actual Expenditure – Budget

The calculation of the expenditure variance of the Garut Regency Fire Department in 2017-2020 is as follows:

2017 = Rp8.605.556.512 - Rp9.602.538.592

= - Rp996.982.080

2018 = Rp12.660.941.243 - Rp13.156.752.988

$$= - Rp495.811.745$$

$$2019 \quad = Rp13.906.545.274 - Rp14.343.776.450$$

$$= - Rp437.231.176$$

$$2020 \quad = Rp9.998.100.411 - Rp10.123.135.136$$

$$= - Rp125.034.725$$

Table 7. Garut Regency Fire Department Expenditure Variance in 2017-2020

Year	Difference	Percentage (%)	size	Variance Value
2017	-Rp. 176.817.967	89,62	a < b	Good
2018	-Rp. 495.811.745	96,23	a < b	Good
2019	-Rp. 437.231.176	96,95	a < b	Good
2020	-Rp. 125.034.725	98,76	a < b	Good
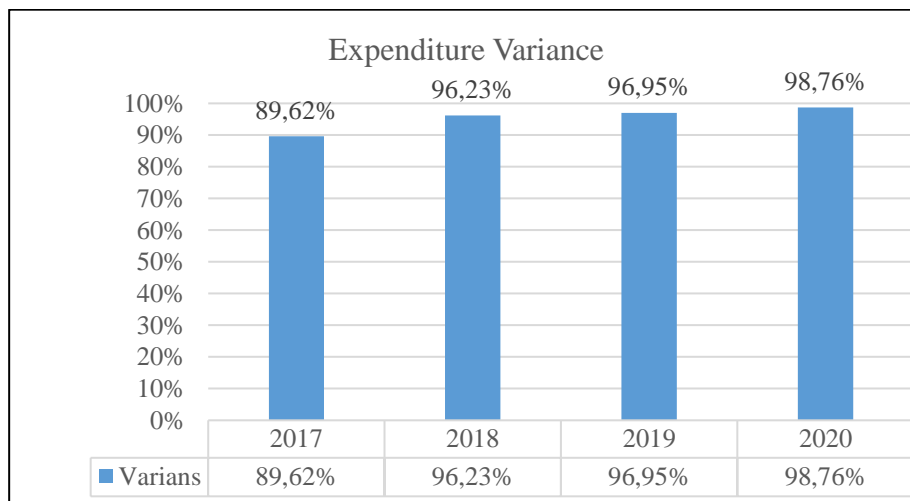
Based on the graph above, it shows that the value of the variance (difference) of the direct budget with the realization of the direct budget at the Garut Regency Fire Department in 2017 was Rp. 2018, 2019, and 2020. The statement is explained from the calculation results above which show that:

a. In 2017 the absorption of the remaining use of the budget in the Expenditure Variance table above is around Rp. 996,982,080 or around 89.62% which indicates that not all activities and activities carried out by the agency are fully absorbed in the financing that runs for one period of the relevant fiscal year.

b. In 2018 the absorption of the remaining budget usage based on the Expenditure Variance is around Rp. 495,811,745 or around 96.23%, leaving a percentage ratio of around 3.77% of the absorption of the existing budget in the realization of the expenditure budget at the agency. When viewed from the previous year, there was an increase in the effectiveness of the use of the budget by around 6.61% from the previous year.

c.   In 2019 the absorption of the remaining use of the budget based on the Expenditure Variance is around Rp. 437,231,176 or around 96.95%, leaving a percentage ratio of around 3.05% of the existing budget absorption in the realization of the expenditure budget at the agency. When viewed from the previous year, there was an increase in the effectiveness of the use of the budget by around 0.72% from the previous year.

d. In 2020 the absorption of the remaining use of the budget based on the Expenditure Variance is Rp. 125,034,725 or about 98.76%, leaving a percentage ratio of around 1.24% of the existing budget absorption

in the realization of the expenditure budget at the agency. Seen an increase in budget use from the previous year by 1.81% if you look at the previous year.

Judging from all the changes from year to year in the absorption of budget use, it can be said to be good, but basically the existing budget performance can be said to be good because of budget savings. The interview results stated that the cause of the expenditure budget was not realized significantly, it is because there were several changes in commitment making officials and budget users in the Garut Regency Fire Department due to mutations and rotations which caused delays in the implementation of procurement so that they had to wait for the proposal to replace the new official commitment maker. The government's performance will be indicated to be unfavorable if the actual expenditure is greater than the budgeted amount. These results support the opinion expressed by Mahmudi (2019: 60) performance measurement is part of the management control function because performance measurement can be used to control activities. Each activity must have a measurable performance in order to know the level of efficiency and effectiveness. In public sector organizations, performance measurement is mainly carried out to measure the 3E level, namely: economy, efficiency and effectiveness (value for money). If an activity does not have a performance measure, it will be difficult for the organization to determine whether the activity is a success or failure.

VI. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research and discussion, it can be concluded from research on the Analysis of the Effectiveness and Variance of Expenditures at the Garut Regency Fire Department as follows:

a.   The budget period in the last 4 years (2017-2020) at the Garut Regency Fire Department for the effectiveness of the use of the budget, the results of the analysis are overall effective, it indicates the planned program has been realized quite well

b.   The results of the calculation of the expenditure variance at the Garut Regency Fire Department in 2017-2020 are in the good category because the realization of spending does not exceed the set budget

Based on the conclusions described above, the following are recommendations that can be given by researchers:

a.   For the Garut Regency Fire Department, it is expected to be able to improve and pay attention to the performance of budget management in the next period in preparing the budget plan so that the budget can be realized more effectively and efficiently so that it can be used to evaluate the budget and expenditure plans for the following year by conducting coaching and internal, external training or through increasing the level of education as well as improving the work system and infrastructure that supports the achievement of performance targets.

b.   For further researchers who will conduct research with the same discussion, it is hoped that by increasing the ratio by including other ratios, for example by using other ratios such as growth ratios, independence ratios, and compatibility ratios.

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Undang-undang Republik Indonesia N0 9 Tahun 2020 tentang Pendapatan dan Belanja Negara tahun 2021

Undang Nomor 23 Tahun 2014 tentang Pemerintah Daerah yaitu Kepala Daerah, dan Perangkat Daerah dilarang melakukan pengeluaran atas beban anggaran belanja daerah untuk tujuan lain dari yang telah ditetapkan

Peraturan Pemerintah No 9 tahun 2019 tentang Pengelolaan Keuangan Daerah

Prototype Motorcycle Security System Using Arduino Based on Internet of Things Integrated With WhatsApp Application

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Abstract

The theft of motorcycle vehicles in the last three years 2019-2021 is still relatively high, there are around 100 thousand cases of theft. Therefore, motorcycle owners secure their vehicles by using a padlock and can also close the ignition for today's motorcycles. Even though this has been done, the vehicle can still be stolen by giving liquid to open the padlock and breaking into the ignition using the "T" key. And vehicle owners do not get information early on the theft of their vehicles. So he made a motorcycle security tool that has a system to provide information in the form of notifications to motorcycle owners if there are indications of theft and can also find out the whereabouts of motorcycles in real time. The use of Arduino Uno R3 using IoT (Internet of Things) technology which is supported by the GSM/GPRS SIM808 module. This is useful for making it easier to send vehicle information using the MQTT protocol as a communication link between motorcycle security tools and broker servers. The information is sent to the motorcycle owner via the WhatsApp application message media.

Keywords— Motorcycle security; MQTT Arduino; IoT

I. INTRODUCTION

Theft is a criminal act, which greatly disturbs the comfort of the community. One of them is the theft of motorcycles, both two-wheeled and four-wheeled. The number of cases of motorcycle theft in the last three years 2019-2021 is still relatively high, there are around 100 thousand cases of motor vehicle theft (Bandung, 2018), although statistically there is a decrease, but it does not reduce the sense of security to the owner much vehicle. Sourced on the official website of the Indonesian Statistics Center, throughout 2019-2021 there have been thousands of cases of motor vehicle theft, 23,476 cases occurred in 2019, 18,557 occurred in 2020, 19,798 occurred in 2020.

Some motor vehicle owners simply lock the handlebars feel quite safe, even though key breaking techniques are currently increasingly diverse. Usually the theft technique is carried out using a T letter key or a liquid inserted in the motorcycle keyhole. The security system of the motorcycle's default keyhole cover can apparently be opened with a box-shaped key that has four small holes. In addition to locking the handlebars, another security that is still relatively used today is to use a padlock that is mounted on the disc so that the wheels cannot run, but even with a padlock, thieves can still break into it. As for other safeguards, namely by adding switches and relays for connecting and breaking electric current to the motor coil, although in such a way motor vehicle thieves can casually carry out their actions without inviting suspicion. (Bagenda, 2014) Therefore, motorcycle owners need to increase their vigilance and further enhance the safety of their motorcycles.

Based on the information above, then how to design an appropriate motorcycle security system model, where this security system can provide information on indications of theft as early as possible and provide information on the position of the motorcycle vehicle through a mobile device that is sent to the motorcycle owner directly, so as to avoid motorcycle theft. An innovative tool to secure motorcycles from theft is to combine Arduino Uno R3 microcontroller, two 5 volt Relay modules by combining IoT (Internet of Things) technology which is supported by the GPS Shield module and the GSM/GPRS SIM808 module. In connection with the development of smart cellular technology, on the user side, the tool will be integrated with the WhatsApp application. It aims to make it easier for users to track the location of the vehicle or control the device and monitor vehicle activity. So with the above technology, it is hoped that the prototype security system can anticipate the occurrence of vehicle theft and can minimize the number of motorcycle thefts.

II. LITERATURE REVIEW

(Bagenda and Prasetya, 2014) in their article entitled prototype of motorcycle security and control system based on the atmega8535 microcontroller, discusses the motorcycle security system using the Atmega8535 Microcontroller which is integrated with mobile phones via the Sort Text Message (SMS) feature. The purpose of

their research is to provide an alternative to motorcycle security from the criminal act of theft, so it is hoped that vehicle owners can find out vehicle information when an indication of theft occurs. The results of their research showed that after the implementation of this motorcycle security system, vehicle owners who previously had difficulty in obtaining vehicle position information became easier to find the position of their vehicle. Another study on motorcycle safety with a microcontroller by (Juwariah, et al., 2019) in his article entitled -Based Motorcycle Safety System, discusses a motorcycle security system using a microcontroller using fingerprints. The purpose of this research is to create a motorcycle security system with fingerprints, so that only people who have registered their fingerprints can start the motorcycle engine.

The research (Begenda and Prasetya, 2014) and (Juwariyah, et al., 2019) has a relationship with the author's research because it discusses where the motorbike is using an IoT-based Microcontroller module that is connected to an application on a smartphone, but of course there are some modifications to the type of Microcontroller and smartphone application that is adapted to the object of research.

III. RESEARCH METHODOLOGY

There are two stages in this research, the system design scheme in the first stage is the design of a motorcycle security system using Arduino as shown in Fig 1.
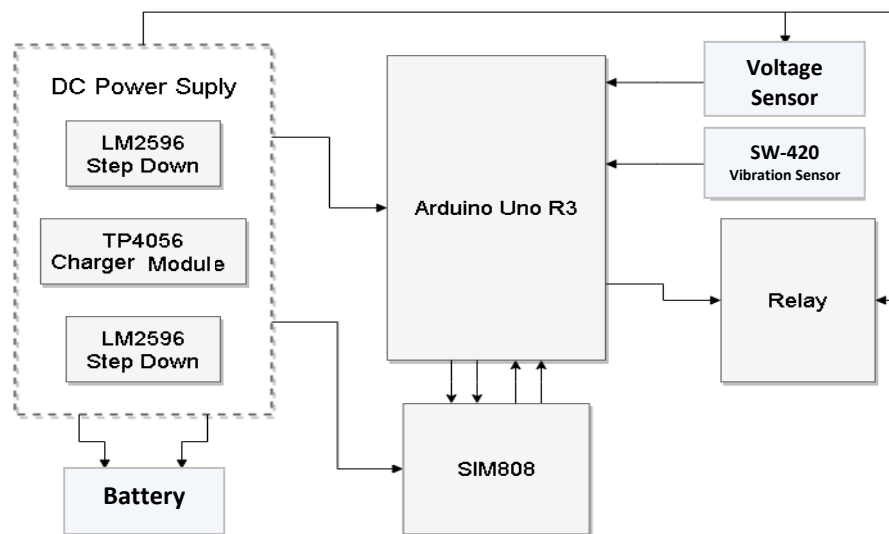
Fig 4. Block Diagram of a Motorcycle Security Prototype

The second stage of designing a motorcycle security system is IoT design using the MQTT protocol such as in Fig 2.
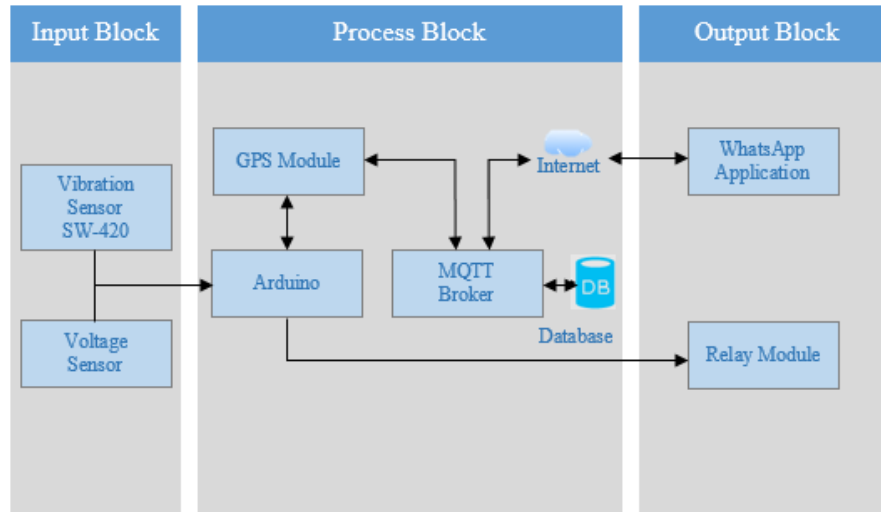
Fig 2. MQTT Communication Block Diagram

IV. RESULT / FINDING

In the first stage the results of the design of the motorcycle security system cable using Arduino which are integrated with the WhatsApp application, are shown in Fig 3.
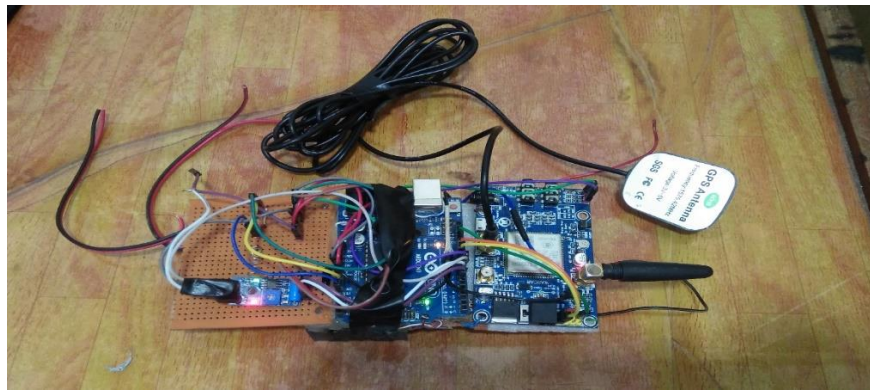
Fig 3. Motorcycle Security Prototype Interface

The results of this prototype design were tested on a motorcycle and showed the motorcycle security system was running smoothly good. All trials carried out show that a motorcycle that is turned on in an inappropriate procedure will provide information in the form of a WhatsApp message and information on the latest motorcycle position, and users can turn off the motorcycle engine through the WhatsApp application.

Table 1 is the result of testing of relay devices, there are four test scenarios carried out on relay devices. The first test scenario to turn off the ignition system on a motorcycle vehicle by sending the code /engine,1 was successfully carried out. The second test scenario to activate the ignition system by sending the code /engine,0 was successfully carried out. The third test scenario is to test whether the system rejects other instructions by sending code that has not been set, and the results show that the system does not respond to unrecognized instructions. The fourth scenario is to test the connectivity of the device by assigning the number 1 to the NC pin, and it was successfully done.

Table 6. Relay Test Result

Testing	Test scenario	Expected result	Test results
1	/engine,1	Turning off the ignition system	[√] successful [ ] unsuccessful
2	/engine,0	Turning on the ignition system	[√] successful [ ] unsuccessful

3	Other commands	Not responding	[√] successful [ ] unsuccessful
4	Gives a value of 1 on the NC pin	Can connect	[√] successful [ ] unsuccessful

Table 2 is the result of testing the SIM888, this test is carried out to determine whether the system can connect using the GPRS cellular network and test the system of sending and receiving SMS. From the test results show that all the expected results in the testing process run as expected, so that the system can communicate via the GPRS cellular network, and the system can communicate by sending and receiving short messages (SMS) between cellular networks.

Table 7. SIM808 Test Result

Testing	Test scenario	Test expected	Test results
1	Activate GPRS	Can connect to the internet	[√] successful [ ] unsuccessful
2	Activate GPS feature	Successfully retrieve GPS coordinate data	[√] successful [ ] unsuccessful
3	Turn on SMS feature	Can receive and send SMS	[√] successful [ ] unsuccessful
4	Combining MQTT feature	Publish and subscribe was successful	[√] successful [ ] unsuccessful
5	Input voltage 4 volt	GPRS and GPS standby	[√] successful [ ] unsuccessful

Table 3 is the result of testing the MQTT protocol. The test results show that the Arduino Microcontroller and the server can be connected so that they can exchange information, and the connection between the two is stable.

Table 8. MQTT Protocol Testing Result

Testing	Test scenario	Test expected	Test results
1	Publish	Sending data from Arduino to server	[√] successful [ ] unsuccessful
2	Subscribe	Received data from Server to Arduino	[√] successful [ ] unsuccessful
3	Connection	Connection stable	[√] successful [ ] unsuccessful

Table 4 is the result of testing the WhatsApp application, this test was carried out to test the interaction between the system and the WhatsApp application. The test results show that the system can send messages to the user's WhatsApp number to send the latest information from the system, besides that the system can also be controlled via the WhatsApp application by using pre-set commands.

Table 9. WhatsApp Testing Results

Testing	Test scenario	Test expected	Test Results
1	Message"/device list"	Data can be saved in database	[√] successful [ ] unsuccessful
2	Message "/engine"	Controls motorcycle ignition system	[√] successful [ ] unsuccessful
3	Message "/location"	Getting data location from tools	[√] successful [ ] unsuccessful

Table 5 is the result of testing the GPS device, from the test results obtained the speed of data transmission during the day and night. The results of testing data transmission using a GPS device during the day from 5 experiments carried out resulted in an average data transmission of 196.6 seconds. While the average data transmission via GPS at night shows 72 seconds. So the difference in data transmission time between night and day is 124.6 seconds.

Table 10. Testing Results of GPS Device

Data - (n)	Day (s)	Night (s)	Difference (x)	$(X_i - X)$	$(X_i - X)2$
1	208	64	144	19.40	376.36
2	188	56	132	7.40	54.76
3	193	75	118	-6.60	43.56
4	198	79	119	-5.60	31.36
5	196	86	110	-14.60	213.16
SUM	983	360	623	0.00	719.20
Average	196.6	72	124.6		

Standard Deviation $= \sqrt{\frac{\Sigma(x_j - \bar{x})}{n-1}} = \sqrt{\frac{719.0}{4}} = \sqrt{179.80} = 13.04$

Absolute Error $= \frac{Standard\ Deviation}{\sqrt{n}} = \frac{13.04}{\sqrt{n}} = 5.83$

Relative Error $= \frac{Absolute\ Error}{X} \ x\ 100\% = \frac{5.83}{124.6} \ x\ 100\% = 4.67\%$

Tools Accuracy Value = 100% - Relative Error = 100% - 4.67% = 95.33%

Based on the calculation data in Table 5, there is a difference in the value of the time spread, which is 144 seconds while the smallest difference is 110 seconds and the average difference is GPS signal locking for 124 seconds. By knowing the average difference, it can be seen that the standard deviation is 13.04 with an error value of 5.83 for each sample.

V. DISCUSSION

The results of this study indicate that the use of the MTQQ on a smartphone is well integrated as shown by the success of the system in controlling for monitoring and controlling with a smartphone. These results are in accordance with research conducted by (Rochman, et al., 2007) which showed that the use of the MQTT protocol succeeded in controlling for controlling and monitoring on smartphones, the application of the MQTT protocol was used to send and receive messages with the publish/subscribe mechanism. Where publishers will send messages and subscribers will receive messages. The same thing was also stated by (Suryatini, et al., 2021) who stated that the use of the protocol had succeeded in connecting Android devices via smartphones with servers, with test results reaching 100% accuracy and data sent by publishers and data received by subscribers achieving conformity. 100%.

Another factor that supports the successful implementation of this motorcycle security system is the suitability of the latest location data sent via GPS. The results show that GPS has succeeded in sending motorcycle vehicle location data with an accuracy value of 95.33% with an error value of 5.83, these results indicate that data transmission via GPS is very good and accurate. This is in line with research conducted by (Rahman, et al., 2019) showing that GPS managed to send location data with a margin of error of 4.58, this result shows that the use of GPS is accurate and reliable to get the latest vehicle location information. Research conducted by (Nugroho & Dzulkiflih, 2021) which states that the use of GPS is considered more efficient in obtaining vehicle location points because it is real time.

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the analysis, design and implementation that have been carried out, the conclusions obtained are that the prototype motorcycle security system is able to provide vehicle information to motorcycle owners in the form of message notifications or calls in the event of an indication of theft. And the owner can find out the whereabouts of the motorbike if there has been a theft by sending a location request message via the WhatsApp application.

This study only uses a vibration sensor, relay, and SIM module in building a prototype motorcycle security system.research can use RFID modules such as research conducted by (Musyafa, et al., 2021) or adopt research conducted by (Normawan & Supriyono, 2019) which uses usernames and passwords in making motorcycle security systems.

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Factors Affecting Consumer Perception Using E-Payments

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Abstract

Electronic payment (e-payment) is one of the conveniences of the current development of financial technology innovation. The existence of e-payment causes changes in consumers' behavior in making payments, from conventional to electronic. The research aims to determine the factors that affect consumer perceptions of e-payments for transactions. The difference with other research is determining the dominant factors that influence consumer perceptions. This research uses a quantitative descriptive method with a survey approach to e-payment users with a research sample of 100 people. The data obtained were processed and analyzed using a Confirmatory Factor Analysis approach with the factors studied: benefits, trustworthiness, self-efficacy, ease of use, and safety. The results showed that two dominant factors influence consumer perceptions of e-payment: self-efficacy and benefits. The conclusion is consumers who use e-payment are influenced by their perception of making payment transactions. Hence, companies that issue e-payment systems need to adopt these factors to improve the quality of their e-payments..

Keywords— Consumer Perception; E-payment; Financial Technology.

I. INTRODUCTION

The development of financial technology innovation that is happening today provides many conveniences and advantages in daily activities. Electronic payment (e-payment) is a tangible form of convenience provided by the current development of financial technology innovation (Bank Indonesia, 2021). Electronic payments are slowly becoming more popular in Indonesia, this can be seen from the many e-wallet applications that are present in Indonesia, e-wallet is an electronic wallet in which there is an account with a number of money data that can be used for buying and selling transactions online (iprice.co.id, 2019). Digital technology innovation is no longer a support system but has become a necessity, especially financial technology innovation.

Research on e-payments has been carried out by several researchers, including Octavia & Hafizh (2019), Mandariza et al. (2019), and Sulistyowati et al. (2020) have something in common is that the research aims to determine the effect of independent variables on consumer perceptions with a regression analysis approach, while this research focuses on knowing the dominant factors that influence consumer perceptions with a factor analysis approach.

In Indonesia, there has been a growth in users of payment systems with electronic devices or electronic payments for shopping needs, both online shopping and shopping at retail stores. The Pricewaterhouse Coopers (PwC) survey related to Global Consumer Insights, illustrates that 47% of respondents in Indonesia currently use electronic payments to transact in 2019 (Bisnis.com, 2019). That number is higher than in 2018 which was recorded at around 38%.

The PwC survey involved 21,480 respondents from 26 countries and countries in the Middle East region. In the Southeast Asia region, Indonesia is one of the countries that participated as respondents along with Thailand, Singapore, the Philippines, Malaysia, and Vietnam. PwC pays special attention to the rapid growth of mobile payment users in Vietnam. Based on data from Bank Indonesia, 38 e-wallets have been officially licensed. In 2018, e-wallet transactions in Indonesia reached US $ 1.5 billion and are predicted to increase to the US $ 25 billion by 2023. (Bisnis.com, 2019; Malik, 2020).

iPrice Group collaborated with data analysis company App Annie, to summarize processed data regarding the most popular e-wallet applications in Indonesia. Their research uses data on the number of application downloads and monthly active users, this research presents more concrete statistics to find out who are the e-wallet applications in Indonesia. (Selular.id, 2019) The following are 5 e-wallets in Indonesia based on the number of users in the Q2 until 2019 period.
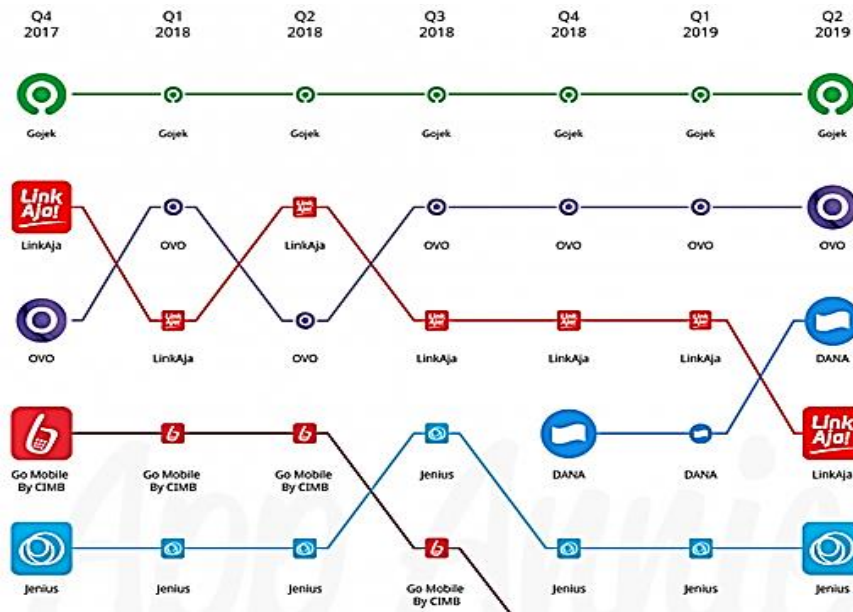
Fig 1. List of E-wallet in Indonesia (selular.id, 2019)

The Fig shows that Go Pay, OVO, and Dana occupy the top three electronic payment applications that are most widely used by Indonesians in the second quarter of 2019. iPrice research shows that Go Pay has the most monthly active users in Indonesia. Research by iPrice Group and App Annie shows that Go Pay has the most monthly active users in Indonesia. As a result, transactions through the digital wallet made by Gojek reached US$ 6.3 billion or around Rp 89.5 trillion as of February 2019. The research company noted that 70% of transactions in the Gojek application use Go Pay as a means of payment. Lippo Group's e-wallet application, OVO, was ranked second based on the number of downloads as of the second quarter of 2019, DANA has been relatively stable since the end of last year. Link Aja occupies the fourth position with the highest number of application downloads in the second quarter of 2019 (katadata.co.id, 2019).

So many advantages to using e-payment, including useless cash to make transactions, only using a smartphone, safer than cash, no need to worry if the wallet is left behind, and there are many bonuses and discounts if you pay using the e-payment application. In contrast to conventional payments, e-payment utilizes internet and smartphone technology as a means of payment by entering a shopping nominal, scanning a barcode, or placing a smartphone device in the space provided.

At this time e-payment has become one of the modern lifestyles of society, because, in addition to having many benefits, e-payment is also very suitable in practical era like now. The decision to use e-payment applications on based on various reasons and perceptions expressing consumers as users of e-payment applications. The phenomena, can be used as a reference to determine the factors that influence consumer perceptions of e-payments related to their use in transactions.

II. LITERATURE REVIEW

a. Consumer Perception

Perception is a process of selecting, organizing, and interpreting information about a product or service by consumers. Perception does not only occur in the form of physical stimulation but is also influenced by existing marketing conditions. According to Kotler and Keller (2016), perception does not only depend on physical stimuli but also stimuli related to the surrounding environment and the circumstances of the individual concerned.

According to Jalaludin (Ashadi and Salim, 2020), perception is the experience of objects, events, or relationships obtained by inferring information and interpreting messages. The process of perception is not just a psychological process but begins with a physiological process known as sensation.

Perceptions can be negative and positive, if consumers have a positive impression of the products offered by the company then this will result in positive perceptions, and vice versa (Kotler and Keller, 2016). Perception in

a person is strongly influenced by thoughts and the surrounding environment. In addition, perceptions can be substantially different from reality.

b. E-payment

Electronic payment is a payment model that makes it easy and offers convenience to its users in making payment transactions (Teoh et al., 2013). Users only need to make transactions using the internet, namely online, without having to meet or come all the way to meet the seller. Electronic payment is representative of all non-cash payments, also interpreted as electronic payment transactions between buyers and sellers using a savings account via the internet or electronic networks (Teoh et al., 2013).

E-Payment is defining as a digital payment instrument that can be represented and transferred in electronic form (Lestari, Purnomo, & Sembiring, 2021). Nugroho (2016) says that e-payment is a payment system that uses internet facilities as an intermediary.

Electronic payments currently used for long-distance transactions such as online shopping, as along the increasing use of the internet and the increasing number of e-commerce, electronic payment is a solution that exists to replace the old method of payment transaction tools. Electronic payments include payment cards, e-wallets, smartcards, e-cash, and e-checks (Apergis, Kunitsyna & Dyudikova, 2020).

III. RESEARCH METHODOLOGY

This research uses a quantitative descriptive method with a survey approach to e-payment users. The research used primary data obtained through questionnaires distributed to 100 respondents with a non-probability sampling technique using purposive sampling. The data obtained were processed and analyzed using a Confirmatory Factor Analysis approach through the stages of the Bartlett Test, Measure of Sampling Adequacy (MSA), and Rotation Factors. In this research, the investigated factors refer to the research of Teoh et al. (2013) suggested the factors that influence consumer perceptions of e-payment, are benefits, trust, self-efficacy, ease of use, and security.

IV. RESULT / FINDING

In this research, the factors to be analyzed consist of 5 factors with 25 indicators are online shopping (X1), offline shopping (X2), faster payments (X3), more proper payments (X4), balance storage (X5), understanding and recognizing behavior (X6), consistent with values and beliefs (X7), motivation to become better (X8), problem-solving ability (X9), individual ability standards (X10), difficulty level (X11), faith in overcoming difficulties (X12), valuation of self-skills (X13), ability to maintain behavior (X14), variations in valuation (X15), easy to learn (X16), easy to understand (X17), practical (X18), cuts bureaucracy (X19), used anywhere (X20), used anytime (X21), saving safety (X22), ease of use (X23), convenience of use (X24), and convenience of saving (X25).

a. KMO and Bartlett's Test

The factor analysis starts with determining the correlation matrix and assessing the feasibility of all indicators using KMO (Kaiser-Meyers-Oklin measure of sampling adequacy), Bartlett Test of Sphericity, and Anti-Image, the results are as follows:

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	1038.183
	df	300
	Sig.	.000

Based on the results of KMO with an MSA value (0.826) > 0.50 and Bartlett's test of Sphericity with a Sig value. (0.000) < 0.05 (Ghozali, 2019), then these indicators are correlated and feasible for further analysis.

b. Extraction Factors.

Factoring process by extracting a set of existing indicators using the Participants Component Analysis (PCA) method, the results are as follows:

Table 2. Communalities

	Initial	Extraction
Online shopping	1.000	.729
Offline shopping	1.000	.817
Faster payments	1.000	.669
More proper payments	1.000	.605
Balance storage	1.000	.692
Understanding and recognizing behavior	1.000	.479
Consistent with values and beliefs	1.000	.473
Motivation to become better	1.000	.721
Problem-solving ability	1.000	.707
Individual ability standards	1.000	.665
Difficulty level	1.000	.707
Faith in overcoming difficulties	1.000	.767
Valuation of self-skills	1.000	.695
Ability to maintain behavior	1.000	.549
Variations in valuation	1.000	.690
Easy to learn	1.000	.707
Easy to understand	1.000	.703
Practical	1.000	.421
Cuts bureaucracy	1.000	.733
Used anywhere	1.000	.587
Used anytime	1.000	.713
Saving safety	1.000	.745
Ease of use	1.000	.624
Convenience of use	1.000	.566
Convenience of saving	1.000	.624

From Table 2, it's known that the extraction value of each indicator that shows the variance of the initial indicators explained by the existing factor's, means that the greater the Communality of each indicator, the closer the relationship with the factor formed. Furthermore, the calculation of Total Variance Explained aims to find out how many factors (components) are formed, the results are as follows:

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.177	32.708	32.708	8.177	32.708	32.708	2.844	11.376	11.376
2	1.940	7.760	40.468	1.940	7.760	40.468	2.639	10.557	21.933
3	1.577	6.309	46.777	1.577	6.309	46.777	2.503	10.014	31.947
4	1.382	5.527	52.305	1.382	5.527	52.305	2.445	9.782	41.729
5	1.179	4.717	57.022	1.179	4.717	57.022	2.371	9.486	51.215
6	1.112	4.448	61.470	1.112	4.448	61.470	1.894	7.576	58.791
7	1.022	4.088	65.558	1.022	4.088	65.558	1.692	6.767	65.558
8	.997	3.986	69.544						
9	.954	3.816	73.359						
10	.781	3.124	76.484						
11	.726	2.903	79.387						
12	.654	2.617	82.004						
13	.562	2.248	84.251						
14	.536	2.145	86.397						
15	.473	1.890	88.287						
16	.452	1.810	90.096						
17	.419	1.675	91.771						
18	.380	1.518	93.289						
19	.362	1.447	94.736						
20	.290	1.159	95.895						
21	.274	1.098	96.993						
22	.234	.936	97.929						
23	.199	.795	98.724						
24	.181	.725	99.449						
25	.138	.551	100.000						

Based on Table 3. there are 25 indicators included in the factor analysis summarized into seven factors, namely Component 1, Component 2, Component 3, Component 4, Component 5, Component 6, and Component 7, where the Eigen Values 1 to 7 have values above 1.

c. Rotated Component Matrix

Aiming to find out whether these indicators are included in the seven factors that are formed based on the loading factor value > 0.5 (Ghozali, 2019), the results as follow:

Table 4. Rotated Component Matrix

	Component						
	1	2	3	4	5	6	7
Online shopping	.103	.196	.119	.235	.173	.747	-.150
Offline shopping	.173	-.026	.778	-.243	.191	.236	.174
Faster payments	.187	.136	.487	.524	-.008	.318	.055
More proper payments	-.002	.234	.547	.342	.198	.220	.215
Balance storage	.153	.136	.091	.121	.047	-.037	.790
Understanding and recognizing behavior	.160	.063	.232	.121	.591	.055	.169
Consistent with values and beliefs	.107	-.023	.078	.019	.056	.650	.170
Motivation to become better	.469	.387	.218	-.109	-.017	.461	.283
Problem-solving ability	.018	.068	.333	.304	.265	.309	.577
Individual ability standards	-.148	.138	-.030	.335	.666	.234	.108
Difficulty level	.440	.155	-.016	-.212	.203	.354	.528
Faith in overcoming difficulties	-.024	.798	.188	.080	.187	.224	-.059
Valuation of self-skills	.079	.719	.178	.266	-.009	-.067	.255
Ability to maintain behavior	.167	.485	.010	-.144	.506	.025	.093
Variations in valuation	.345	.694	-.051	-.088	.226	.079	.145
Easy to learn	.435	.280	.370	.119	.524	.090	-.070
Easy to understand	.347	.399	.350	.141	.501	-.032	-.169
Practical	.182	.019	.273	.333	.343	.289	.042
Cuts bureaucracy	.183	.199	.748	.287	.121	-.057	.026
Used anywhere	.182	.015	.060	.657	.323	-.022	.117
Used anytime	.245	.050	.061	.794	.063	.101	.039
Saving safety	.803	-.050	.046	.264	.013	.134	.086
Ease of use	.656	.309	.141	.163	.127	.083	.173
Convenience of use	.473	.208	.246	.139	.433	.130	.122
Convenience of saving	.593	.125	.260	.372	.206	.074	.066

It's known that the colored loading factor values are indicators included in each component in the following table:

Table 5. New Factors Formed

Factor	Indicator	*Loading Factor*
Factor 1	Saving safety	0.803
	Ease of use	0.656
	Convenience of saving	0.593
Factor 2	Faith in overcoming difficulties	0.798
	Valuation of self-skills	0.719
	Variations in valuation	0.694
Factor 3	Offline shopping	0.778
	More proper payments	0.547
	Cuts bureaucracy	0.748
Factor 4	Faster payments	0.524
	Used anywhere	0.657
	Used anytime	0.794
Factor 5	Understanding and recognizing behavior	0.591
	Individual ability standards	0.666
	Ability to maintain behavior	0,506
	Easy to learn	0.524
	Easy to understand	0.501
Factor 6	Online shopping	0.747
	Consistent with values and beliefs	0.650
Factor 7	P Balance storage	0.790
	Problem-solving ability	0.577
	Difficulty level	0.528

In Table 5, each factor has an indicator that is ordered based on the value of the loading factor calculated from the rotated component matrix, which explains the clear and fact distribution of indicator's for each component.

d. Component Transformation Matrix

The Component Transformation Matrix aims to know the dominant factors influencing consumer perceptions to use e-payment based on the eigenvalue > 0.5(Ghozali, 2019). The calculation results are as follows:

Table 6. Component Transformation Matrix

Component	1	2	3	4	5	6	7
1	.463	.406	.424	.340	.419	.304	.242
2	.135	.572	-.223	-.759	.042	.002	.164
3	.376	-.481	-.006	-.199	-.380	.403	.529
4	-.695	-.023	.452	-.242	.120	.477	.109
5	-.343	.212	-.629	.396	.074	.176	.498
6	.161	-.155	-.406	-.069	.301	.626	-.546
7	.005	-.455	-.074	-.220	.754	-.309	.275

From Table 6, it's known that the components with a correlation value > 0.5 are the dominant components, namely component 2 of 0.572 and component 6 of 0.626. It proves that two of the seven factors which formed with a high correlation are the most dominant factors.

V. DISCUSSION

Based on the results of data testing using factor analysis, it's known that the factors affect consumer perceptions using e-payment by two dominant factors, namely self-efficacy factors and benefit factors.

The self-efficacy factor consists of indicators of faith in overcoming difficulties, valuation of self-skills, and variations in valuation. Based on information obtained from one of the respondents, the reason for using e-payment is because it provides its own challenges and to keep up with technological developments that have developed in all sectors including financial services. In addition, because e-payment is relatively easy to use, it provides its own motivation to be used as a means of payment at certain times, even on every occasion.

According to Bandura (in Octavia and Hafizh, 2019), self-efficacy is an individual's belief about his ability to perform tasks or actions needed to achieve results. Meanwhile, according to Dory et al. (in Toeh et al., 2013), defining self-efficacy describes how a user understands and believes in his skills and abilities complete a task.

The benefit factor consists of online shopping and is consistent with values and beliefs indicators. Based on information from respondents, the reason for using e-payment is because of the many benefits they will receive, including the payment process can be done easier and practically, transaction payments do not need to use banking services or minimarket outlets, and are very useful for online buying and selling transactions.

In line with the opinion according to Chandon et al. (in Octavia and Hafizh, 2019), perceived benefits are beliefs about positive outcomes associated with behavioral responses to real or perceived threats. Meanwhile, according to Rogers (in Octavia and Hafizh, 2019). Perceived usefulness refers to the degree to which an innovation delivers more benefits than its predecessor.

VI. CONCLUSION AND RECOMMENDATION

The research concludes that there are two dominant factors, namely the self-efficacy factor with indicators of faith in overcoming difficulties, valuation of self-skills, and variations in valuation, and the benefit factor with online shopping indicators and consistent with values and beliefs that affect consumer perceptions of using e-payment.

Recommendations from the research results are that consumers must pay attention to the type of e-payment that suits their needs and ease of use, and be careful in online transactions.

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Neural Network Algorithm For Classification Of Student Graduation In Faculty of Economics, University of Garut

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Abstract

The academic performance is one of aspect which has remained the benchmark of the success in learning activities at the university. The indicator of academic performance in the university is the students able to complete their studies on time. Unfortunately, the problem regarding academic performance was associated with the completion time of student studies in Faculty of Economics, Garut University. In this research explore the model that able to classify the graduation of student through the data mining classification technique using Neural Network Algorithm. The classification conducted by evaluating the academic performance based on Semester Performance Index (IPS) during first years, Semester Credit Unit (SK S) at second years and use the demographics of students as attributes that will be used in the dataset. Based on the examinations that conducted by using k-fold cross validation, there are 12 attributes that influence the graduation of students. Moreover, based on the evaluation of accuracy and recall score, with some modified number of hidden layers, and number of hidden nodes and removing some features will indicated the high value. The model that represented able to applied for classify the active students from 2012 to 2017 that indicate accuracy value of 82.96% and recall value was 66.54%.

Keywords— Data Mining; Student Graduation; Classifications; Neural Network; K-Fold Cross Validation; Confusion Matrix.

I. INTRODUCTION

Academic performance is an aspect to measure the success of universities in carrying out learning activities. A good indicator of academic performance for tertiary institutions is that students can complete the study period with a predetermined minimum time limit. Problems regarding student academic performance in terms of accomplishing the study period on time occur in the Faculty of Economics, University of Garut. Table 1 shows the percentage of graduate students from the economics faculty who accomplish their study period on time from the 2012 – 2017 class. This case makes the ratio between lecturers and students not ideal. In other words, the value of accreditation of study programs regarding student affairs is not optimal, and too many active students lead teaching and learning activities to be less conducive. The obstacles occur in determining the indicated students will not graduate on time because each lecturer guides too many students, and the number of human resources in the study program does not match the number of students.

Table 1. Percentage of Graduates of the Faculty of Economics on time in 2015-2021

Period	Accounting Department	Management Department
2012	5,7%	6,2%
2013	14,5%	7,7%
2014	13,5%	4%
2015	26,9%	27,7%
2016	8%	5,7%
2017	10,3%	23,9%

The rapid growth of information technology creates the accumulation of data but lacks information. In the process of browsing for that information, the term Data Mining appears. Data mining is regarded as the process of finding interesting patterns and knowledge from data collections of databases, data warehouses, data marts, and repositories (Han et al., 2012) that focus on extracting hidden knowledge (Hussain et al., 2018). Educational Data Mining (EDM) is widely used in education to explore and analyze student academic performance, predict dropouts, feedback analysis, data visualization, and assessment in the learning process. The classification method is the method in Data Mining that is often operated in EDM to predict student performance (Shahiri et al., 2015).

This study aims to find a model for classifying student graduation patterns using the Data Mining classification technique by the Neural Network algorithm. Classification is used by evaluating the output of student academic performance in the form of social studies in the first year and the number of credits in the second year and using student demographics as a feature to be used in the dataset. The methodology for designing Data Mining uses the CRISP-DM with the model performance test method through Cross Validation. The model from the classification implemented on a graph and a list of students classified by graduation time is a data visualization. The classifications of student graduation support decision-makers in taking the necessary actions if the student's study period can be known earlier.

II. LITERATURE REVIEW

Educational Data Mining (EDM) is an emerging discipline with a series of computational and psychological methods as well as a research approach to understanding how students learn (Baker, 2010). EDM is a Data Mining concept that is used to explore educational data, identify patterns and predict descriptively what characterizes student behavior and achievement, domain content knowledge, assessment, educational functions, and educational applications (Peña-Ayala, 2014). EDM analyzes data generated by various types of information systems that support learning or education. Data in education have distinctive characteristics such as multiple hierarchical levels (subjects, assignments, question levels), context (certain students in a particular class encountering certain questions at specific times and on specific dates), and longitudinal (lots of data recorded over many sessions in a while) (Romero & Ventura, 2013).

(Shahiri et al., 2015) conducted a review of studies related to the implementation of Data Mining to predict the study period and produced a review of the attributes in the dataset used in predicting graduation using Data Mining and the algorithm used. The results of this study suggest that the Neural Network algorithm is the most popular and has a good level of accuracy for predicting student graduation. In addition, the Neural Network algorithm is a suitable algorithm for classifying student graduation after a comparison experiment has been carried out between Neural Network, Support Vector Regression, and Linear Regression (Obsie & Adem, 2018)

This study uses the CRISP-DM methodology, referring to (Shafique & Qaiser, 2014) who compared several methodologies in the development of Data Mining and concluded that the Data Mining project mostly uses CRISP-DM and is considered quite complete. Classification of data that has accuracy or similarity to measurement data with actual numbers or data, testing is carried out based on accuracy with test data parameters and training data determined by Cross-Validation. Therefore, data accuracy affects the final results of data classification because when data accuracy is not accurate it will affect the percentage of grouping test data and training data (Hulu et al., 2020) Cross validation is a standard procedure for evaluating performance classification algorithms (Cao et al., 2007) and has been extensively used in data mining for the sake of model selection or modeling procedure selection (Hastie et al., 2009) given a priori or developed by modeling procedures. Based on data splitting, part of the data is used to fit each competing model and the rest is used to measure the predictive performance of the model with validation errors, and the model with the best overall performance is selected (Zhang & Yang, 2015).

III. RESEARCH METHODOLOGY

The methodology used in this study adopted the Cross-Industry Standard Process for Data Mining (CRISP-DM) method. As depicted in Fig.1 CRISP-DM consists of six phases, namely (Chapman et al., 2000): Business Understanding; Data Understanding; Data Preparation; Modeling; Evaluation and Deployment.
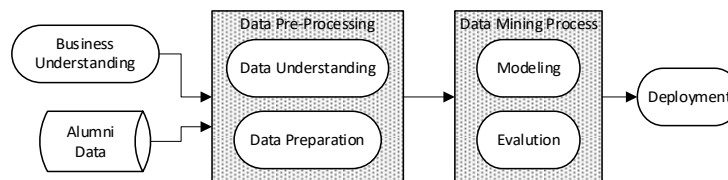
Fig. 1. Methodology Process

A. Business Understanding

The purpose of implementing this data mining is to classify students who graduate on time and graduate not on time. This information is used by guardian lecturers (mentors) and study programs to understand the characteristics and provide special treatment to their students such as suggesting taking a short semester and

several other treatments based on the policy of the study program. Institutions expect graduation classification data to increase the number of students who complete their studies on time.

B. Data Understanding and Preparation

This study uses data from graduates from an academic information system that runs within the economics faculty from the class of 2012 to 2017. The data taken is in the form of a worksheet file with 20 features for 2022 data. The data is raw data with data conditions that do not meet the standards to enter the mining process. In the next stage, the researcher selects features by deleting several features that do not influence the Data Mining process. Many factors influence the data mining process, namely accuracy, completeness, consistency, timeliness, trustworthiness, and interpretability (Han et al., 2012). Next, check the data to see the mistakes, inconsistencies, and noise that affect the modeling results. In addition, cleaning data by handling missing values in the dataset, then assigning a constant value, middle value, or average of the feature or giving a lot of values for the feature (Han et al., 2012). Next, look for the information gain value for each feature in the dataset. Researchers use information gained as a reference for modeling scenarios. Table 2 describes the features that will be used after going through the data preparation stage.

Table 2. Description of the features of the data used

Attribute	Description	Values	Information Gain
PROG	Program reg	Reg, Non Reg	0.004
GND	Gender	Male, Female	0.011
AGE	Age when	16 - 38	0.002
MRG	Marriage status	Marriage, Not Marriage	0.002
LOC	Local city	Local, Out Of Town	0.023
FTSCH	Father last school	SD, SMP, SMA, S1, S2, S3	0.042
MTSCH	Mother last school	SD, SMP, SMA, S1, S2, S3	0.049
FTJOB	Father job	gov emp, soldier, priv emp, entpr, laborer, not, etc	0.048
MTJOB	Mother job	gov emp, soldier, priv emp, entpr, laborer, not, etc	0.001
IP1	Semester 1 Performance Index	0,0 – 4,0	0.098
IP2	Semester 2 Performance Index	0,0 – 4,0	0.112
IP3	Semester 3 Performance Index	0,0 – 4,0	0.118
IP4	Semester 4 Performance Index	0,0 – 4,0	0.083
SKS3	Semester 3 Credit Unit	0 – 24	0.159
SKS4	Semester 4 Credit Unit	0 – 24	0.095
LULUS		On time / Not on time	-

C. Modeling

The modeling in this research is using Neural Network. Determination of train data and testing data in this modeling process uses the Cross Validation method. The dataset has a total of 1304 records. In finding the comparison value, the researher look for the resulting accuracy and recall values. Features are sorted by information gained. The test scenario of this model uses all the features in the first scenario with a different number of hidden layers and hidden nodes, then deletes the feature with the lowest information gain value in the next experiment. In doing the modeling, this research was assisted by using Rapidminner software.

IV. RESULT/FINDING

A. Evaluation

Evaluation of models at the modelling stage to find out which model is the best in classifying student graduation. The comparison appears in the number of hidden layers, the size of each hidden layer, and features. The way to evaluate the model is to analyse the accuracy and recall values generated by each model. Table 3-6 is a recapitulation of the performance of all models.

Table 3. Classification results using all attributes

Table 4. Classification results by removing 1 attribute with the lowest information gain value

Table 5. Classification results by removing 2 attributes with the lowest information gain value

Table 6. Classification results by removing 3 attributes with the lowest information gain value

Test	Accuracy	Recall	Test	Accuracy	Recall	Test	Accuracy	Recall	Test	Accuracy	Recall
M1	81,11	61,52	M31	79,71	57,62	M61	80,33	59,85	M91	80,95	57,81
M2	80,64	55,76	M32	80,69	52,23	M62	81,31	55,39	M92	80,79	57,43
M3	80,9	53,9	M33	80,69	54,65	M63	80,59	61,34	M93	81,11	56,69
M4	80,44	59,29	M34	82,03	56,32	M64	81,98	55,58	M94	80,8	65,24
M5	81,26	60,59	M35	82,29	63,57	M65	82,08	60,59	M95	82,96	66,54
M6	81,16	57,43	M36	80,44	55,02	M66	81,16	58,92	M96	79,97	59,85
M7	80,85	57,81	M37	80,95	57,43	M67	80,59	54,28	M97	81,16	57,81
M8	80,95	52,04	M38	81,52	64,31	M68	81,47	60,04	M98	82,03	55,39
M9	81,78	58,74	M39	81,37	58,55	M69	80,54	59,29	M99	81,16	56,13
M10	81,93	59,48	M40	82,34	57,06	M70	81,36	58,55	M100	82,34	60,59
M11	80,8	57,81	M41	80,18	53,16	M71	80,85	54,09	M101	79,19	54,65
M12	80,79	61,71	M42	80,9	58,18	M72	80,64	60,41	M102	79,14	54,46
M13	80,43	62,64	M43	81	61,71	M73	82,6	58,92	M103	81,52	65,8
M14	82,09	61,9	M44	81,73	56,69	M74	81,36	65,61	M104	81,1	58,18
M15	82,39	61,9	M45	81,88	59,67	M75	80,79	61,52	M105	81,57	61,52
M16	81,05	59,11	M46	79,51	48,14	M76	80,7	59,11	M106	80,07	61,52
M17	80,85	60,04	M47	79,71	55,2	M77	80,85	60,04	M107	81,05	60,59
M18	80,84	57,62	M48	80,69	55,39	M78	81,72	61,71	M108	80,95	62,08
M19	81,88	53,9	M49	80,02	58,55	M79	81,52	59,67	M109	81,78	63,38
M20	81,46	58,92	M50	80,95	59,67	M80	81,62	60,59	M110	82,8	60,04
M21	81,57	64,31	M51	80,02	58,92	M81	80,54	61,34	M111	80,59	56,69
M22	80,43	57,06	M52	80,38	56,32	M82	79,35	55,95	M112	80,9	54,46
M23	81,52	63,2	M53	80,64	58,55	M83	81,62	62,08	M113	81,72	60,41
M24	81,32	56,88	M54	81,42	56,32	M84	81,21	62,08	M114	81,26	60,22
M25	82,08	60,97	M55	80,79	63,94	M85	81,67	62,64	M115	82,6	62,64
M26	80,95	64,68	M56	79,15	49,44	M86	80,02	52,97	M116	80,64	57,43
M27	80,74	63,75	M57	80,85	59,11	M87	80,85	59,85	M117	80,28	53,35
M28	80,84	59,85	M58	81,21	54,28	M88	82,09	61,71	M118	80,69	61,9
M29	80,74	56,69	M59	81,88	60,59	M89	81,31	62,45	M119	82,24	62,08
M30	81,93	57,99	M60	80,79	61,15	M90	80,85	61,34	M120	82,24	58,74

Accuracy shows the ratio of True positives (true positives and true negatives) of the overall data. Accuracy answers the question about the percentage of students who are predicted to pass on time and graduate on time from all students. Recall indicates the ratio of true positive predictions compared to all data that is true. Recall answers the question about the percentage of students is predicted to graduate on time compared to the total number of students who graduate on time.

In classifying students, it is highly expected that the resulting value will have a False Positive value or pass on time. The results of the classification are used as a warning to the guardian lecturer or the head of the Study Program to take action against students classified as graduating on time. Therefore, it can be concluded that the recommended model is the model with the best recall value as the model that chooses False Positive is better than False Negative. Based on the test results, the highest recall value is in the M95 model, where the model has 12 features (PROG, GND, LOC, FTSCH, MTSCH, FTJOB, IP1, IP2, IP3, IP4, SKS3, SKS4) with a recall value of 66.54 %, besides that the M95 model has a fairly high accuracy value, which is 82.96%.

B. Deployment

Data collection for students of 2019-2020 who have not passed and meet the feature criteria used in the recommendation model. The number of data is 999, consisting of 423 2019 students and 576 students from the 2020 batch. Furthermore, the data preprocessing process is carried out and leaves as many as 809 data (436 data from the 2019 batch and 373 from the 2020 batch). Table 7 is a recapitulation of the graduation classification of 2019 and 2020 students of the Faculty of Economics. Fig 2 shows the distribution of graduation classification data by batch.

Table 7. Recapitulation of the graduation classification of 2019 and 2020

Graduation Prediction	Amount	Fraction	Percentage
On Time	205	0,756	24%
Not On Time	636	0,244	76%
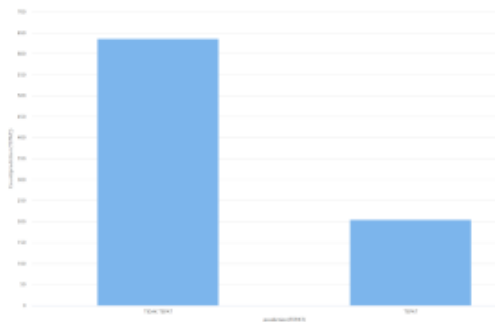
Fig 2. Distribution of graduation classification data by batch

V. DISCUSSION

From the results of research conducted at the Faculty of Economic Garut University, it can be concluded that:

a. The predicted results show results that illustrate that student graduation tends to be late because the dominant training data used has a late trend

b. The number of hidden layers and the number of hidden nodes greatly affect the accuracy and recall of the neural network algorithm.

c. From the results of the research conducted and the results of the application of the neural network algorithm, the most influential parameter is the student's SKS3 (Third Semester Credit Unit).

d. The results of the prediction of the application of the neural network algorithm to the prediction of graduation of management students at the Faculty of Economic University of Garut with a sample from 2012 to 2017 batches were 82.96% for accuracy and 66.54% for recall.

With the results obtained from this study, the accuracy can be improved by reducing the number of parameters and increasing the number of input nodes and layers in the next study. The discussion and application of a comprehensive feature model are expected to increase the accuracy value which is getting closer to 100% in subsequent studies.

VI. CONCLUSION AND RECOMMENDATION

The finding concluded that student graduation tends to be late because the dominant training data used has a late trend. In addition, the number of inputs such as input nodes, hidden layers, and hidden nodes greatly affect the accuracy of neural network algorithms. The results of the neural network algorithms illustrated the most influential parameter is the SKS3 (Third Semester Credit Unit) of students. The calculation of predictions of the accuracy of the application of neural network algorithms to the graduation predictions of the Faculty of Economic University of Garut with batch samples from 2011 to 2017 was 98.27%. The students who are predicted to not graduate on time, FEKON UNIGA, in this case, the study program and the student guardian lecturer, perform several treatments such as suggesting taking a short semester, more routine counseling, and other treatments based on the policy of the study program.

Furthermore, the accuracy and recall improve by reducing the number of features and increasing the number of hidden layer layers and nodes in subsequent studies. Discussion and implementation of comprehensive feature models are expected to increase the accuracy value closer to 100% in future studies.

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Analysis of Financial Literacy Factors for SMEs

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Abstract

Financial governance is a major issue in the operations of small and medium enterprises (SMEs). Financial literacy and financial management are intertwined. Increasing financial literacy in SMEs will help them to function more efficiently, prepare for their financial future, and increase economies of scale. This study aims to analyze the determinants that shape financial literacy in SMEs in Garut Regency. The research participants represent the state of the art in this study. SMEs in the food industry, which sell utilizing wheels (street food), make up the research participants. Exploratory Factor Analysis (EFA) is used in this study to analyze the elements that contribute to financial literacy. Five SME actors were interviewed to discover the elements that contribute to financial literacy, and a questionnaire was then provided to 70 SME actors as research samples. Financial behavior variables, financial planning elements, financial management factors, and financial control factors were discovered in the study's findings. These elements are thought to be capable of representing the financial literacy variable, in which SME actors' comprehension of these aspects influences effective decision-making about the use and management of financial resources, allowing SMEs to expand their business size in the long run.

Keywords— Exploratory Factor Analysis; Financial Literacy; Small and Medium Enterprises.

I. INTRODUCTION

SMEs have demonstrated their ability to survive and compete amid economic downturns as one of the pillars that can support the nation's economy (Mutamimah, Tholib and Robiyanto, 2021; Damayanti *et al.*, 2018). SMEs encounter a number of challenges that contribute to their high economic contribution, including limited working capital, human resources, product and technology innovation, and marketing (Junoha, bin Hidthiir and Basheer, 2019). Small businesses frequently complain about capital shortages, but this is a tired excuse for why they aren't growing because the true issue is financial management (Hossain, Ibrahim and Uddin, 2020). One of the most serious issues in SME firm governance is financial management. (Agyapong and Attram, 2019).

Financial literacy and financial management are inextricably linked. Financial literacy is defined as knowledge, skills, and beliefs that impact attitudes and behavior to improve the quality of decision-making and financial management in order to achieve prosperity, according to Financial Services Authority Regulation (POJK) Number: 76/POJK/07/2016. Growing financial literacy in SMEs will help them to run their businesses more efficiently, plan for their financial future, and have an impact on increasing economies of scale (Golubić and Huertas, 2021).

Several studies on financial literacy include examining: the determinants of financial literacy (Anshika, Singla and Mallik, 2021); the influence of financial literacy on the financial performance of SMEs (Omiunu, 2019; (Kulathunga *et al.*, 2020; Ali and Li, 2021); the influence of SME demographic factors that contribute to financial literacy (Hakim, Oktavianti and Gunarta, 2018); the influence of literacy finance on entrepreneurial activities (Li and Qian, 2020); the impact of financial literacy on SME innovation (Liu *et al.*, 2021); the role of culture in financial literacy between women and men (Rink, Walle and Klasen, 2021), and others.

This study aims to analyze the determinants that shape financial literacy in SMEs in Garut Regency. The research participants represent the state of the art in this study. SMEs in the food industry, which sells utilizing wheels (street food), make up the research participants.

II. LITERATURE REWIEW

A. Financial Literacy

Financial literacy is defined as the ability to identify and comprehend financial risks in order to make sound financial decisions, as well as the ability to understand financial products and concepts with the help of information and advice (Fatoki, 2014; Susan, 2020). The ability to make informed judgements and make effective decisions about the use and management of financial resources is characterized as financial literacy (Tuffour, Amoako and Amartey, 2020; Lyons and Kass-Hanna, 2021). Given its major impact on the stability and viability of their particular enterprises, financial literacy has become a key skill for SME owners (García-Pérez-de-Lema, Ruiz-Palomo and Diéguez-Soto, 2021). SMEs will be better able to organize their firm finances in the long run if they

have a better understanding of finance (Baporikar and Akino, 2020; Rahim and Balan, 2020). Low financial literacy encourages people to make poor decisions and has a negative impact on their engagement in formal financial institutions (Mabula and Ping, 2018; Eniola and Entebang, 2017; Munyuki and Jonah, 2022).

B. Small and Medium Enterprises in Indonesia

According to the Indonesian Central Statistics Agency (BPS), Indonesia's jobless rate grew to 6.88 million persons in February 2020, up 60 thousand individuals over the previous year. This high number has a negative impact on community welfare; restricted work options have increased the number of unemployed, and Indonesia's economic situation is deteriorating. When the Indonesian economy is in a state of flux. The Small and Medium Enterprises (SME) sector is one that continues to operate well.

Because SMEs account for 99.9% of all company units in Indonesia, while only 0.1% of all business units are large, SMEs play a critical role in employment and economic growth. According to the Central Statistics Agency, the number of SMEs in Indonesia in 2018 was 64,199,606 units, up 2.02% from the previous year, with a total workforce of 116,978,631 persons who contributed to the country's Gross Domestic Product (GDP). By 61.07 percent, or 8,573,895.3 billion rupiah, Indonesia has gained. SMEs in Indonesia have various features, including being a family firm, having one person in charge of management, not going public on the stock exchange, having restricted financial access, and non-SMEs having lower credit risk than SMEs (Mutamimah, Tholib and Robiyanto, 2021).

III. Research Methodology

A. Research Characteristics and Stages

Exploratory Factor Analysis (EFA) is used in this study to analyze the elements that contribute to financial literacy. Interviewing SMEs is the first step. Interviews with open-ended questions about the factors of financial literacy achievement in SMEs were performed, followed by data tabulation and categorization. Interviews were done with five SMEs in Garut Regency, two of which were female and three of which were male, with a business age range of 5-20 years and a culinary business. The informants are vendors of street food who operate carts that roam or occupy certain locations.

The EFA's second stage involves distributing questionnaires to 70 SMEs in Garut Regency who were chosen at random as study subjects. The questionnaire uses a Likert scale with a choice category range of 1 to 5 to ask closed questions regarding the determinants of financial literacy in SMEs. The terms "very not considered" and "highly regarded" are used to describe categories 1 and 5. The data that has been collected is analyzed as the final stage in the EFA.

B. Conceptual Framework

The EFA consists of four steps: 1) testing the feasibility of the data by looking at the correlation matrix, Measure of Sampling Adequacy (MSA), and Keisher-Meyers-Oklin (KMO) values; 2) factor extraction by looking at the eigenvalue criteria; 3) rotating factors with the varimax technique; and 4) interpreting the formed factors by looking at the loading factor and communality value.

The research was carried out in Garut Regency, which contains a diverse range of SMEs in the culinary sphere, including street food, cafés and restaurants, and others. The participants in this study were all SMEs in Garut Regency, both registered and unregistered with government institutions. Because the number of firms could not be determined, the Lemeshow method was utilized to calculate the number of samples in this study. A total of 70 small business owners in the culinary industry responded to the survey.

IV. Result / Finding

A. Profile of Respondent

According to age, gender, education level, business longevity, business ownership status, and business debt ownership status, Table 1 below summarizes the profile of the research respondents.

Table 1. Profile of Research Respondents

Criteria	Sub Criteria	Amount
Age	12 – 25 years	14

	26 – 55 years	35
	> 56 years	21
Gender	Male	43
	Female	27
	Junior High School	21
Education Level	Senior High School	46
	Diploma/Bachelor Degree	3
	< 5 years	12
Business Longevity	5 – 10 years	22
	> 10 years	36
Business Ownership Status	A person's own	56
	Managing another person's company	14
	Free of debt	2
Business Debt Ownership Status	Have a bank debt	7
	Have a debt to another institution or party	61

Source: Data processed

According to the Ministry of Health of the Republic of Indonesia, the majority of respondents in the age group are between the ages of 26 and 55, which falls between early adulthood and early old age. This is demonstrated by the distribution of respondent data above. This age range is also seen as a productive age, which denotes that a person is still thought to be ca-pable of working and producing anything at that time. The majority of SMEs fall under the male gender category. This occurs as a result of the cultural norm that males are the bread-winners of the family and are in charge of providing for them. Most of the responders in the education category hold a high school diploma. This denotes a change in the workforce. High school graduates used to be able to enter the workforce with ease; currently, the trend is toward SME players. This can be a result of the current work market being more competitive.

Most of the respondents have owned their company for more than 10 years, which is the most common business status. These circumstances suggest that the responder has a clear understanding of his business environment and is capable of organizing and managing his operations, including his recording company. Most respondents in the company debt owner-ship category had debts owed to entities other than banks, such as cooperatives, internet lenders, or loans from family members. This indicates that SMEs are still not deemed to have access to credit from financial institutions since they are restricted by a number of laws, in-cluding ownership of permits, guarantees, and other items.

B. Tabulation of Interview Results

The tabulation of the results of interviews that have been conducted with selected informants shows that the factors that encourage the improvement of financial literacy in SMEs are as follows:

Table 2. Tabulation and Categorization of Interview Results

Number	Determinants of Financial Literacy	Code
1.	Recording of financial transactions	P1
2.	Financial segregation for the company's personal interest	P2
3.	Have a goal in financial management	P3
4.	Have savings to achieve financial goals	P4
5.	Make a financial budget	P5
6.	Buy something according to need	P6
7.	Understand the comparison of cash inflows and cash outflows	P7
8.	Have an understanding that business volume is related to cash flow	P8
9.	Paying off debts to more than one person/institution	P9
10.	More than one source of income	P10

11.	Recording accounts payable and accounts receivable	P11
12.	Keeping inventory records	P12
13.	Have a reserve fund for urgent personal needs	P13
14.	Have reserve funds for business needs and business risks	P14

Source: Data processed

C. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Data processing was carried out several times, by removing factors that had an Anti-Image Correlation value < 0.500, namely P12 and P13 factors. The results of data processing by excluding P12 and P13 fac-tors are shown in Table 3 as follows:

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,638
Bartlett's Test of Sphericity	Approx. Chi-Square	172,581
	df	66
	Sig.	,000

Source: Data Processing Output using IBM SPSS 23

The test results in table 3 show the value of Kaiser Meyer Olkin and Bartlett's Test, it can be seen that the KMO Measure of Sampling number is 0.638. Because the KMO Measure of Sampling number is above 0.5, the attribute set can be processed further. The Bartlett's Test number expressed in Chi-Square numbers also shows a very real significance number (0.000). Value of Sig. on Bartlett's Test of 0.000 which is < 0.05, which means the sample is adequate for further analysis.

D. Factoring

The extraction (factoring) of a collection of variables results in the formation of one or more new factors. The eigenvalue of the newly generated factor must be 1. The eigenvalues are always arranged in ascending order from greatest to lowest, with the criterion that eigenvalues less than 1 are not considered in determining the number of components generated. After the factoring procedure, four additional factors are generated from the original 12 variables, namely components 1 through 4. This demonstrates that the similarity of features of specific variables causes the grouping of multiple variables into particular factor analyses.

Table 4. *Total Variance Explained*

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,432	20,266	20,266	2,282	19,013	19,013
2	2,020	16,836	37,102	2,018	16,814	35,827
3	1,893	15,777	52,878	1,942	16,183	52,010
4	1,136	9,465	62,343	1,240	10,333	62,343
…	…	…	…			
12	,316	2,637	100,000			

Extraction Method: Principal Component Analysis.
Source: Data Processing Output using IBM SPSS 23

The next stage is to identify the composition of the newly produced variable after knowing that the preceding variables are formed into four ideal components. As a consequence, the processing results are shown in Table 5 in the form of a component matrix table.

Table 5. Component Matrix

Original Factor	Communalities	Component				Name of the New Factor Formed
		1	2	3	4	
Financial records (P1)	,624	,709				
Financial goals (P3)	,578	,662				Financial Behavior
Separation of personal and company finances (P2)	,612	,643				

Business risk reserve (P14)	,532	,396		
Financial budget (P5)	,658	,727		
Cashflow comparison (P7)	,695	,722		Financial planning
Cash flow is directly proportional to the volume of business (P8)	,668	,586		
Accounts payable and accounts receivable recording (P11)	,642		,702	
Source of income (P10)	,717		,643	Financial Management
Debt installment (P9)	,781		,549	
Savings (P4)	,588		-,437	
Purchasing suitability with needs (P6)	,624			,698 Financial Control

Source: Processed Data

The component matrix table displays the distribution of the 12 variables among the four pro-duced factors, with the loading factor value indicating the extent of the connection between a variable and its formation factor. The names of the factors should correspond to the prop-erties of each component produced. Factor 1 in this study is FINANCIAL BEHAVIOR, which in-cludes financial records, financial goals, the separation of personal and company funds, and business risk reserves. Factor 2 is FINANCIAL PLANNING, which includes a financial budget, a cash flow comparison (cash inflows and outflows), and cash flows that are directly propor-tionate to business volume. FINANCIAL MANAGEMENT is the third factor, and it entails keep-ing track of accounts payable and receivable, revenue sources, debt payments, and savings. FINANCIAL CONTROL is the fourth factor, and it is concerned with the appropriateness of purchases to needs.

V. DISCUSSION

The results showed that the first factor (financial behavior) included financial records (0.709), financial goals (0.662), separation of personal and corporate finances (0.643), and business risk reserves (0.396). This shows that the factors that shape financial behavior can support the success of SMEs in their business operations. This means that if SMEs can carry out financial records with discipline and consistency, have financial goals in the future, separate the use of personal finance and for business purposes, and have reserve funds for business risks, SMEs will be able to easily make the right financial decisions. This financial behavior factor is in line with research conducted by Rahim and Balan (2020); Mabula and Ping, (2018b); Ye and Kulathunga (2019).

The second factor (financial planning) includes financial budget (0.727), cash flow comparison (0.722), and cash flow is directly proportional to business volume (0.586). This shows that the factors that shape financial planning can support the success of SMEs in their business operations. That is, if SMEs can carry out financial planning properly, they are expected to be able to anticipate problems that arise so that in the end they can help SMEs in making appropriate financial decisions. This financial planning factor is in line with research conducted by Fatoki (2014); Anshika, Singla and Mallik (2021) and Baporikar and Akino (2020).

The third factor (financial management) includes the recording of accounts payable and accounts receivable (0.702), sources of income (0.643), debt installments (0.549), and savings (0.437). This shows that the factors that shape financial management can support the success of SMEs in their business operations. This means that if SMEs can manage their finances well, such as by calculating the debt-to-equity ratio and having savings as reserves for business expansion, in the end, they will be able to help SMEs in making appropriate financial decisions. This financial management factor is in line with research conducted by Jappelli and Padula (2013); Lyons and Kass-Hanna (2021); and Mutamimah, Tholib and Robiyanto (2021).

The fourth factor (financial control) includes the suitability of purchases with needs (0.698). It is very important for SMEs in controlling their finances. Control can be done by controlling the suitability between planning and implementation in corporate financial governance. By exercising proper control, SMEs are expected to be able to make appropriate financial decisions. This financial control factor is in line with research conducted by (Fatoki, 2014).

VI. CONCLUSION AND RECOMMENDATION

The goal of this research is to discover the factors that influence financial literacy in small businesses. The first stage was to conduct an open-ended interview with five SMEs to learn more about the factors that influence financial literacy achievement. The second phase is to deliver questionnaires to 70 SMEs, each with closed questions on the determinants of financial literacy in SMEs on a Likert scale.

The findings show that four factors shape financial literacy in SMEs: financial behavior, which includes financial recording activities, financial goals, separation of personal and company fi-nances, and business risk reserves; financial planning, which includes budgeting activities, cash flow planning, and cash flow planning with business volume; and financial management, which includes activities such as recording accounts payable and accounts receivable, record-ing of source documents, and financial management with business volume. Further study shows that applying financial literacy to SMEs improves the accuracy of their financial deci-sion-making and, in the long run, can help them grow their firm.

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Public Sentiment Analysis of The National Movement Bangga Buatan Indonesia on Twitter Social Media Using Big Data Analytics

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Abstract

Twitter is one of the social media used by an organization and/or individual to actively promote their agenda and mobilize social action and campaigns. This study aims to identify sentiment analysis on Twitter related to the Bangga Buatan Indonesia campaign held by the Indonesian government. Given the importance of the role of MSMEs in the Indonesian economy, the Indonesian government established the Bangga Buatan Indonesia campaign. This campaign aims to encourage the Indonesian people to support and use domestically made products. Based on the recent study, this research applied topic modeling and sentiment analysis of various topics from the Bangga Buatan Indonesia campaign on Twitter. The data were taken from Twitter API between May 2020 and December 2021 using the Twitter API and analyzed using R version 4.1.2 with the Naïve Bayes algorithm. Based on the results of tweet sentiment analysis, positive sentiment dominates, followed by neutral sentiment and negative sentiment from a total of 49,833 tweets with topics modeling including Nationalism, MSMEs, and Politics & Economics. The accuracy of the model shows a value of up to 82%. The results of this study will be useful for several parties, especially the Government of Indonesia, to better understand public sentiment towards the campaign program carried out to encourage ethnocentrism of the Indonesian people towards domestically made products.

Keywords— Sentiment Analysis; Bangga Buatan Indonesia; Text Mining; Twitter

I. INTRODUCTION

MSMEs are the pillars of the Indonesian economy. Based on BPS data in 2018 shows 64 million MSMEs in Indonesia, of which 61.1 percent of their role contributes a large number to GDP, the remaining 38.9 percent are contributed by large business actors whose number is only 5,500. Not only that, but MSMEs also open up 98 percent of employment opportunities. During the Covid-19 pandemic, MSMEs were the most affected sector (Tayyiba, et al., 2021). Given the importance of the role of MSMEs in the Indonesian economy, the Indonesian government through the Communications and Informatics Ministry established the National Movement for Bangga Buatan Indonesia campaign. This campaign aims to encourage the Indonesian people to support and use domestically made products. In 2020, the Proudly Made in Indonesia National Movement succeeded in inviting more than 3.8 million creative players and MSMEs to enter the e-Commerce platform to be able to expand market potential nationally and even internationally. Until now, there have been 11.8 million MSME units that have gone Digital.

The Communications and Informatics Ministry is actively promoting this National Movement through social media and news portals with the hashtag #BanggaBuatanIndonesia (Tayyiba, et al., 2021). Campaigns on social media networks create prerequisites for organizations to not only inform users more effectively, understand changing information needs, receive feedback, observe user interest and engagement in the activities carried out by the organization and the products (services) it provides, but also bring a particular challenge is how to evaluate the effectiveness of advertising campaigns on social media networks and how to improve these campaigns in an ever-dynamic environment.

The data generated on social media is very large and varied which includes structured and unstructured data. Seeing the potential of social media data in evidence-based decision-making processes, organizations need an efficient process to transform high-volume, fast, and diverse data into meaningful insights. Text analysis (text mining) is a technique commonly used to obtain information from textual data. Examples of textual data are feedback on social media, e-mail, blogs, surveys, company documents, news, and telephone log data. The textual analysis involves statistical analysis, programming languages, and machine learning. The textual analysis enables an organization to turn large volumes of text into summaries that support evidence-based decision making (Chung, 2014).

One of the most widely used text classification methods is sentiment analysis. Sentiment Analysis is a term that covers many scopes of work such as sentiment extraction, sentiment classification, subjectivity classification, opinion summary or opinion spam detection and more. Marketers and companies use this analytical data to understand their products or services in such a way that they can be offered according to user needs. There are several methods for conducting sentiment analysis, including the machine learning approach and the lexicon approach. The machine learning-based approach uses classification techniques to classify text, while the lexicon-based approach uses a sentiment dictionary with opinion words and matches them with data to determine polarity (Farhadloo & Rolland, 2016).

The Naïve Bayes algorithm is a supervised machine learning algorithm. Several studies have been conducted regarding the analysis of public sentiment through the Twitter platform using the Naïve Bayes algorithm by Vasudha et al. (2016) related to sentiment analysis of Made-In-India products. The results showed positive, negative, and neutral sentiments towards Made-In-India products. Data shows that positive sentiment has the largest sentiment score compared to negative and neutral sentiment. However, this study does not elaborate further on other exploratory data such as keywords that appear the most in Make-in-India products. Another study was also conducted by Harun et al. (2021) related to public sentiment on covid-19 vaccination in Indonesia through the Indonesian Ministry's Facebook page using the Naïve Bayes and Decision Tree methods. From the results of the study, the accuracy of the Naïve Bayes method for analyzing public sentiment reached 100% and the Decision Tree method was only 50.3%.

Based on the recent study, this research will analyze public sentiment on the topic of the National Movement Bangga Buatan Indonesia on the Twitter platform with the Naive Bayes Classifier method to measure people's ethnocentrism towards Indonesian-made products.

II. LITERATURE REVIEW

A. MSME

MSME stands for Micro, Small and Medium Enterprises. According to Law no. 20 of 2008, MSMEs are productive economic enterprises owned by individuals and/or business entities that have MSME criteria. based on net worth and earnings per year.

Table 1. An example of a table.

Enterprise Scale	Total net worth	Earnings per year
Mikro	≤ 50 million	≤ 300 million
Small	50 – 500 million	300 million – 2,5 billion
Middle	500 million – 10 billion	2,5 – 500 billion

B. Bangga Buatan Indonesia Campaign

Bangga Buatan Indonesia is an Indonesia government program to support MSME. Indonesian President Joko Widodo launched the *Bangga Buatan Indonesia* program on May 14, 2020. This program aims to encourage Indonesian people to love and use products made by the nation's children, especially local MSME products. Local MSME actors have been affected by the crisis of the Covid-19 pandemic.

Fig. 1. Bangga Buatan Indonesia Logo

To get through this difficult period of the Covid-19 pandemic, the government through the National Movement Bangga Buatan Indonesia invites the public to appreciate the products and services of MSME business actors. Moreover, MSMEs are the backbone of the nation's economy.

C. Consumer Ethnocentrism

Consumer ethnocentrism comes from a more general concept, namely ethnocentrism. Ethnocentrism was originally proposed more than a century ago by William Graham Sumner in 1906. In general, the concept of ethnocentrism represents the general tendency for people to see their group as the center of the universe and view other social units from the perspective of their group.

Consumer Ethnocentrism is defined as the beliefs held by consumers about propriety, even morality, in buying foreign-made products. It is agreed that Consumer Ethnocentrism harms consumers' purchase intentions for foreign products. This implies that high ethnocentric tendencies lead to unfavorable attitudes towards purchasing imported products.

The National Movement of Bangga Buatan Indonesia is a campaign carried out by the government to encourage people to love and use domestically made products (Tayyiba, et al., 2021). Regarding the concept of consumer ethnocentrism, such a campaign was successfully used by Barack Obama at the beginning of his candidacy for President of the United States, the moment which coincided with the debut of the recession. The campaign was named "Buy American", and it sparked a real international hysteria.

D. Country of Origin

The country associated with the product is considered to influence the consumer's quality assessment. The image of the manufacturing country has a great impact on the assessment of product quality. According to Wang & Chen (2004), the country of origin of a product often serves as a cue that motivates consumers' ethnocentric tendencies. However, sometimes it can also be a sign to demotivate consumers' ethnocentric tendencies as is the case in most developing and less developed countries. The influence of consumer ethnocentrism on purchase intention becomes more evident especially after consumers encounter products manufactured in less developed countries. This means that the country of origin has a strong influence even on the attitudes of highly ethnocentric consumers.

E. Twitter

Twitter is a free microblogging service that allows users to post short text messages with a maximum of 140 characters. People who subscribe to individual Twitter feeds are called "followers". Users can follow anyone they like, unlike Facebook, where you have to be recognized and accepted as a "friend". Proving its popularity, Twitter now has 320 million registered users who "tweet" 500 million posts a day.

F. Big Data

According to Gartner (2015), big data is a data unit that has 3V characters, namely volume, velocity, and variety that is processed to increase insight and as a basis for decision making. Data management is obtaining and storing data and preparing it for analysis with supporting processes and technologies. On the other hand, analysis refers to the techniques used to process and gain insight from big data. The following techniques represent a relevant subset of the tools available for big data analysis: text mining, audio analysis, video analysis, social media analysis, and predictive analysis.

G. Data labelling

Data labeling, or data annotation, is part of the preprocessing stage when developing a machine learning (ML) model. This process requires identifying the raw data (i.e., images, text files, videos), and then adding one or more labels to that data to define its context for the model, enabling the machine learning model to make accurate predictions. Data labeling supports a variety of machine learning and deep learning use cases, including computer vision and Natural Language Processing (NLP).

H. Krippendorff's Alpha-Reliability

Krippendorff alpha (α) is a reliability coefficient developed to measure agreement among observers, coders, judges, raters, or measuring instruments describing differences between normally unstructured phenomena or assigning quantifiable values to them. α appears in content analysis but is widely applicable wherever two or more methods of generating data are applied to the same set of objects, units of analysis, or items and the question is how much of the data generated can be trusted to represent something real. The formula for α is :

$$\alpha = 1 - \frac{D_o}{D_e}$$

I. Sentiment Analysis

Sentiment Analysis is a term that covers many scopes of work such as sentiment extraction, sentiment classification, subjectivity classification, opinion summary or opinion spam detection, and others. This analysis aims to analyze people's attitudes, emotions and opinions towards elements such as products, individuals, topics, organizations, and services.

J. Topic Modeling

Topic modeling is a class of generative models whose aim is to capture latent distributions that support a given observational data (eg distribution of words in a document set). In the context of natural language processing, topic modeling is particularly useful for discovering statistical regularities hidden in textual data in supervised/semi-supervised/unsupervised settings.

K. Topic Modeling

Several studies have been conducted regarding the analysis of public sentiment through the Twitter platform using the Naïve Bayes algorithm by Vasudha et al. (2016) related to sentiment analysis of Made-In-India products. The results showed positive, negative, and neutral sentiments towards Made-In-India products. Data shows that positive sentiment has the largest sentiment score compared to negative and neutral sentiment. However, this study does not elaborate further on other exploratory data such as keywords that appear the most in Make-in-India products. Another study was also conducted by Harun et al. (2021) related to public sentiment on covid-19 vaccination in Indonesia through the Indonesian Ministry's Facebook page using the Naïve Bayes and Decision Tree methods. From the results of the study, the accuracy of the Naïve Bayes method for analyzing public sentiment reached 100% and the Decision Tree method was only 50.3%.

III. RESEARCH METHODOLOGY

In this study, a cross-sectional descriptive research method was applied to see public sentiment towards the idea of the Bangga Buatan Indonesia campaign. The Bangga Buatan Indonesia campaign was launched on May 14, 2020, for this reason, samples of Twitter data will be taken in the period from May 2020 to December 2021. The Twitter data is obtained using the Twitter API and processed using big data analytics.

A. Research Sample

The type of sample used in this study is non-probability sampling. Twitter data searches will only be carried out using the keyword #BanggaBuatanIndonesia.

B. Stages of the Research Process

In this study, the authors used Twitter data. To be able to collect Twitter data, the author uses the Twitter API (Application Program Interface) provided by Twitter for developers. Broadly speaking, Twitter's data processing steps are described in the following diagram:
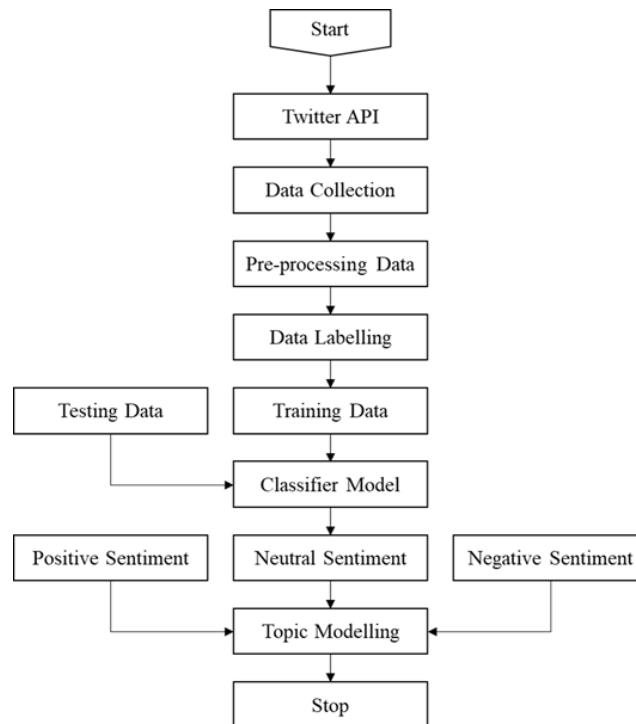
Fig. 2. Flow diagram of research stages

- **Data collection** stage begins with authenticating to be able to access the Twitter API. When the authentication is successful, the next process is to define several parameters that are used to filter Twitter data based on research needs. The search terms applied to filter Twitter data include the hashtag #BanggaBuatanIndoensia with the range of the date the tweet was published (start_date and end date), as well as the use of language types without limiting the type of Twitter user itself. An example of a search term application is filtering Indonesian-language twitter using the hashtag #BanggaBuatanIndonesia in the period from May 14th, 2020 to October 31th, 2021. All of these filters become parameters to call the tweepy.Cursor() function whose results are extracted and stored in an output file in CSV (Comma-separated values) format.
- **The data pre-processing** stage is carried out with the Rstudio program. R is succinctly described as "a language and environment for statistical computing and graphs," which makes it worth knowing if you are in data science/statistics arts and exploratory data analysis. R has a variety of packages that are useful in text analysis. This stage consist of filtering bot tweet, cleaning text, slangword and stopword removal, and stemming.
- **Descriptive analysis** is the process of using current and historical data to identify trends and relationships. Sometimes called the simplest form of data analysis because it describes trends and relationships but doesn't dig deep.
- **Data labelling** is carried out to see the opinion or tendency of opinion on a problem or object by someone, whether it tends to have a negative or positive opinion. In this study, sentiment labeling was carried out manually with the score label as positive (1), neutral (0), and negative (-1). Labeling is carried out by 2 observers, namely the researcher himself and an independent observer with a minimum education level requirement of a bachelor's. To assess the reliability between the 2 observers, Krippendorff's Alpha-Reliability is calculated where the expected value of is $1 \geq \alpha \geq 0$.
- **Classifier Model Evaluation** consist of 2 process. The first is learning (training phase), where a classification algorithm is created to analyze the training data and then it is represented in the form of classification rules. The second process in which test data is used to estimate the accuracy of the classification rules. Based on this, the data contained in the testing data should not be contained in the training data so that it can be seen that the classification model can classify properly and correctly. In the process of dividing the training data and testing data, it is not binding, but so that the variation in the model is not too large, it is recommended that the training data have a larger comparison than the testing

data. In general, 2/3 of the total data is used as training data while the rest is used as testing data. Research that results in the accuracy of the optimum classification model with a proportion of 80:20 for training data and testing data.

- **Topic model** will be made based on data that has been cleaned using the topicmodels package. The researcher uses the LDA() function from the topicmodels package, with the setting k = 20, to create a ten-topic LDA model with the most frequent 20-word terms. The slice_max() function in the dplyr package can be used to find the 10 most common terms in each topic.

IV. RESULT AND DISCUSSION

A. *Data Collection*

In the process of scraping or retrieving data on Twitter, the keyword used is #BanggaBuatanIndonesia. The data collection period was from May 14, 2020, to October 30, 2021. The results of data scraping showed 49,833 tweets with 74 variables including string and integer data. To simplify data analysis, the 74 variables were simplified into 12 variables **as shown in table 2**.

Table 2. Twitter data variables.

Variables	Description
Time	The date and time when the tweet was posted on Twitter
Text	The text of the tweet uploaded by the user
Source	Twitter data source
Username	Twitter user account name
Location	Location when tweet was posted
Like Count	Number of likes on posted tweets
Retweet Count	Number of retweets on posted tweets
Qoute Count	Number of tweets with quotes on twitter
Reply Count	Number of replies to uploaded tweets
Followers	The number of followers on the account
Following	Number of accounts followed by the account
Number Tweets	Number of tweets posted by the account

B. *Preprocessing Data*

To avoid bias in data analysis, Twitter Bot is filtered by filtering the same tweet content. According to Gadiraju (2012), tweet bot is a type of bot software that controls Twitter accounts through the Twitter API. Bot software can independently perform actions such as tweeting, retweeting, liking, following, unfollowing, or sending direct messages to other accounts. After filtering identical data using the distinct() function, the total number of data is 8,699 tweets. This data will be used for the cleaning process.

Table 3. Preprocessed tweet text

Before	After

festival diskon nasional pamit undur diri namun semangat bangga buatan indonesia ini akan terus bergelora melalui estafet berbagai kolaborasi yang akan datang	"festival" "diskon" "nasional" "pamit" "undur" "semangat" "bangga" "gelora" "estafet" "kolaborasi"

From the data that has been filtered to remove identical tweets, then preprocessing the data is carried out which includes cleaning, case folding, filtering, tokenizing to remove characters that are not needed in the study such as punctuation marks, emoticons, emoji, URLs, numbers, and non-ASCII characters.

C. Descriptive Analytics

Descriptive statistics is a type of analysis used to see an overview of the data used and tested on all research variables, both dependent and independent variables. In this study, descriptive statistical analysis was conducted on Twitter data related to #BanggaBuatanIndonesia. Rstudio can analyze the extracted date and time with each tweet, so understanding the tweet frequency is easy to analyze. This analysis can provide an overall overview of each account's activity and can be a useful metric to analyze against the most tweets in a given period.
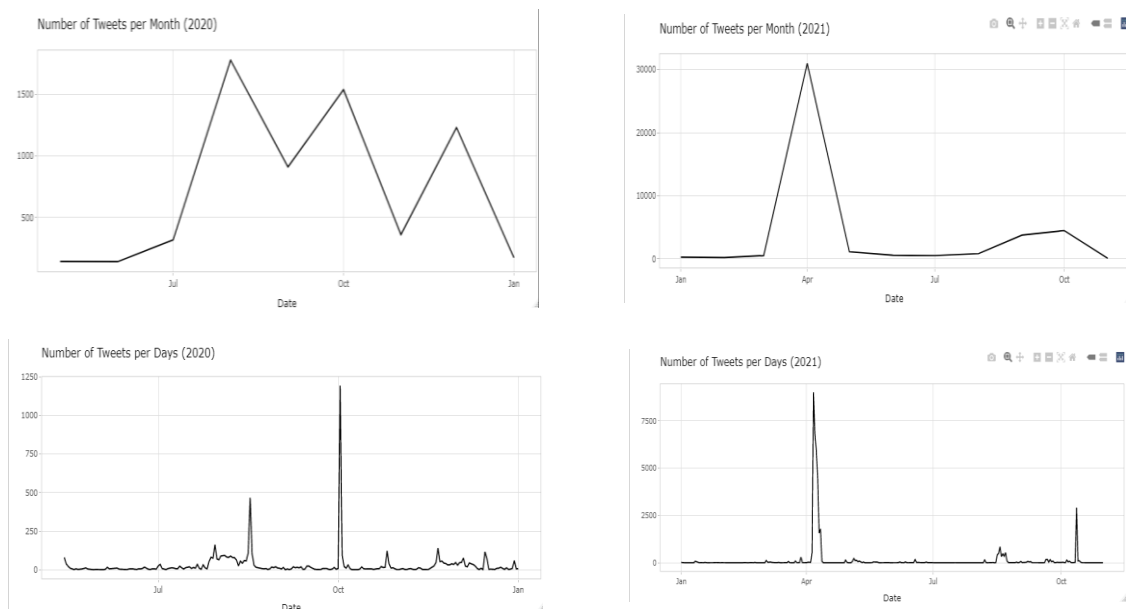
Fig. 3. Tweet upload trend of #BanggaBuatanIndonesia

Twitter engagement refers to the retweets, following, replies, favorites, and click-throughs that a tweet gets (including hashtags and links included in the tweet). Twitter engagement rate is equal to tweet engagement divided by the number of impressions made by that tweet. In the analysis of twitter data with the hashtag #BanggaBuatanIndonesia, data obtained from the top 10 tweets with the highest number of likes and retweets as described in the table 4.

Table 4. Top 3 tweets with the most likes and retweets

Accounts	Tweet	Retweet	Like
Mohmahfu---	arloji anak bangsa merek pamor kayu ukir tradisional gelang kulit harmonis tahan air akurat pamer bangga diselenggaran kemenperin borobudur	3203	371
Ronaviol---	lho piye nih luhut ketua tim gerak bangga produk ind wuling pasar mobil nya ind dorong esemka produksi mobil listrik	918	328

| RamliRi--- | selamat dirut elfien dkk bangga pesawat canggih cn senegal | 1903 | 324 |

D. Statistical Term Frequency-Invers Document Frequency (TF-IDF)

The TF-IDF method is a method used to determine the relationship of words to the document by giving each word a weight. The TF-IDF value is strongly influenced by the occurrence of words in one document and the number of words or the frequency of words that appear as a whole. Based on the analysis, the words product, batik, gerak, nasional, and UMKM are the words that have the highest frequency of occurrence in tweets discussing the *Bangga Buatan Indonesia* Movement.
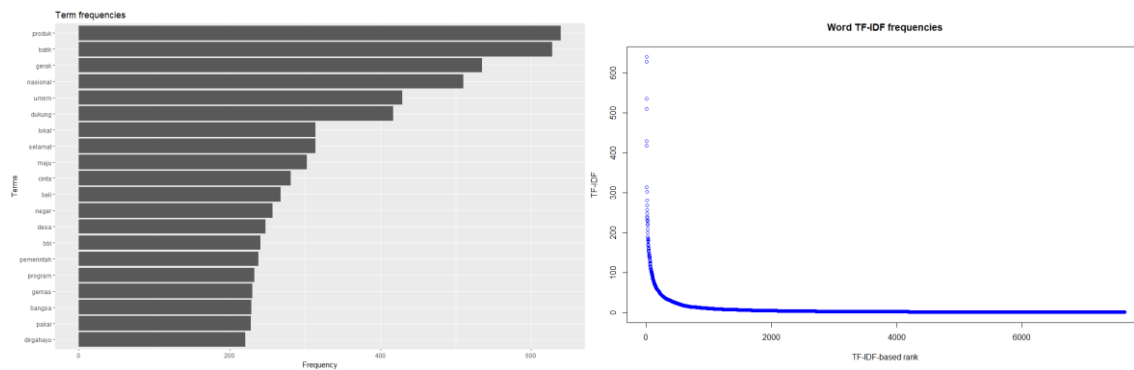
Fig. 4. Term frequencies of #BanggaBuatanIndonesia

E. Data Labelling

Sentiment analysis is carried out by scoring the Tweet text data with #BanggaBuatanIndonesia with three classifications, namely positive, negative and neutral sentiment. Labeling is done manually by researchers and independent observers. To assess the reliability of the scores of independent researchers and observers, the Krippendorff alpha (α) was calculated. The data that has been labeled and then calculated the value of Krippendorff Alpha (α). Calculation of Krippendorff Alpha (α) was carried out at Rstudio with the irr library. The results of the calculation of on 100 samples showed a value of 0.846. The value of indicates the reliability of the two coders is quite good because the value of is close to 1.

Fig. 5. Krippendorff Alpha (α) value

F. Classifier Model Evaluation

Sentiment classification is done with Naïve Bayes classifier. The Nave Bayes classifier requires training data and test data. Training data can affect the level of accuracy produced. Test data is data used to test the accuracy of the model that has been made by training data. Of the total 5000 data that have been manually labeled, 80% is used as training data and 20% is used for test data. By using the R Studio application, the Naïve Bayes classifier accuracy value is 0.82. With a fairly high accuracy value, it can be said that the classification is good. It is found that the predicted value and other values can be calculated manually as follows :

$$Recall = \frac{TP}{TP+FN}\ 100 = \frac{1185}{1185+260} = 0.8201 = 82\ \% \qquad (2)$$

G. Sentiment Analysis

Based on the prediction results, an analysis of the distribution of sentiment scores was carried out to see the overall score distribution of the three sentiments. The data shows that the distribution of scores on tweets with the hashtag #BanggaBuatanIndonesia tends to be neutral and positive with the most positive sentiment. The data

shows 6104 tweets (70%) labeled positive sentiment, 2184 tweets (25%) labeled neutral sentiment, and 411 tweets (4.7%) labeled negative sentiment.
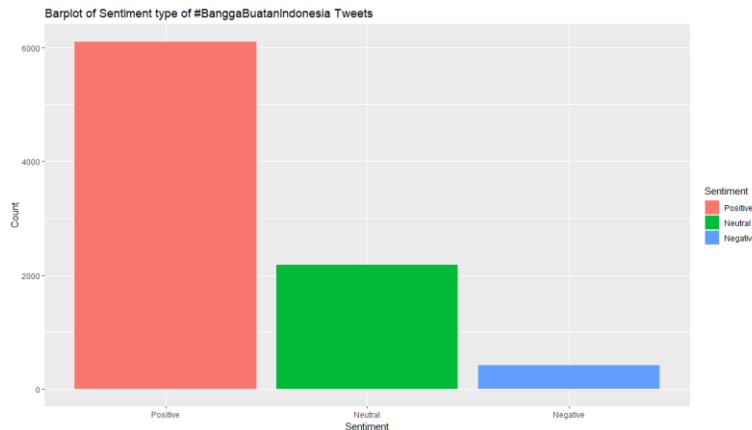
Fig. 6. Positive, neutral, and negative sentiment distribution

Based on the explanation in descriptive analytics regarding the trend of uploading tweets per month, we can also see the trend of sentiment per month from the period May 2020 to October 2021. In 2020, the discussion regarding Bangga Buatan Indonesia as a whole gives positive sentiments where the upload trend Most tweets are done in July, August, and October. Meanwhile, in 2021, positive sentiment has the highest frequency in May, August and October. This relates to the launch of the Bangga Buatan Indonesia program in May, independence day in August, and national batik day in October.
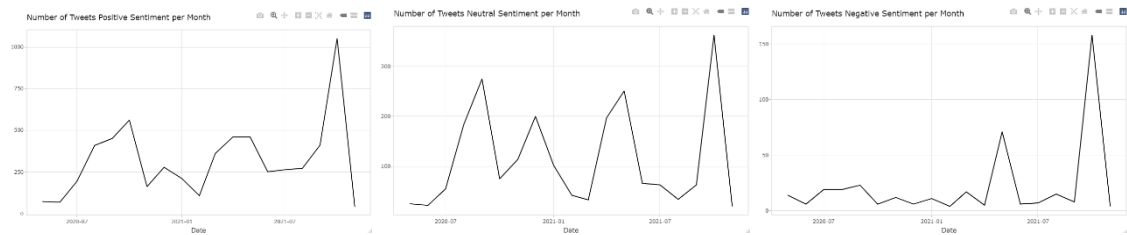
Fig. 7. Positive, neutral, and negative sentiment trend each month

H. Topic Modelling

Topic modeling is a clustering method that is included in unsupervised learning. In unsupervised learning, there is no label for an object. This study wants to group public tweets about the #BanggaBuatanIndonesia National Movement with LDA. The main measure in topic modeling is the likelihood method. Likelihood is generally a log likelihood, naturally derived from a probabilistic topic model. Here, the optimal iteration value for each topic can be determined. The other metrics for evaluating topic models is looking at topic coherence and prevalence. Topic Coherence measures the degree of semantic similarity between the top words in a topic. Prevalence tells the topics that appear most frequently in the corpus. Prevalence is the probability of a topic spreading across a document.
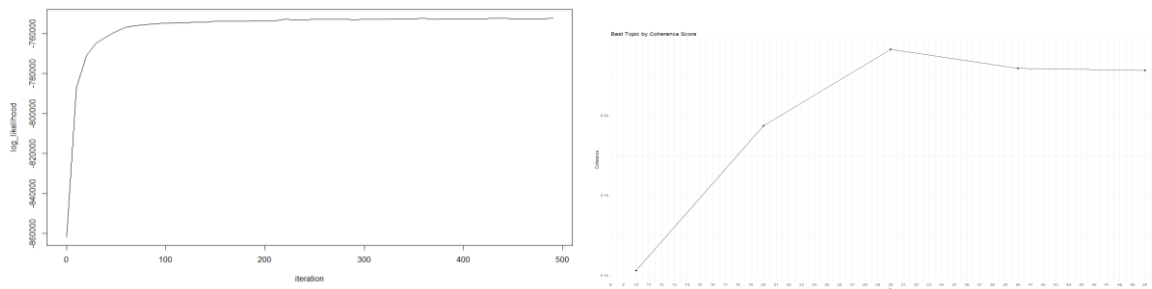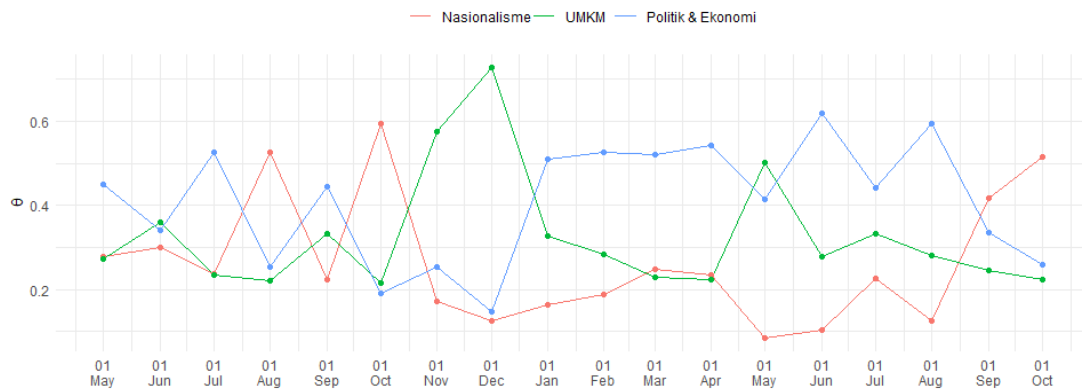
Fig. 9. Topic proportions over time of #BanggaBuatanIndonesia

LDA can also find out the proportion of topics in each period. As illustrated in Figure 4.6, for tweets about the #BanggaBuatanIndonesia National Movement as time goes by, more and more tweets are preaching about politics and the economy. And the frequency of discussion about nationalism increases from August to October 2020 and 2021. This can be influenced by the frequency of tweets discussing the anniversary of the Republic of Indonesia every August.

To find out which topics represent texts with positive, neutral, and negative sentiments, this study conducted a modeling analysis of topics that represent the three sentiments. The analysis is carried out by classifying the text based on sentiment classes including positive, neutral, and negative sentiments. Each of these sentiment classes was analyzed using LDA.
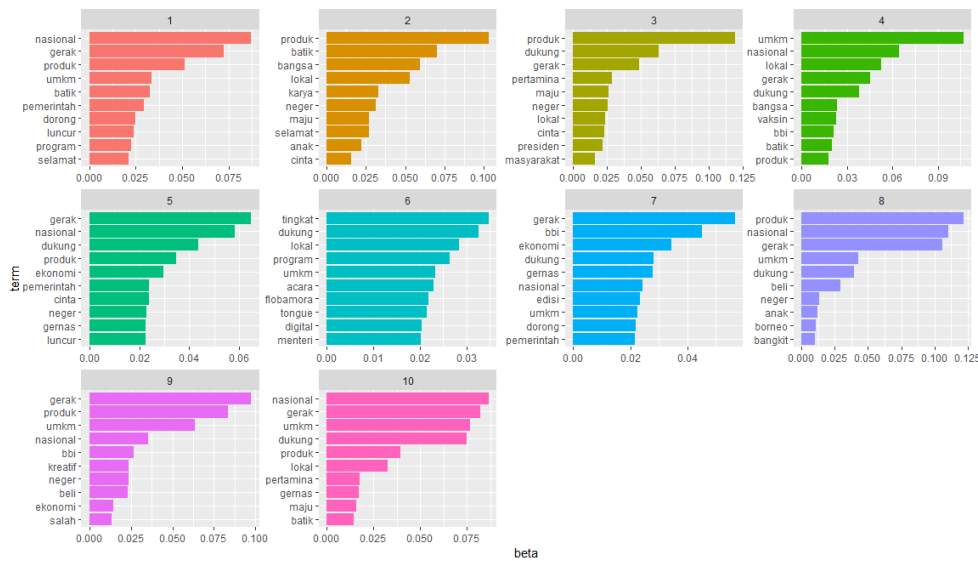
Fig. 10. Topics represents positive sentiment
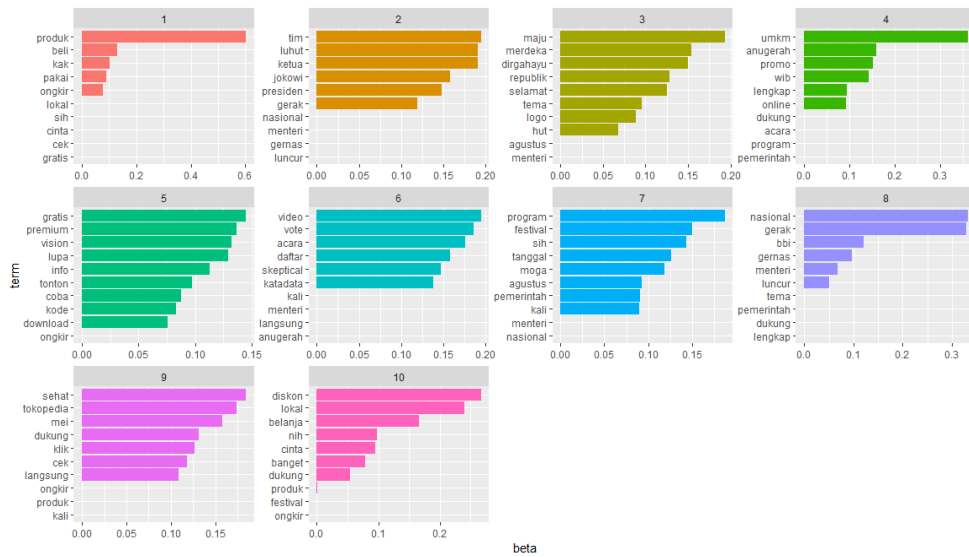
Fig. 11. Topics represents neutral sentiment
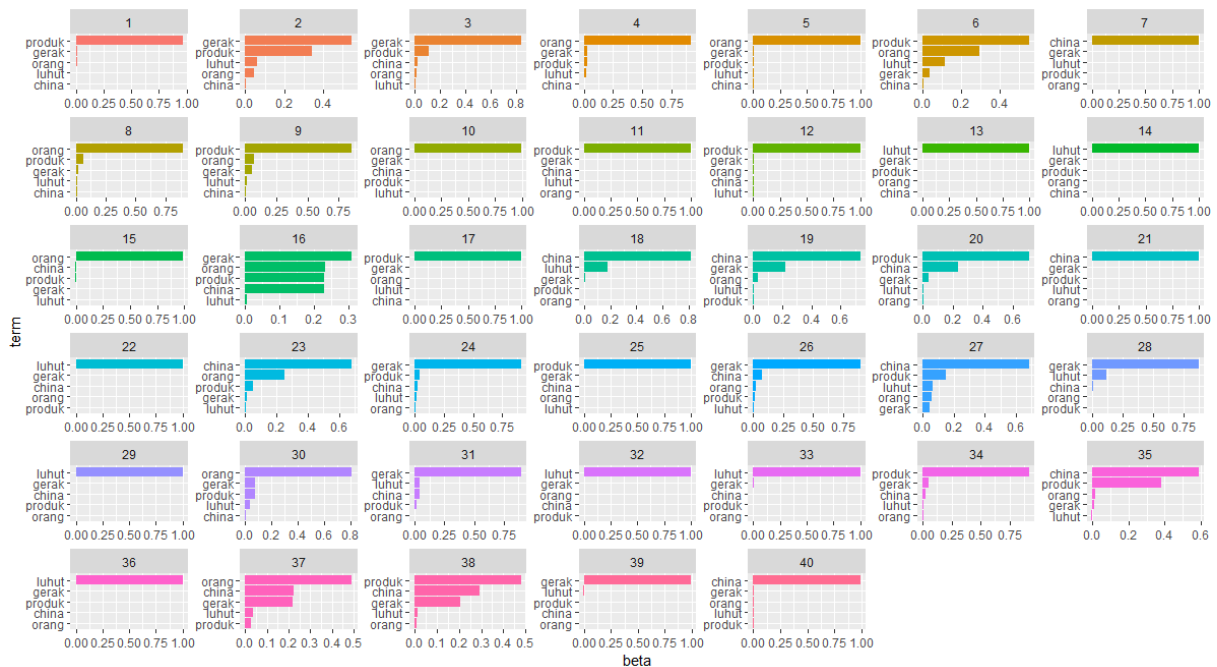
Fig. 12. Topics represents negative sentiment

Overall, the words that often appear on the topic of positive sentiment class are the words *gerak*, *nasional*, *produk, umkm*, and *dukung*. So based on these observations, the topic in the positive sentiment class is classified as a topic of Nationalism. The results of the analysis of the LDA model in the neutral sentiment class show that the words that often appear are *produk, UMKM, program, nasional, Tokopedia*, and *diskon*. Based on the emergence of this word, the neutral sentiment class discusses MSMEs. The results of the analysis on the negative sentiment class show that the words that often appear are *produk, china, orang*, and *luhut*. This shows that the discussion in the negative sentiment class is about political topics.

V. CONCLUSION AND RECOMMENDATION

Sentiment analysis or opinion mining is a field of study that analyzes people's sentiments, attitudes, or emotions towards certain entities. This paper discusses the fundamental problem of sentiment analysis,

categorization of sentiment polarity. #BanggaBuatanIndonesia campaign was chosen as the data used for this research. Sentiment analysis is very important in making business decisions. Using sentiment analysis decision maker get the customer's need and weak points of product or service and accordingly take decision for improvement based on the findings.

From the results of topic modeling based on the sentiment class of the tweet, there were thirty topics discussed in a tweet with #BanggaBuatanIndonesia. The three most popular topics have the highest coherence value, namely topics related to nationalism, MSMEs, and politics. Specifically, the topic of nationalism is about batik products and the celebration of the Independence Day of Republic of Indonesia. The MSME topic specifically discusses MSME products and e-commerce. While the political topic specifically discusses political figures such as Luhut Binsar Pandjaitan.

Based on the results of the research conducted and the limitations contained in it, the researcher provides several suggestions for developing further research, including the following:

a. Filtering bot tweets by deepening account profiles so that the analysis results can be more specific to real accounts. Bot accounts tend to show neutral sentiment, so this bot filtration will be useful when conducting sentiment analysis to find out the trend of sentiment towards a topic.
b. Classification of sentiment based on 8 emotions sentiment so that sentiment analysis can be carried out in more detail. This analysis can be an insight for stakeholders regarding customer engagement with their products or programs. Engagement can also involve emotions contained in the context of discussing a topic.

VI. MANAGERIAL IMPLICATIONS

Based on the results of the sentiment analysis and the results of the topic modeling analysis on the #BanggaBuatanIndonesia tweet that had been done previously, several findings were obtained that could have implications for various stakeholders in the #BanggaBuatanIndonesia program, including the government (Ministry of Communication and Information), MSME business actors, and e-commerce company.

Twitter presents many benefits for organizations in doing business. One of the biggest benefits is that Twitter offers exposure to a wide target audience. In measuring exposure, there are metrics that can be measured through analysis, namely impressions, engagements, engagement rates, profile clicks and media engagements. The most important measure of engagement with tweets is retweets, as retweets indicate that a follower has read the tweet and imply personal endorsement of the tweet (except in relatively rare circumstances where a follower retweets a message with a negative comment). Retweeting indicates user engagement with the brand, and is correlated with brand identification, brand trust, community commitment, and community membership intentions (Kim et al., 2014). Retweeting is also important because it represents an electronic worth of mouth (e-WOM) to a brand's follower network (Zhang et al., 2011), and thus increases the potential reach of a brand's tweets to a network of followers. The results of the descriptive analysis show that tweets about *Bangga Buatan Indonesia* have a fairly large engagement with the number of retweets and likes shown for personal public figure accounts, e-commerce company accounts, and educational institution accounts.

Sentiment Analysis has many applications, both to industry and government, and is well suited for quantitatively and qualitatively measuring the performance of marketing campaigns. The results of this study indicate that positive sentiment dominates the overall response related to the #BanggaBuatanIndonesia program. This shows the positive response of the community to the program.

Based on the results of descriptive analysis, the trend of uploading tweets about #BanggaBuatanIndonesia increases in certain months in 2020 and 2021, namely in May, August and October. in these three months, the frequency of positive sentiment is higher than in other months due to the influence of national days, namely the Independence Day of the Republic of Indonesia in August and National Batik Day in October. Based on this analysis, the government can promote the Proudly Made in Indonesia program on national days, especially on independence day and national batik day. By increasing exposure in this month, it is hoped that several other stakeholders such as MSME business actors and e-commerce companies can take advantage of this moment to hold promotions to encourage purchases from the Indonesian people of MSME products.

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Analysis the Effect of GDP, Income Inequality, Human Development Index, and Government Expenditure on Poverty in Regencies/Cities in Bali Province 2017-2021 period.

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Abstract
Poverty is a complex problem that cannot be solved in a short time because problems poverty can concern various sectors in people's lives, both nationally and regionally. This study aims to analyze the effect of GDP, Income Inequality, Human Development Index, and Government Expenditure on Poverty in Regency/Cities in Bali Province in 2017-2021. The dependent variable used is Poverty while the independent variables used are GDP, Income Inequality, Human Development Index, and Government Expenditures. The data used is panel data for districts/cities in Bali Province in 2017-2021. The model selected in the study was the Fixed Model Effect (FEM), from the model it is known that GDP and Income Inequality have a significant effect on Poverty, while the Human Development Index and Goverment Expenditure have no significant effect on poverty in districts/cities in the province of Bali for the 2017-2021 period.

Keywords— Poverty; GDP; Income Inequality; Human Development Index; Government Expenditure.

I. INTRODUCTION

Poverty is a multi-dimensional concept of human well-being that includes various traditional measures of prosperity such as income, health, and security. Poverty is one of the central issues in the Millennium Development Goals (MDGs) declared by the United Nations in 2000, so the United Nations hopes that all countries that are members can reduce the number of poor people and the state of food shortages in each of their countries.

Bali has a tourism sector that is growing very rapidly. Bali is the country's second-largest foreign exchange contributor to Indonesia after the oil and gas industry. The foreign exchange earned from Bali's tourism sector in 2021 will be around the US $20 billion a year. However, Bali, as one of the provinces in Indonesia, is also inseparable from the problem of poverty (Sudibia dan Marhaeni, 2012). During the rapid economic development that occurs in Bali Province, the number of poor people is still relatively high. The advancement of the tourism sector in Bali Province does not necessarily eliminate the poor population in Bali (Dariwardani, 2014)

Table 1. Poverty According to Regencies/Cities of Bali Province in 2017-2021.

Districts/Cities	Number of Poor People in Bali Province According to Regencies/Cities (Thousand People)				
	2017	2018	2019	2020	2021
Jembrana District	14.78	14.35	13.55	12.60	14.24
Tabanan District	21.66	19.77	18.74	19.11	23.11
Badung District	13.16	12.97	11.89	13.75	18.52
Gianyar District	22.42	21.26	19.85	21.01	25.36
Klungkung District	11.15	10.43	9.66	8.76	10.19
Bangli District	11.76	11.05	10.08	9.56	11.68
Karangasem District	27.02	26.02	25.99	24.69	28.52
Buleleng District	37.48	35.20	34.26	35.25	40.92
Denpasar City	20.70	20.72	19.83	20.48	29.41
Districts/Cities	180.13	171.76	163.85	165.19	201.97

Source: Central Statistics Agency of Bali Province

From the table above, the number of poor people in Bali Province in 2017 was 180,130 people per person, in 2018 it was 171,760 people per person, in 2019 it was 163,850 people per person, in 2020 it was 165,190 people

per person, and in 2021 it was 201,970 people per person. The number of poor people per regency/city in Bali Province has fluctuated; in 2018–2019 it has decreased, while in 2020–2021 it has increased again. Buleleng Regency is the district with the highest number of poor people, which is 40,920 people per person in 2021, and the district that has the lowest number of poor people is Klungkung Regency, with 10,190 people per person.

The goal of national development is poverty alleviation. Poverty alleviation is very influential in economic development in an area both locally and nationally, so the government in an area must overcome the problem of poverty completely. In order to overcome the poverty problem, the various causes of the problem must be identified. any effort to reduce poverty should refer to and address the causative factors.

The Bali Provincial Government seeks development to advance community prosperity. Economic growth is the impact of development in the economic field, in addition to other fields such as social, cultural, political, and security. Especially in the economic field, the added value generated by the economic field indirectly raises the level of development achieved in an area. For the province of Bali, this is very necessary to be a reference for the next better development. In line with this, various developments have been directed to densely populated yen areas and areas that have a fairly high level of poverty.

Poverty alleviation continues to be pursued in Bali Province by conducting several programs. This program consists of: (1) Bali Mandara Health Insurance (JKBM); (2) Home Surgery; (3) Integrated Agricultural System (Simantri); and (4) Integrated Village Development Movement That Is Advanced, Safe, Peaceful, and Prosperous (Gerbangsadu Mandara).

Based on the background that has been described, this study will concentrate on observing the influence of GDP, income inequality, human development index, and government expenditure on Bali Province Poverty in 2017–2021.

II.　　　LITERATURE REVIEW

A. *Poverty*

According to (Todaro, 2000) poverty is the low per capita income and the widening of the income distribution gap. One of the most valid generalizations about the poor is that they generally reside in rural areas, with a basic livelihood in agriculture and other activities closely related to the traditional economic sector. Development economists began to measure the level of poverty within a country and the relative poverty between countries by determining a boundary commonly referred to as the poverty line. Another circle of poverty also concerns human backwardness in the development of natural resources. The development of natural resources in an area depends on its human productive capabilities. If the population is backward and illiterate, then technical ability, knowledge, and entrepreneurial effectiveness are low, so natural resources will be abandoned, lacking, and even abused. (Kecuk, 2011) narrows down the meaning of poverty as the inability from the economic side to meet the basic needs of food and not food.

B. *GDP*

GDP can describe the ability of an area to manage the natural resources it has, therefore the amount of GDP produced by each region is very dependent on the potential of natural resources and the production factors of the area. GDP based on constant prices describes the growth rate of a region's economy both in aggregate and sectorally. The economic structure of a region can be seen from the distribution of each economic sector to the total value of GDP based on prevailing prices. In addition, the per capita income derived from the comparison of GDP based on the prevailing price with the total population in the year concerned can be used to compare the level of prosperity of one region with that of another. Referring to previous research conducted by Made Ade (2019) GDP has a positive effect on the poverty rate in Bali Province.

C. *Income Inequality*

The relationship between inequality and poverty is pragmatic, namely that inequality causes poverty to get worse or inequality is a form of poverty (Sugiyarto, Mulyo, JH., 2015). In measuring income inequality, you can use the Gini ratio. The inequality value lies between 0 (perfect evenness) to 1 (perfect unevenness). The Gini coefficient of moderate unevenness ranges from 0.36-to 0.49, high unevenness ranges from 0.50-to 0.70 and low unevenness ranges from 0.20-to 0.35 (Arsyad, 2010).According to (Todaro, 2000), as long as the income distribution is uneven (the Gini ratio is high) the poverty rate will be higher as well (positive and significant effect). Similarly, it has been following the research of (Zulfachri, 2006), that the increase

in per capita income encourages a slowdown in the growth rate of poverty, on the contrary, income unevenness will increase the growth rate of the poor population.

D. Human Development Index

The concept of human development index (HDI) or known as human development index (HDI) is one of UNDP's programs for poverty reduction which is directed at three (3) index standards that are systematically arranged, namely education, health, and purchasing power (Hariawan dan Swaningrum, 2015)). The low Human Development Index (HDI) will result in low work productivity which has an impact on the low-income generation so that low income causes a high number of poor people. Eigbiremolen and Anaduaka (2014). Research from Zuhdiyaty and David K, 2017 (in Triariani) also shows the presence of a significant negative influence of HDI on poverty. (Arsyad, 2010) said that one of the strategies for poverty alleviation is the development of human resources. HDI is a measure for the development of human resources, if the HDI increases, the quality of its human resources will also increase, causing its productivity to also increase which will have an impact on improving people's welfare, thus poverty will decrease.

E. Goverment Expenditure

In addition to being used as an investment in human development, government spending is also used as an instrument of government policy in alleviating poverty. In several studies, several types of government spending can be categorized as pro-poor expenditure, namely health expenditure, education spending, infrastructure spending, agricultural and rural development spending, and social protection (Situmorang, 2014)

III. RESEARCH METHODOLOGY

A. Types of research

This research uses a quantitative approach that emphasizes the analysis of numerical data processed by statistical methods to determine the significance of the relationship between the variables studied. This study was conducted to analyze the factors affecting poverty in Bali Province in 2017-2021. The location of the study was conducted in Bali Province from 2017 to 2021. This research was conducted in April 2022.

B. Research Object

The object of the study was poverty in all districts/cities in Bali Province from 2017-to 2021. This study analyzes the effect of Gross Domestic Product (GDP), Human Development Index (HDI), Government Expenditure, and Income Inequality on Poverty in Bali Province.

C. Variable Definition.

Table 2. Variabel Definition.

Variable	Definition
Poverty	Poverty is a state of inability to meet basic needs such as food, clothing, shelter, education, and health.
GDP	GDP is the amount of added value generated by all business units in a certain area or is the amount of value of final goods and services produced by all economic units in an area.
Human Development Index	The Human Development Index is a comparative measurement of life expectancy, literacy, education, and standard of living. HDI explains how residents can access development outcomes in earning income, health, education, and so on
Government Expenditures	Expenditures on goods and services consumed by the general government consist of collective services as well as goods and services of certain individuals.

Income inequality	Income inequality is a concept that explains the differences in prosperity, the standard of living, and income received or generated by individuals or households in society resulting in uneven distribution between regions due to differences in production factors and available resources.

D. Data Collection Technique

The secondary data used in this study is in the form of studies from various relevant institutions and published by related parties or institutions such as the Central Statistics Agency (BPS) of Bali Province, and previous research reports, journals, and other literature. The data used in this study from 2017-to 2021 are all research variables in Bali Province.

E. Data Analysis Techniques

The research data was processed using the EViews 10 program to obtain regression results. Poverty in this study serves as a dependent variable. The variables are suspected to affect Gross Domestic Product (GDP), Human Development Index (HDI), Government Expenditure, and Income Inequality. This research uses a quantitative approach with panel data. Descriptive statistical analysis is used to provide an overview by analyzing and presenting quantitative data. According to (Nuryanto and Pambuko, 2018), panel data is a combination of time series and cross-sectional data. In general, the formula of the panel data regression model is as follows:

$$POV_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 HDI_{it} + \beta_3 GINI_{it} + \beta_4 GOV_{it} + \varepsilon_{it}$$

Where :

POV	Poverty
GDP	Gross Domestic Product
HDI	Human Development Index
$GINI$	Income Inequality
GOV	Goverment Expenditure
ε	Error term (error factor)
β_0	Constanta
$\beta_1 \dots \beta_4$	Coeficient of regression independent variable
i	Observation to i
t	Year to t

IV. RESULT / FINDING

Table 3. Estimation Results of Panel-Cross Section Data Regression Econometric Model

Variable	Regression Coefficient		
	PLS	FEM	REM
C	114.5994	67.38767	34.99701
GDP	0.000567	-0.001021	-0.000345
HDI	-1.415141	-0.631001	-0.396019
GINI	-15.97452	33.84623	35.69938
GOV	2.91E-06	2.73E-06	4.45E-06
	0.400297	0.925406	0.171948
R-squared	0.340327	0.897434	0.089142
Adjusted R-squared			
F-statistic	6.674925	33.08253	2.076530
Prob(F-statistic)	0.000326	0.000000	0.101962

Model Selection Test :

(1) Chow

Cross-Section F (8,32) = 93.796988 ;Prob. F(8,32) = 0,0000

(2) Hausman

Cross-section random χ^2 (4) = 15.404433; Prob. χ^2 = 0,0039

Source: Data processed by the author with Eviews, 2022

The Chow Test and Hausman Test show that the Fixed Effect Model (FEM) was selected as the best estimation model, as can be seen from the p-value, probability, or statistical empirical significance of the F Chow Test which is worth 0.0000 (<0.05), probability or statistical empirical significance χ^2 of the Hausman Test, which is 0.0039 indicating that the prob (<0.05) so that the selected model is the Fixed Effect Model (FEM). The complete results of the Fixed Effect Model (FEM) estimated model are presented in the table 4.

Table 4. Econometric Model Estimation Results

$$\widehat{POV}_{it} = 67{,}38767 - 0{,}001021\ GDRP_{it} - 0{,}631001\ HDI_{it} + 33{,}84623\ GINI_{it} + 2.73E - 06\ GOV_{it}$$

$$(0.0019)^{***} \qquad (0.3717) \qquad (0.0399)^{***} \qquad (0.3484)$$

R^2 = 0.925406 ; $DW\text{-}Stat.$ = 1.958933 ; $F\text{-}Stat.$ = 33.08253 ; $Prob.\ F\text{-}Stat.$ = 0,0000

Source: Data processed by the author with Eviews, 2022. **Description** : *significant at α = 0.01 ; **significant at α = 0.05 ; ***significant at α = 0.10. The number in parentheses is the probability of the statistical value t.

The statistics of the goodness of the model show that the fixed effect model (FEM) estimates exist, as can be seen from the p-value (p-value), probability, or statistical empirical significance of F which is worth 0.0000 (<0.10), with or forecasting power of 0.9254. This means that 92.54% variation of the Poverty variable can be explained by the variables Gross Domestic Product, Human Development Index, Income Inequality, and Government Expenditure. The remaining 7.46% was influenced by variables or other factors that were not included in the model.

Separately Gross Domestic Product and Income inequality (GINI) influence Poverty, with a p-value probability or statistical empirical significance t OF GDP of 0.00019 (<0.10) and a p-value (p-value) of probability or statistical empirical significance t Income Inequality of 0.0399 (<0.10). Meanwhile, the Human Development Index and Government Expenditure do not influence Poverty, with a p-value (p-value) probability or statistical empirical significance of t of 0.3717 (<0.10) and 0.3484 (<0.10), respectively.

The Gross Domestic Product (GDP) variable has a regression coefficient value of 0.001021, with a linear-linear relationship. This means that if the Gross Domestic Product (GDP) increases by 1%, then Poverty will also increase by 0.001021%, on the contrary, if the Gross Domestic Product (GDP) decreases by 1% then Poverty will decrease by 0.001021%.

The Variable Income Dependence (GINI) has a regression coefficient value of, with a linear-linear relationship. This means that if Income Inequality (GINI) increases by 1%, then Poverty will also increase by 33,84623%, on the other hand, if the gross domestic product (GDP) decreases by 1% then poverty will decrease by 33,84623%.

V. DISCUSSION

A. *The Effect of Gross Domestic Product on Poverty*

The regression results in Table 3 show that GDP negatively affects poverty in Bali Province during the period 2017-2021 with a coefficient of 0.0001021. This finding is in line with a study conducted by I Wayan Sudiana and I Ketut Sudiana, (2013) under the title "The Influence of GDP, Education, and Labor Structure on poverty in Bali Province" which concluded that the Per capita GDP research had a negative but significant impact on the poverty rate in Bali Province, 1995 – 2013. this is in line with research by Siregar and Winarti (2006) who said that an increase in GDP would reduce the poverty rate. The opinion of the World Bank (2006) in Wahyudi is not the same as this study that economic growth cannot be concluded can reduce the level of poverty because it is caused by income inequality between regions.

B. *Effect of Human Development Index on Poverty*

The HDI variable in the table above shows that it has a negative influence on poverty in Bali Province during the period 2017- 2021 with a coefficient of 0.631001. This is following the hypothesis and theoretical basis of this study. Research conducted by Desi Yulianti (2016) also showed the same results, namely the human development index has a negative and significant effect on poverty in DIY Provinces, which means that the increase in HDI will reduce poverty in DIY Provinces.

C. The Effect of Income Inequality on Poverty

The regression results on the GINI (Income Inequality) variable show that the Gini variable has a positive effect on poverty in Bali Province during the 2017-2021 period with a coefficient of 33.84623. This means that if the Gini index increases by 1 (one) percent, then poverty will also increase by 33.84623. This is following the theory expressed by Todaro, as long as the income distribution is uneven (high Gini ratio) then the poverty rate will be higher as well (positive and significant effect). Similarly, it has been following the research of Budi Zulfachri (2004), that an increase in per capita income encourages a slowdown in the growth rate of poverty, on the contrary, income inequality will increase the growth rate of the poor population.

D. The Effect of Government Spending on Poverty

The GOV (Government Expenditure) variable in the regression results of table 3 shows that the variable has a positive effect on poverty in Bali Province during the period 2017-2021 with a coefficient of 2.73. This means that if government spending increases by 1 million rupiahs, poverty will also increase by 2.73. This result is following previous research conducted by Dya Ayu (2020) with the title "The Effect of Government Expenditure on Poverty Rate through Economic Growth and HDI in East Java Province in 2015-2019", which collects Government Expenditure has a positive and significant effect on poverty.

IV. CONCLUSION AND RECOMMENDATION

Based on the results and discussions that have been presented in the previous stage, it can be concluded that:

a. The results of the best model selection test prove that the Fixed Effect Model is the selected model.
b. The results of the t-test found that the variables of GDP and Income Inequality individually had a significant effect on poverty.
c. The results of the F test that have been carried out conclude that the simultaneous variables of the VARIABLES GDP, HDI, GINI, and GOV jointly affect POV (Poverty).
d. The Determination coefficient test showed that the variables GDP, HDI, GINI, and GOV had an effect of 9 2.54% on POV (Poverty), while 7.46% was influenced by variables outside the model.
e. GDP negatively affects poverty in Bali Province during the period 2017-2021 with a coefficient of 0.0001021.
f. HDI negatively influenced poverty in Bali Province during the period 2017-2021 with a coefficient of 0.631001.
g. The GINI (Income Inequality) variable shows that the GINI variable has a positive effect on poverty in Bali Province during the 2017-2021 period with a coefficient of 33.84623.
h. The GOV (Government Expenditure) variable in the regression results of table 3 shows that the variable has a positive effect on poverty in Bali Province during the period 2017-2021 with a coefficient of 2.73.

With this research, it is hoped that poverty in Bali can be reduced in the next year by increasing tourist visits. With an increase in tourist visits to Bali, it will be able to increase the value of GDP and the rate of economic growth, because tourism is the main source of the economy in Bali. As well as the need for expansion of economic sectors in Bali Province so that there is no income gap. And so that the Government can increase MSME empowerment programs for rural communities because they can improve the welfare of the community in general in addition to that it is also accompanied by efforts to increase the equitable distribution of income through the balance of equitable development of economic zones in Bali Province.

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Analysis Influence Income Original Area, Fund Allocation General and Fund Allocation Special To Human Development Index in the Besuki Ex-Resident Area, East Java Province Year 2014-2020

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Abstract

This study aims to examine the effect of Regional Original Income, General Allocation Funds and Special Allocation Funds on the Human Development Index in the Ex-Residency of Besuki, East Java Province in 2014-2020. This research was conducted considering that regional expenditures have been used for routine expenditures which are relatively less productive. Therefore, in an effort to improve the quality of public services, create an increase in public welfare, especially in the fields of health, education, economy and in order to increase the achievement of the Human Development Index, local governments should change the composition of their spending. The data used in this research are secondary data obtained from the Directorate General of Fiscal Balance of the Ministry of Finance, the Regional Revenue Agency, the Central Bureau of Statistics of East Java Province and the Central Bureau of National Statistics. The data analysis used is panel data analysis with Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches. Selection of the best model using the Chow test and Hausma test. The result of this research is to prove that the fixed effect model is the chosen model. Based on the goodness of the fixed effect model approach, it is proven that the estimated model exists with a determinant coefficient value or R-square (R2) of 0.8915, this means that 89.15% of the Human Development Index variable is explained by variations of three independent variables, namely Regional Original Income.General Allocation Fund and Special Allocation Fund. Based on the goodness-of-fit test of the model (F test) it proves that Regional Original Income, General Allocation Funds and Special Allocation Funds together have an effect on the Human Development Index. Based on the effect validity test (t test) it can be seen that partially the Special Allocation Fund variable has a significant positive effect on the Human Development Index. Meanwhile, Regional Original Income and General Allocation Funds have a negative and insignificant effect on the Human Development Index.

Keywords— Income Original Area; General Allocation Fund; Special Allocation Fund; Human Development Index

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I. INTRODUCTION

Development is a process of making changes for the better development the covers various change base status social, attitudes Public, institutions national, chase acceleration growth economy, handling inequality income, and poverty alleviation programs. Where in essence, development must reflect change total community or adjustment system social overall with no ignore diversity basic needs and desires of individuals and social groups that exist to move forward towards acondition the life that everything better, by material and spiritual (Todaro & Smith, 2011).

Process development on basic not just phenomenon economy only. Besides considering aspects of growth and equity, as well as considering the economic aspects of only social life. More than that, in the development process, efforts were made to changing the structure of the economy to direction which more good (Kuncoro, 2000).

Human Capital is one of the important factors in economic development. With quality human resources, economic development as measured by increased output or growth economy considered more good. And on the contrary, development economy also could increase source quality human power. With growth economy, will there is enough funds for improve the quality of human resources. Thus, there is a mutually influencing relationship or can called connection two the direction is between growth economy and human development.

One indicator that can be seen to measure human quality and economies of scale is Human Development Index. The Human Development Index is an indicator that can be used to measure the success rate of human quality development. Human Development Index made and popularized by *the United Nations Development Program* (UNDP) since 1996 in a series of reports which is entitled " *Human Development Report* ". This index

is compiled as one of the indicators alternative to assessing the success of development carried out by a country other than income per capita, UNDP defines the Human Development Index as " a *process of enlarging people's choice* ". processes that improve aspects of people's lives. There are three most important indicators that are used as a starting point measure to compile the Human Development Index. First, longevity as measured by the old average population or life expectancy in a country. Second, knowledge as measured by the average weighted by number of adults who can read (weighted two-thirds) and average years of schooling (given weight one third). Third, income which be measured with income per capita real which has adjustable power buy it for each country (Putu Gde Mahendra Son, 2015).

The Human Development Index is a composite index used to measure achievement the average of a country in 3 basic terms, namely: a) Life expectancy index as measured by the number of expectations birth, b) Education index is measured by the average length of school and the literacy rate of the population aged 15 years to on and c) Index income measured by income and people's purchasing power.

With this the Human Development Index is an important indicator to measure success in efforts to build quality of human life (society/population). The Human Development Index can determine the level or level of development of a region/country. The Human Development Index is strategic data because apart from being a measure of government performance, the Human Development Index is also used as one of allocator Fund determination Allocation Common in a region (BPS, 2020-2021)

East Java Province is one of the largest contributors to state revenue supported by the abundance of existing natural resources and other influential economic sectors on the progress of development in East Java Province. However, this is still not supported by even distribution development at each districts Province Java East. So that Ministry Development Disadvantaged Regions in 2014 stipulates that East Java Province has 4 (four) regencies which considered to be left behind include Bondowoso Regency, Situbondo Regency, Sampang Regency and Bangkalan Regency (Knight Viratama, 2018).

The former Besuki Residency area is an area located in the eastern part of East Java Province. This region consists of four government agencies, namely Jember Regency, Banyuwangi Regency, Regency Bondowoso, and Regency Situbondo. Two of them is area left behind, that is Regency Bondowoso and Regency Situbondo. Identification center growth on Region Ex Besuki Residency should be the driving force behind the development of the area, especially in development area left behind Among other Regency Bondowoso and Regency Situbondo. Area which becomes center growth expected Becomes focus activity and stimulate area other for Keep going develop.
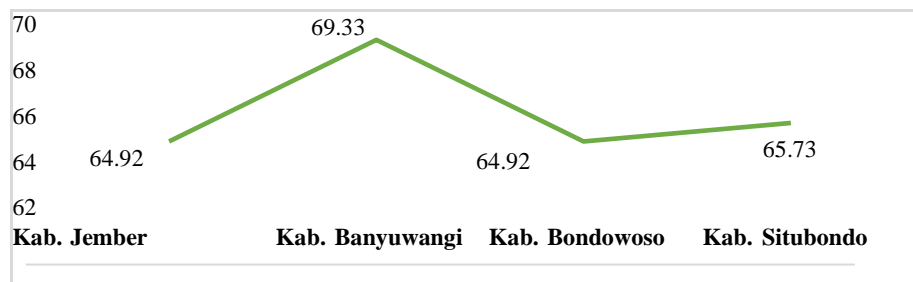
Fig. 1 Average Level of Human Development Index inEx Residency Besuki Province Java East Year 2014-2020
Source : Body Center Statistics Province Java East, 2020

If seen, Index Development Man based on chart 1 on, that index construction Man Region Ex Residency Besuki could classified Becomes three category achievements Index Development human that is Index Development Man tall with range (HDI > 80), Index Upper middle-class Human Development with a range (66 < HDI < 80), and lower - middle Human Development Index with range (50 < HDI < 66). After averaging over the last seven years, it was found that the Development Index Humans in the last 7 years, Banyuwangi Regency has the highest Human Development Index value, then the Regency of Situbondo, Regency Jember and Regency Bondowoso.

The value of the Human Development Index of an area is certainly strongly influenced by policies internal

local government. Government policies that support aspects of human development, In fact, it can be seen from the proportion of the government's budget for the development of the education and health sectors (Arsyad, 2010) in (Puji Lestari, 2019). Especially in the era of decentralization as it is today, there is a delegation of from the central government to autonomous regions (Law No. 32 of 2004), indicating that the government regions are expected to be able to explore and utilize their respective regional resources and be allocated for increase well-being Public.

The implementation of fiscal decentralization has consequences, where regions are required to be able to finance regional expenditures using Regional Original Revenue, but not all regions are able to do this. This causes development in an area to be uneven, to overcome this, the central government allocates a Balancing Fund. Balancing funds are directly related to the implementation of local government in the context of regional autonomy or decentralization. In accordance with the provisions in Article 6 of Law Number 25 of 1999, balancing funds consist of, Profit Sharing Funds, General Allocation Funds, and Special Allocation Funds. By increasing Local Original Income, the General Allocation Fund and the Special Allocation Fund, it is possible to increase the welfare of the community as measured by the Human Development Index if the funds are allocated to sectors that can increase the Human Development Index such as education, health, and infrastructure.

Based on the description above and the phenomenon that occurs, the average value of the Human Development Index for the Besuki Residency in East Java Province has increased and decreased in the Human Development Index every year in the 2014-2020 period. This reflects that the revenue of the East Java Provincial government has not been optimal in its ability to increase the level of community welfare. Local governments should be able to manage Original Regional Revenues well and use them for productive budgets that can be felt by the community such as the education, health, and infrastructure sectors so that the Human Development Index can increase.

This indicates that each region must explore the potential of their respective regions, because the measure of the success of decentralization is how much the regions depend on the central government. Local governments are free to use Regional Original Revenue in order to finance government activities and regional development. The growth of Regional Original Income should be sensitive to the increase in economic growth which will have a direct impact on the Human Development Index in the area.

Big small Income Original Area could increase or reduce dependency onCentral government. The level of independence of a region can be seen from the ability of Regional Original Income in finance development his own area. Regional reception which comes from from Income Original regions are expected to increase investment in local government capital expenditures so that the quality of service public the more good. According to Setyowati and Suparwati in (Putu Milan Pradnyantari, 2017).

Fund balance is fund which sourced from income A budget Revenue B spending N State _ which allocated toarea for fund needs area in skeleton implementation decentralization with destination for reduce the fiscal gap between the central government and local governments. The Balancing Fund consists of: General Allocation Fund, Special Allocation Fund, and Revenue Sharing Fund. According to Law Number 23 Years 2014 about Government Area, Fund Allocation General is fund which sourced from income State Revenue and Expenditure Budget allocated with the aim of equitable distribution of financial capacity between regions to fund regional needs in the context of implementing decentralization. Use of Funds Allocation General expected for necessity which oriented on well-being Public (Gede Ferdi Williantara, 2016).

According to Law Number 23 of 2014 concerning Regional Government, the Special Allocation Fund are funds sourced from revenues from the State Revenue and Expenditure Budget allocated to d area certain with destination for help fund activity special which is u rusan government which is the authority of the region. The use of the Special Allocation Fund is an authority from government area because Fund Allocation Special is part from Budget Income Shopping Regions, so that the use of the Regional Government's Special Allocation Fund is in line with national interests then the use of the Special Allocation Fund is regulated through various rules regulated by the central government. After the implementation of the decentralization system in 2001, the scope of activities to be financed Fund Allocation Special the more increase which covers seven field service government, that is: 1) Education, 2) Health, 3) Agriculture, 4) Public Works (roads, irrigation, and clean water), 5) Government Infrastructure, 6) Marine Affairs and Fisheries, and 7) the environment. Allocation of Special Allocation Funds through Capital Expenditure directly affect the welfare of society. If the Special Allocation Fund is used wisely, so will impact on enhancement quality education, health, and infrastructure support economy Public (Gede Ferdi Williantara, 2016).

II. LITERATURE REWIEW

A. Theory Growth Man

Theory growth endogenous (*endogenous ous growth theory*) explain that investation on capitalphysique and capital man play a role in determine growth economy period long. Contribution government on economic growth can be explained through its influence in making changes consumption or expenditure for investation public and reception from tax. Group theory this also considers that the existence of infrastructure, laws and regulations, political stability, government policies, bureaucracy, and the basis of international exchange as important factors that also affect economic growth (Ahmad Ma'ruf, 2008).

B. Theory Agency (Agency theory)

According to Jensen and Meckling (1976) problem agency could appear because every individual assumed will have preference for maximizing utility personal which possibility big against the interests of other individuals. This agency relationship problem resulted in the occurrence of information asymmetry and conflicts of interest. According to Scott, information asymmetry is divided into two, namely: adverse selection and moral hazard. Adverse selection is a type of information asymmetry in which there are parties who related to company transactions that have information benefits while other parties do not have benefit of the same information. Meanwhile, moral hazard is a type of information asymmetry in which there are parties who related to company transactions that can directly observe the running of the transaction, whereas the other party cannot do the same. Ardiansyah and Widiyaningsih (2014) in (Hastu sarkoro, 2016).

The relationship between agency theory in this study can be seen through the relationship between the central government and local governments in the distribution of balancing funds and also the relationship between community represented by the Regional People's Representative Council (principal) with the regional government (agent). The central government delegates authority to local governments in managing households the area alone. By because that, consequence from delegation authority, government center has channeling balancing funds, the purpose of which is to assist local governments in funding day-to-day governance needs and in providing better public services to the community. In addition, agency theory is also implicit in the relationship between local government and the community. Public as the principal providing resources for the region by paying local taxes, regional levies and others to increase regional income itself. In addition, agency theory implicitly includes in connection Among government area and Public. Public as principal has give source power to area in the form of payment tax area, retribution and etc for could increase local revenue. In this case the local government as an intermediary must provide feedback to the community in the form of adequate public services, funded by revenue the area itself (Hastu Sarkoro, 2016).

C. Theory Fiscal Federalism

Federalism fiscal which discuss about connection finance between level government whichput it on a different level. The relationship between the theory of fiscal federalism and this research is by The existence of a decentralization policy in Indonesia is expected to be able to build a better region by creating reliable human resources in all fields in order to become a society that productive so that society prosperous (Graceful Claudia Melgiana, 2020).

D. Income Original Area

In the Law of the Republic of Indonesia Number 33 of 2004 concerning Financial Balance Between the Central Government and the Regional Government Article 1 states that the Regional Original Revenue is income which obtained Area which collected based on Regulation Area in accordance with regulation legislation. In Chapter 3 state that Income Original Area aim give authority to the Regional Government to fund the implementation of regional autonomy in accordance with the potential Region as embodiment Decentralization.

In line with research conducted by (Gede Ferdi Williantara, 2016) that Original Income Area no influence Index Development Man. It means ability Income Original Areain financing Capital Expenditures does not affect the HDI achievement. This is because Original Income Area more many used for finance personnel expenses and direct shopping other than finance capital expenditures that will have an impact on human development. Real Income Usage Area by the government should make the region's ability to finance shopping capital to be to support public facilities and infrastructure such as supporting health, education, and public

facilities that will have a greater impact on the welfare of people's lives. Local government shouldwiser in allocating regional expenditures, especially capital expenditures so that the public interest can fulfilled and the local government is expected to continue to explore the revenue potentials Original Region in their respective regions in order to minimize dependence on the central government and for increase achievements HDI in the future.

H_1 : Income Original Area no effect to Human Development Indeks.

E. *Fund Allocation General*

In Regulation Government of the Republic of Indonesia Number 55 2005 about Balancing Fund Article 1 states that the General Allocation Fund is a fund originating from the income of the Revenue Budget Shopping Country which allocated with destination even distribution ability finance between area for fund needs area in skeleton implementation Decentralization.

In line with research conducted by (Hastu Sarkoro, 2016) that the General Allocation Fund does not affect the Human Development Index. There is no influence of the General Allocation Fund on The Human Development Index is caused because the allocation of the General Allocation Fund is more focused on destination others, such as increasing the quality of the local economy. Besides that, Dana General Allocation mostly used for personnel expenses. This can be seen from the formulation of the General Allocation Fund which include the basic allocation component as the main component that dominates the entire Allocation Fund Generally accepted by the region. The basic allocation is the budget allocation used for expenditures employee. (Ardiansyah and Widiyaningsih, 2014) in (Hastu sarkoro, 2016).

H_2 : Fund Allocation General no effect to Human Development Indeks.

F. *Fund Allocation Special*

Government Regulation of the Republic of Indonesia Number 55 Year 2005 concerning Balancing Fund Article 1 states that the Special Allocation Fund is a fund sourced from the Revenue Budget State Expenditures allocated to certain regions with the aim of helping fund activities which are regional affairs and in accordance with national priorities. Amount of Special Allocation Fund set every year in State Revenue and Expenditure Budget.

In line with research conducted (Renggo, 2019) that the Special Allocation Fund has an effect on increasing the human development index and the increasing Special Allocation Fund, then will further increase the Human Development Index. According to Law no. 33 of 2004, Allocation Fund Specifically used to fund special activities which are regional affairs in accordance with the function which has set Budget Income Shopping Country. With Allocation Special used for increase service public in the form of development means and infrastructure public like service health, education, agriculture, public works, government infrastructure, marine and fisheries and the environment (Gede Ferdi Williantara, 2016) and (Putu Gde Mahendra Putra, 2015) describe one of the services education is rehabilitate room study which damaged because with provide service and affordability of access, providing quality education services can improve the quality of where it can improve the quality of existing human resources in the area and can help in enhancement Human Development Index.

H_3 : Fund Allocation Specially influential to Human Development Indeks.

III. RESEARCH METHODOLOGY

The population in this study is the data on the realization of the entire Regional Revenue and Expenditure Budget County/City Region Ex Residency Besuki Province Java East Year 2014 – 2020. In this study the data used is quantitative data because it is expressed by numbers that indicate the value of the magnitude of the variable it represents and is in the form of data s e secondary which obtained from Central Bureau of Statistics of East Java Province, Badan National Statistics Center, Directorate General balance Finance/Ministry of Finance and Regional Revenue Agency of East Java Province. This study uses a panel data analysis tool to determine the effect of variable independent to dependent variable.

A. *Tool and Model Analysis*
This study uses a panel data analysis tool to determine the effect of the independent variables to the dependent variable. With the following econometric model:

$$\text{HDI}_{it} = \beta_0 + \beta_1 log(\text{IOA})_{it} + \beta_2 log(\text{FAG})_{it} + \beta_3 log(\text{FAS})_{it} + \varepsilon_{it}$$

Information :

HDI	= Human Development Index (Number Index)
IOA	= Income Original Area (Billion)
FAG	= Fund Allocation General (Billion)
FAS	= Fund Allocation Special (Billion)
β0	= Constant
β1---β3	= Coefficient regression variable independent
i	= *Cross Section* (4 Regencies/Cities Region Residency Besuki Province JavaEast)
t	= *Time Series* (Period 2014-2020)
ε	= *Error term* (Factor Error)
Log	= Logarithmic Operation

Stages estimation model econometrics in on will include: Estimate regression data panel with *Common Effect Model* (CEM), *Fixed Effect Model* (FEM), and *Random Effect Model* (REM) approaches ; election model best with using the Chow test and Hausman test; goodness test data models panel selected and interpretation coefficient determination; and which final is with test significance simultaneous (Test F).

B. *Definition Operational Variable*

1. Index Development Human
   The Human Development Index in this study is a composite index used for measure achievement average something country in three Thing fundamental development man that is : life expectancy index is measured by birth expectancy, education index is measured by average length of schooling and literacy rate and income index are measured by purchasing power of per capita consumption in 4 Regencies/Cities in Besuki Residency, East Java Province in the period 2014-2020 which served in unit index number.

2. Income Original Area
   Regional Original Income in this study is the income earned by the region which is gut based on Regional Regulations in accordance with statutory regulations. in 4 districts/cities in the Besuki Residency Region, East Java Province in the period 2014-2020 which is presented in unit lam billion rupiah.

3. Fund Allocation General
   The General Allocation Fund in this study is a fund sourced from Budget revenue State Expenditure Revenue allocated with the aim of equitable distribution of financial capacity among regions to mark regional needs in the context of implementing decentralization. General Allocation Fund allocated for provincial and regency/municipal areas in 4 regencies/cities in the residency area Besuki Province Java East within time 2014-2020 served in units billion rupiah.

4. Fund Allocation Special
   Special Allocation Funds are funds sourced from the Revenue and Expenditure Budget pendapatan Country which allocated to area certain with destination for help fund activity which are regional affairs and in accordance with national priorities. In 4 Regencies/Cities in The Besuki Residency of East Java Province in the period 2014-2020 which is presented in billion rupiah units.

IV. RESULT / FINDING

A. *Results Estimate*

Based on explanation previously that Income Effect Analysis Original Region, Fund General Allocation and Special Allocation Fund for Human Development Index in Ex Residency Area Besuki Province of East Java in 2014-2020 is estimated by panel data regression analysis through the formulation model econometrics as follows :

$$HDI_{it} = \beta_0 + \beta_1 log(IOA)_{it} + \beta_2 log(FAG)_{it} + \beta_3 log(FAS)_{it} + s_{it}$$

Information :
HDI	= Human Development Index (Number Index)
IOA	= Income Original Area (Billion)
FAG	= Fund Allocation General (Billion)
FAS	= Fund Allocation Special (Billion)
β0	= Constant
β1---β3	= Coefficient regression variable independent
i	= *Cross Section* (4 Regencies/Cities Region Residency Besuki Province Java East)
t	= *Time Series* (Period 2014-2020)
ε	= *Error term* (Factor Error)
Log	= Logarithmic Operation

Results estimation regression data panel with use approach *Common Effect Model* (CEM), *FixedEffect Model* (FEM), and *Random Effect Model* (REM) can be seen in table 1.

Table 1. Results Regression Data Panel

Coefficient Regression Variable	CEM	Prob	FEM	Prob	BRAKE	Prob
C	17.46597	0.4351	27.08137	0.0671	17.46597	0.0591
Log(IOA)	-0.677825	0.2639	-0.178276	0.6351	-0.677825	0.0087
Log(FAG)	1.267459	0.1775	-0.064964	0.8764	1.267458	0.0020
Log(FAS)	1.206690	0.0898	1.740424	0.0000	1.206690	0.0002
R^2	0.227611		0.891547		0.227611	
Adj.R ^{2}	0.131062	0.860560			0.131062	
F-Statistics	2.357473	28.77205			2.357474	
Prob.F.Statistic	0.096929	0.000000			0.096929	

B. Election Model

Test Chow

The Chow test is one of the tests used to choose which model is better on the panel data regression, which is between the *common effect* estimation model and the *fixed effect estimation model*. By hypothesis as follows :

H$_0$: *common effect model* better from on fixed effect *model*

H$_A$: *fixed effect model* better than on *common effect model*

The Chow test is carried out by looking at the *p-value, if the p-value is* significant $<$ by 5%, then the it is better to use the *fixed effect model*, but if it is not significant with a *p-value* $>$ of 5% which more good used is *common effect model.*

1.   Table 2. Result Test Chow

Effect Test	Statistics	d.f	Prob
Cross Section F	42.853160	(3.21)	0.0000
Cross-Section Chi-Square	54.968809	3	0.0000

Based on Table 2, the results of the Chow test show that the probability value of the Chi- square of 0.0000 $<$ of 5%, meaning that the *p-value* is smaller than (0.05) so that reject the null hypothesis (H$_0$) and fail to reject the alternative hypothesis (H$_A$). so that the conclusion is the model *Fixed effect* estimation is better than the *common effect* estimation model, so the estimation model is suitable for analyze is *fixed effect* model.

Test Hausman

In the initial test of the Chow test, it was found that the *fixed effect model* was better to use than on *the common effect model*, then perform the Hausman test. Hausman test is one of the tests which is used to compare the appropriate model used in panel data regression, namely between *fixed effect model* or *random effects models.* With hypothesis as follows :

H_0 : *random effect models* better from on *fixed effect model*

H_A : *fixed effect model* is better than at *random effect*

Hausman test can be done by looking at the p-value, if the p-value is significant < then it is better to use the *fixed effect model*, but if the p-value is not significant > 0.01 then which is more good used is *random effects model.*

<div align="center">2.   Table 3. Results Test Hausman</div>

Test Summry	Chi-Sq. Statistics	Chi-Sq. df	Prob
Cross-Section Random	128.559422	3	0.0000

Based on Table 3, the results of the Hausman test show that the probability value of *Cross-section Random* of $0.0000 <$ of 5%, meaning that the *p-value* is smaller than (0.05) so that reject the null hypothesis (H_0) and fail to reject the alternative hypothesis (H_A). so that the conclusion is the model *Fixed effect* estimation is better than *Random effect* estimation model, so the estimation model is suitable for analyze is *fixed effect* model.

Based on the model selection test, both the Chow test and Hausman test which have been described above, the best and selected model is the *Fixed Effect Model* (FEM). With *Fixed* estimation results *Effect Model* (FEM) who presented in table 4.

<div align="center">3.   Table 4. Results Estimate Fixed Effect Model</div>

$$HDI_t = 27{,}0813 - 0{,}1782\,Log(IOA) - 0{,}0649\,Log(FAG) + 1{,}7404\,Log(FAS) + \varepsilon_t$$
$$(0{,}6351) \qquad\qquad (0{,}8764) \qquad\qquad (0{,}0000)^*$$

$$R^2\ 0{,}8915;\ DW - Stat. = 0{,}8104;\ F - Stat. = 28{,}7720;\ Prob.\ F - Stat. = 0{,}0000$$

Source: Central Statistics Agency, Regional Revenue Agency, Directorate General of Fiscal Balance/ Ministry of Finance, data processed.

Note :*Significant at = 0.01; ** Significant at = 0.05; ***Significant at = 0.10. The number in brackets is the empirical significance (p-value) t statistic.

<div align="center">Table 5. Effects and constant Fixed Effect Model (FEM)</div>

No.	County/City	Effect	Constant
1	Jember Banyuwangi	-1,5791	25,5022
2	Bondowoso	3,1986	30,2799
3	Situbondo	-1,3509	25,7304
4		-0,2685	26,8128

Model Goodness Test
Coefficient Determination (R2)

Based on table 4 shows that the coefficient of determination or R-square (R2) is 0.8915 Thing this means 89.15% variable Index Development Man explained by variation from three variable independent namely Regional Original Revenue, General Allocation Fund and Special Allocation Fund. While the rest as big as 10.85% explained by other variables in outside model who does not included in study.

Test Existence Model (F-Test)

The model can be said to exist if all the number of independent variables simultaneously have an effect to variable dependent. Following is a hypothetical formula test existence model study:

H_0: $\beta1 = \beta2 = \ldots = \beta n = 0$, the model used does not exist

H_A: $\beta1 \neq \beta2 \neq \ldots \neq \beta n \neq 0$, the model used exists

Criteria in this test that is:

H_0: accepted if the probability or significance $F > \alpha$

H_A: rejected if the probability or significance $F \leq \alpha$

Based on table 4 shows that the probability value of F-statistics is 0.0000 < 0.01 so that reject the null hypothesis (H_0) and fail to reject the alternative hypothesis (H_A). So, in conclusion, the model that used to exist or simultaneously variable Regional Original Income, General Allocation Fund and Allocation Fund Special together effect on Index Human Development.

Test Validity Influence (t-test)

The effect validity test tested the significant effect of the independent variables individually. The effect validity test is the t test. H_0 on the t test is $\beta = 0$. Which means the independent variable i has no significant effect; and its H_A $\beta \neq 0$, which means the ith independent variable has a significant effect. H_0 will be accepted if the p (p value), probability or significant empirical statistic $t > \alpha$; H_0 will be rejected if the p (p value), probability, or significant empirical statistic $t \leq \alpha$.

4.   Table 6. Test Validity Influence Variable Independent

Variable	t	Prob.t	Criteria	Conclusion
IOA	-0.481550	0.6351	>0.10	Not Significant
FAG	-0.157465	0.8764	>0.10	Not Significant
FAS	6.218025	0.0000	0.01	Significant on 0.01

Interpretation Influence Variable Independent Model Selected

Based on test validity influence which there is on table 6 has proved that variable independent which has a significant influence on the Human Development Index in Ex Territory Besuki Residency of East Java Province is the variable of the Special Allocation Fund. While the income variable Original Area and Fund Allocation General no have influence which significant. Based on the research results, the Special Allocation Fund Variable has a probability of 0.0000 which is statistically significant at a degree = 1% (0.01) with a linear-logarithmic relationship pattern. This means that if the Special Allocation Fund increases by 1 Rupiah, the Human Development Index will increase by (1.740424:100) = 0.01740424 index number. On the other hand, if the village fund decreases by 1 Rupiah, the Human Development Index will decrease by 0.01740424 index number.

The Special Allocation Fund has a positive and significant effect on the Human Development Index, which means that every increase in the Special Allocation Fund variable has an influence and also increases the Human Development Index in the Besuki Ex Residency Region, East Java Province in 2014-2020. According to Law no. 33 of 2004, the Special Allocation Fund is used for special funds which are regional affairs that have been determined by the State Revenue and Expenditure Budget. With the Special Allocation, it can be used to improve public services in the form of building public facilities and infrastructure such as health services, education, public works, government infrastructure, marine and fisheries and the environment (Gede Ferdi Williantara, 2016) and (Putu Gde Mahendra Putra, 2015) describing one of the educational services is to rehabilitate damaged study rooms because by providing services and affordability of access, providing quality education services can improve the quality of education which can improve the quality of existing human resources in the area and can assist in increasing the Human Development Index.

This is in line with the theory of endogenous growth in which the Human Development Index is influential in determining the long-term economy. And it is also in line with the agency theory where the balancing fund is the Special Allocation Fund, one of the goals of which is to assist local governments in funding day-to-day governance needs and special funds which are regional affairs in accordance with the assigned functions and in providing public services. better for society. So that it can improve the quality of human resources and achieve a better level of the Human Development Index.

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research that has been done, it can be concluded that the test results for selecting the best estimator model prove that the fixed effect model (FEM) is the chosen model. Based on the goodness of the fixed effect model (FEM) approach, it is proven that the estimated model exists with a determinant coefficient value or R-square (R2) of 0.8915, this means that 89.15% of the Human Development Index variable is explained by variations of the three independent variables, namely Regional Original Revenue, General Allocation Fund and Special Allocation Fund. Meanwhile, the goodness-of-fit test of the model (F test) proves that Regional Original Income, General Allocation Funds and Special Allocation Funds together have an effect on the Human Development Index. The last is that the effect validity test (t test) can be seen that partially the Special Allocation Fund variable has a significant positive effect on the Human Development Index. Meanwhile, Regional Original Income and General Allocation Funds have no significant negative effect on the Human Development Index.

Based on the table of effects and constants of the random effect coefficient model, it can be seen that the constant value of each district/city in the Ex-Residency of Besuki, East Java Province, the highest constant value is Banyuwangi Regency with a value of 30.2799. Meanwhile, the district with the lowest constant value is Jember Regency with a value of 25.5022. Thus, in relation to the influence of the variables of Regional Original Income, General Allocation Funds and Special Allocation Funds on the Human Development Index in the Besuki Former Residency Area, East Java Province, Banyuwangi Regency has a higher Human Development Index level while Jember Regency has a lower Human Development Index level.

This study has several limitations, namely the research period is only 7 years, only using the realization of Regional Original Income, General Allocation Funds, and Special Allocation Funds as variables. The object of research is only the Regency/City in the Ex-Residency of Besuki, East Java Province. For further research, it is expected to increase the vulnerability of the research time, to add new independent variables and data by using different methods and to increase the number of samples by expanding the research area so that the research results are expected to be much better.

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Analysis Of The Effect Of Locally Revenue, Regional Shopping, And The Workforce On The GDP Of The Central Java Province In 2019-2020 Period

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Abstract
The country's economic growth is generally supported by the economic growth generated by each region. Regional economic growth can be seen from the value of Gross Domestic Product (GDP). This GDP value will indicate the level of progress of the regional development. This study aims to determine the effect of Locally Revenue, Regional Shopping, and the Workforce on the GDP of the Central Java Province in 2019-2020. The dependent variable used is GDP while the independent variables used are locally revenue, regional shopping, and the workforce. The data used is panel data using 29 districts and 6 cities in the Central Java Province in 2019-2020. The method in this study uses panel data regression analysis using the FEM (Fixed Effect Model) model. From the model, it is known that the locally revenue and regional shopping variables have no significant effect on the GDP in the Central Java Province in 2019-2020, while the workforce variable has a significant effect on the GDP in the Central Java Province in 2019-2020.

Keywords— GD;, Locally Revenue; Regional Shopping; Workforce

I. INTRODUCTION

One goal of a country is to increase its economic growth. One measure of economic growth in national income. A country's national income may indicate just how much economic activity there is overall. The concept of national income is a measure that is most often used as an indicator of economic growth but is not the only indicator of economic growth. Economic growth is a process, not a picture of the economy at any given period. There is a development or change and use of time (Boediono, 1999).

Meanwhile, national development is a continuous, ongoing activity aimed at promoting both the material and spiritual welfare of society based on Pancasila and the 1945 constitution. National development includes various aspects such as economic, social, political, legal, and other development aspects in which they synergize with one another to achieve success at both the central and regional levels. Therefore, there is a need for participation in both society and government in achieving these goals. Broader development may be defined as an attempt to increase the potential resource productivity of a country, whether natural resources, human resources, capital, or the resources of technology, with the ultimate goal of improving people's lives (Todaro & Smith, 2006).

One important indicator of economic conditions in a particular area or province is indicated by the gross domestic product (GDP). This GDP value will explain the extent to which the region's ability to manage or utilize existing resources. Besides that, the economic condition as a whole in each region can also be seen by how much spending is done in the region. Government spending, or regional spending, is a form of stimulation carried out by the government on the regional economy. The greater the value of spending areas allotted for development, the better of the population will be. This means that the economic conditions in the region will also improve (Rahman & Chamelia, 2015).

Table 1. GDP of the Regency/City of Central Java Province based on constant prices in 2010 during the period 2019-2020

Regency/city in Centra Java Province	Year	
	2019	2020
Cilacap Regency	100327298.90	90,011,584.10
Banyumas Regency	39779320.86	39121623.57
Purbalingga Regency	17387610.58	17182873.71
Banjarnegara Regency	15246865.65	15045884.99
Kebumen Regency	19815062.62	19527664.95
Purworejo Regency	13353336.33	13138294.11
Wonosobo Regency	13793040.27	13566176.25

Magelang Regency	23253154.32	22865151.84
Boyolali Regency	22681097.81	22409732.64
Klaten Regency	27805993.69	27480359.39
Sukoharjo Regency	27076442.63	26616503.11
Wonogiri Regency	20856209.49	20563144.42
Karanganyar Regency	26599744.09	26103228.36
Sragen Regency	26853059.12	26367261.24
Grobogan Regency	19692631.32	19383027.40
Blora Regency	18318415.14	17483886.74
Rembang Regency	13612335.31	13409631.20
Pati Regency	30885378.59	30527473.16
Kudus Regency	73241777.45	70961748.50
Jepara Regency	21384282.93	20973089.31
Demak Regency	18417009.99	18374561.64
Semarang Regency	35638961.98	34688037.34
Temanggung Regency	15214058.87	14890755.46
Kendal Regency	30916386.47	30449024.40
Batang Regency	15226786.53	15031083.84
Pekalongan Regency	16356350.99	16047511.77
Pemalang Regency	18267199.78	18155597.42
Tegal Regency	24861495.83	24492665.57
Brebes Regency	32847862.67	32693080.65
Magelang City	6470539.51	6312054.41
Surakarta City	35441107.67	34815965.32
Salatiga City	9666446.31	9503711.49
Semarang City	140199517.36	137609712.18
Pekalongan City	7477425.04	7337833.89
Tegal City	11205782.88	10949122.06

Source; BPS Central Java Province (Badan Pusat Statistika, 2021)

Based on table 1 above, the highest GDP per capita during 2019-2020 is owned by the City of Semarang, with a GDP per capita in 2019 of Rp. 140199517.36 and in 2020 with a GDP per capita of Rp. 137609712.18. Then, Cilacap Regency in 2020 with a GDP of Rp. 90011584.10; Kudus Regency in 2020 with a GDP of Rp. 70961748.50 Magelang City has the lowest GDP per capita in 2020, with Rp. 6312054.41 (Rahman & Chamelia, 2015).

The calculation of GDP has become a very important part of macroeconomics, especially regarding the analysis of the economy of a region. The results of this GDP calculation provide the basic framework used to measure economic activity that occurs and takes place in an economy. These GDP figures serve as macroeconomic indicators and also serve as a basis for evaluating economic performance and formulating various policies. This economic indicator also provides an overview of the entire flow of value-added goods and services produced and all the production factors used by the economy to produce value-added goods and services (Rahman & Chamelia, 2015).

Exploring regional income, increasing the participation of the private sector, and increasing the participation of local workers as capital for regional development are expected to be one of the factors driving regional growth. Local governments must implement a bottom-up regional development planning approach (bottom-up) so that the

development carried out by the regions is a shared desire and following the existing potential so that sustainable development can be achieved (Adisetiawan, 2017). Based on the description above, it can be seen that local revenue, regional expenditure, and the labor force influence regional GDP, Central Java Province. If the value of each variable increases, the increase also occurs in economic growth in this case GDP. If there is a decrease in these variables, a decrease also occurs in GDP, from the above phenomenon, it is necessary to have a study that is expected to provide recommendations for the continuation of economic growth in the Central Java Province. The purpose of this study was to determine the effect of local revenue, regional shopping, and workforce on the GDP of the Central Java Province, and how much influence each variable of local revenue, regional shopping and workforce had on the regional GDP of the Central Java Province.

Based on the background that has been described, this study will focus on observing the influence of Local Revenue, Regional Shopping, and the Workforce on the GDP of the Central Java Province in 2019-2020.

II. LITERATURE REVIEW

A. GDP

Gross Regional Domestic Product is a reflection of the production capability and level of income of a society so that Gross Regional Domestic Product has a strong relationship with Local Revenue. Because in theory, if there is an increase in public consumption, it will cause an increase in tax payments which are included in the component of local revenue (BPS, 2015).

The benefits of calculating the value of GDP are: (1) knowing and studying the structure or composition of the economy. From the GDP calculation, it can be seen whether an area is included in industrial, agricultural, or service areas and how much the contribution of each sector; and (2) comparing the economy over time. Because the value of GDP is recorded every year, it will get a record number from year to year. Thus, it is hoped that information on the increase or decrease in whether there is a change or reduction in material prosperity or not (Adisetiawan & Ahmadi, 2016).

B. Local Revenue

Local Revenue is regional revenue from various regional government efforts to collect funds for the needs of the region concerned in financing routine and development activities, which consists of regional taxes, regional levies, part of regionally owned business profits, and other legitimate regional original revenues. Local Revenue is defined as regional income which depends on the state of the economy in general and the potential of the sources of local revenue itself.

Sutrisno, (1984) local revenue is an income that shows the ability of a region to collect sources of funds to finance regional activities. So the notion of local revenue can be said to be routine income from local government efforts in utilizing the potential of financial sources to finance their duties and responsibilities. According to article 6 of Law no. 32 of 2012 local revenue comes from regional tax results, regional levies, results from regionally owned companies and the results of separated regional wealth management; and receipts from the service and other legitimate regional income.

C. Regional Shopping

Each regional head in the regional expenditure planning system is a form of implementing the vision, mission, and program of a regional head according to what was conveyed in the campaign so that the budget allocation is not only allocated for routine expenditures but is allocated more for development expenditures. Because through development spending activities it will be seen how far a regional head is committed to a public service orientation. Along with the enactment of Law Number: 32/2004 concerning Regional Government and Law Number: 33/2004 concerning Financial Balance between the Central and Regional Governments, since then the authority of regional governments has increased to regulate their households.

D. Workforce

The workforce is the population of working age between 15-64 years. The population of this working age can be classified into two, namely the labor force and the non-labor force (Suparmoko, 2002). In summary, the workforce consists of the labor force and not the labor force. What is meant by the labor force is the part of the workforce that is involved or is still trying to be involved in productive activities that produce goods and services. According to Suparmoko, (2002), the labor force is the population who have not worked but are ready to work or are looking for work at the prevailing wage level. The labor force consists of groups who are working, and those who are unemployed and looking for work (P. Simanjutak, 1985). Meanwhile, what is meant by non-labor force are those who are still in school, those who take care of the household, and other groups or income recipients (P. Simanjutak, 1985).

An area is said to be advanced if it is supported by high public knowledge, and adequate natural resources managed by human resources who have great potential to achieve regional development progress. One indication is a large number of workers and little unemployment (Arifin, 2009, Kusuma, 2017).

E. Previous Research

Research conducted by Simanjutak, (2008) with the title "Analysis of the Influence of PAD on economic growth in Labuhan Batu Regency". This study uses secondary data with the type of time series data during the period 2001–2004. The data used are sourced from the Labuhan Batu Regency Revenue Service , BPS, Finance of Departement and journals and research results. The dependent variable used is GDP based on current prices. The independent variables used were PAD, DAU, APBD, and Degree of Fiscal Autonomy. The analytical method used in this research is Ordinary Least Square. The results of the research show that PAD and DAU have a positive and significant effect on economic growth in Labuhan Batu Regency, and the previous year's economic growth has a positive and significant effect on economic growth for the current year in Labuhan Batu Regency.

The research conducted Wijayanti, (2002), on "Analysis of the Influence of Locally Revenue, Contributions of the Central Government, and Workforce on Economic Growth in Kudus Regency" concluded that in addition to workforce, which had a positive effect on economic growth, there was also PAD, which also had a positive effect on economic growth in the district. This is also very true for Central Java's GDP growth.

Research conducted by Pujiati, (2007) entitled "Analysis of Economic Growth in the Residency of Semarang in the Era of Fiscal Decentralization". The type of data used is panel data, which is a combination of time series and cross-section. Time Series data from 2001-2006 and the objects are 6 regency/cities in the Residency of Semarang. The model used in this study is the Fixed Effects model. The results showed that PAD and DBH had a positive and significant effect on economic growth, while DAU had a negative effect on economic growth. Workforce as the main factor in accelerating economic growth has a positive and significant influence on economic growth.

The research was conducted Rustiono, (2008) with the title "Analysis of Investment, Workforce, and Government Expenditures on Economic Growth in Central Java". This study uses a log linear regression model with the least squares method (OLS). The results of data analysis show that the F-count value is greater than the F-table (4,499 > 2.81), so that H_0 is accepted and H_a is rejected, meaning that together the variables of PMDN, PMA, Workforce, and government expenditures have a positive effect. and are significant to economic growth in Central Java Province.

III. Research Methodology

A. Research Design

This study aims to examine the effect of local revenue , regional shopping, and workforce on GDP using secondary data obtained from the information documentation of the BPS and analyzed with a quantitative approach. The research design is shown in Figure 1.
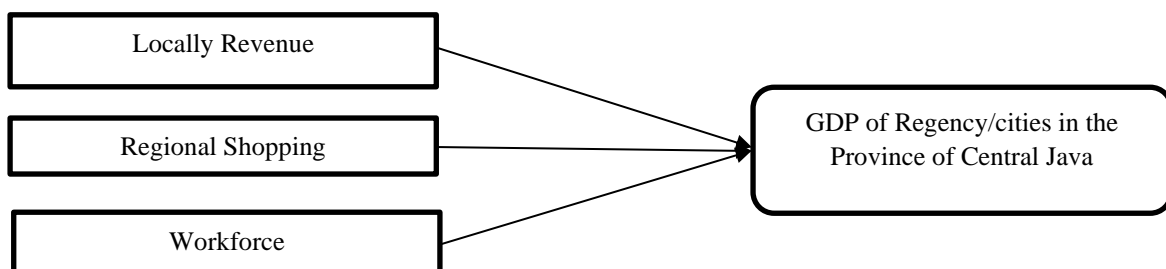
Fig 1. Research Design

B. Operational Definition

The research uses quantitative data methods. Secondary data is obtained from the BPS Jateng Province during the 2019-2020 period. The dependent variable in this research is GDP. The independent variables of this research are locally revenue, Regional shopping, and the Workforce.

Gross Domestic Product (GDP), GDP is the amount of added value generated by all economic sectors in a region. The data used is constant price GDP in 2010 according to regency/cities in the Central Java Province in 2019-2020. The unit of GDP data is a million rupiah.

Locally revenue , as one of the regional revenues, reflects the level of regional independence. The greater the locally revenue, the greater the ability of the region to implement fiscal decentralization and less dependence on

the central government. The income received by the region in a certain period is obtained from regional revenue sources in the Central Java Province in 2019-2020. The unit of PAD data is the rupiah

Regional shopping has a role to bring together community request with the provision of facilities and infrastructure that are not fulfilled by the private sector. Locally revenue are intended to be all regional obligations which are recognized as a reduction in the value of net assets in the period of the year concerned. The data used is the number of regional expenditures from the realization of direct and indirect expenditures in the Central Java Province in 2019-2020. The rupiah is the Regional Expenditure Data Unit.

The labor force is the workforce or population of working age who is working, or has a job but temporarily does not work, and who is looking for work (Dumairy, 1997). The number of workers who work is a description of the conditions of the available employment. The greater the number of available jobs, the greater the total production in a country, where one indicator to see the development of employment in Indonesia is the workforce Participation Rate (Novianto, 2013) The data used is the number of workers in the Central Java Province in 2019-2020. The Workforce Data Unit is a soul.

C. Data Analysis Technique

The research data was processed using the EViews 10 program to obtain the regression results. GDP is the dependent variable and Locally Revenue, Regional Shopping, and the Workforce as independent variables. The econometric model of panel data regression is as follows:

$$PDRB_{it} = \beta_0 + \beta_1 PAD_{it} + \beta_2 BD_{it} + \beta_3 AK_{it} + \varepsilon_{it}$$

Where:

PDRB	= Gross Domestic Product (million rupiah)
PAD	= Locally Revenue (rupiah)
BD	= Regional Shopping (rupiah)
AK	= Workforce (soul)
ε	= *Error term*
β_0	= Constant
$\beta_1 \beta_2 \beta_3$	= Independent variable regression coefficient
i	= Observation in the region of i
t	= t-year period

IV. RESULT / FINDING

A. Chow Test

The chow test is used to assess whether of the Common Effect Model and the Fixed Effect Model is the best to utilize. If the probability value of Cross-section F and Cross-section Chi-square > 0.05, the F-Stat/Chow test is approved, and the regression model chosen is the Common Effect Model (CEM). H_0 is rejected if the probability value of Cross-section F and Cross-section Chi-square is less than 0.05, and the regression model selected is Fixed Effect Model (FEM).

Table 2. Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	250.726863	(34,32)	0.0000
Cross-section Chi-square	391.211488	34	0.0000

Source: The author used Eviews to process the data, 2022

Based on the result of the Chow test in Table 2, the probability value is 0,0000 < 0,05, implying that the Fixed Effect Model is the preferred model.

B. Hausman Test

The Hausman test compares the Fixed Effect Model and the Random Effect Model to determine which is the best. If the probability value of a random cross-section > 0.05, Hausman's test conditions are met, and

H0 is accepted. The regression model used is the Random Effect Model (REM). H_0 is rejected if the random cross-section probability value is less than 0.05. The Fixed Effect Model was chosen as the regression model (FEM).

Table 3. Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	57.889113	3	0.0000

Source: The author used Eviews to process the data, 2022

Table 3 shows that the probability value for the Hausman test is 0,0000 < 0,05, indicating that the model chosen is the Fixed Effect Model.

C. t-Test

The partial coefficient test, often known as the t-test, is used to measure the significance of an independent variable's influence on a dependent variable. If the P-value > then is acceptable for the partial coefficient/t-test, indicating that the independent variable does not influence the dependent variable. is rejected if the P-value is less than one, indicating that the independent variable influences the dependent variable.

Table 4. Result of t-Test/Partial Coefficient

Variable	Prob.	P-value (Significance 10%)	Description
PAD	0,2482	P>0,10	Tidak Berpengaruh
BELANJA DAERAH	0,9623	P>0,10	Tidak Berpengaruh
ANGKATAN KERJA	0,0615	P<0,10	Berpengaruh

Source: The author used Eviews to process the data, 2022

The t-test findings in Table 4 reveal that the variables of Workforce an influence on the GDP individually.

D. F Test

The F test was used to see if the independent factors had an influence on the dependent variable at the same time (simultaneously). If the P-value > α, the criteria for acceptance is that the independent variables do not influence the dependent variable simultaneously (simultaneously). When the condition is rejected, i.e. when the P-value is less than α, it implies that the independent variable has a simultaneous effect on the dependent variable (simultaneously).

Table 5. F-Test Result

Variable	Prob (F-Statistic)	Criteria	Conclusion
PAD,BELANJA DAERAH,ANGKATAN KERJA	0,000000	P < 0,05	Take effect

Source: The author used Eviews to process the data, 2022

The probability value (F-statistic) of the Ftest in the table is 0,000000 < 0,05, indicating that the variables locally revenue, Regional Shopping, and Workforce all have an influence on the GDP.

E. Coefficient of Determination Test Results (R2)

According to Widarjono, the Coefficient of Determination (R-Squared) test was used to explain the proportion of variance explained by the independent variable. The coefficient of determination is a number that runs from 0 to 1. The closer you get to one model, the better, since it demonstrates how appropriate or appropriate a regression line is and how much the independent variable's change may explain the dependent variable's variation.

Table 6. Coefficient of Determination Test Results (R^2)

R-square	Adjusted R-square	S.E. of Regression
0,998900	0,997628	1245548

Source: The author used Eviews to process the data, 2022

Table 6 shows that the variables locally revenue, regional shopping, and workforce have an effects of 99,89 percent on the GDP, whereas factors outside the model had an effects of 0,11 percent.

F. Test for Significance of Regression Coefficient

Table 7 shows the outcomes of panel data analysis regression using the chosen model approach.

Table 7. Regression Result of Selected Model FEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	38784899	7203694.	5.384029	0.0000
PAD	0.003443	0.002927	1.176135	0.2482
BELANJA_DAERAH	5.16E-05	0.001084	0.047646	0.9623
ANGKATAN_KERJA	-23.24845	11.99717	-1.937829	0.0615

Source: The author used Eviews to process the data, 2022

V. DISCUSSION

A. The Effect Of Locally Revenue On GDP

The regression results in Table 7 show that local revenue has no effect on the GRDP of the Central Java Province for the 2019-2020 period. If you pay attention to the PAD component of the 2020 APBD, the Regency/City government revenues throughout Central Java Province have increased compared to the realization of the 2019 APBD by 1.19 percent, from Rp. 14.23 T to Rp. 14.40 T. The largest portion of PAD in Central Java Regency/City Government revenues in the 2020 APBD was contributed by Other Legitimate PAD of Rp. 7.17 T, followed by local tax revenues of Rp. 5.58 T. Regional Retribution is Rp. 1.03 T, and the proceeds of Regional-Owned Companies and Regional Wealth Management, which are separated, are Rp. 62 T (Badan Pusat Statistik Provinsi Jawa Tengah, 2021).

B. The Effect Of Regional Shopping On GDP

The regression results in Table 7 show that regional expenditures have no effect on the GRDP of the Central Java Province for the 2019-2020 period. Indirect spending has the largest contribution to the realization of the 2019 APBD, with a contribution of 68.27 percent. The percentage increased in the 2020 APBD to 68.4 percent. This increase was more influenced by the increasing contribution to personnel expenditure and grant expenditure. Meanwhile, the contribution of direct spending in 2019 was 26.86 percent, and in the 2020 APBD, it increased quite a bit to 31.32 percent, with the hope that the increase in direct spending could spur regional officials to further improve their public services. Indirect expenditure consists of personnel expenditure, interest expenditure, subsidy expenditure, grant expenditure, social assistance expenditure, profit-sharing expenditure, financial aid expenditure, and unexpected expenditure. Meanwhile, direct expenditure consists of personnel expenditure, goods and service expenditure, and capital expenditure (Badan Pusat Statistik Provinsi Jawa Tengah, 2021).

C. The Effect Of Workforce On GDP

The regression results in Table 7 show that the workforce hurts the GDP of the Central Java Province for the 2019-2020 period with a coefficient of -23,24845. The relationship between manpower and GDP shows that the increase in available manpower can reduce the unemployment rate, and regional economic growth will increase much more. According to the theory, human resources are the most important development capital, apart from regional finance and investment. The active participation of the entire community will accelerate regional development because of a greater sense of ownership of the region itself so that later it can stimulate public awareness of building in their respective local areas. To support the implementation of development requires quality human resources in addition to fulfilling the quantity of labor demand (*Untari*, 2017).

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on the results that have been described in the previous stage, it can be concluded that:

a. The test results for selecting the best model prove that the Fixed Effect Model is the chosen model.
b. The results of the t-test show that the individual labor force variable has an effect on GDP.

c. The results of the F test that have been carried out conclude that the simultaneous variables of Locally Revenue, Regional Shopping, and the Workforce have an effect on GDP.

d. The coefficient of determination test shows that the variables of Locally Revenue, Regional Shopping, and the Workforce have an effect of 99.89 percent on GDP, while 0.11 percent is influenced by variables outside the model.

e. Locally Revenue has no effect on the GDP of the Central Java Province for the 2019-2020 period, perhaps because the largest portion of PAD in Central Java Regency/City government revenues in the 2020 APBD is contributed by other legitimate PAD of Rp. 7.17 T.

f. Regional Shopping have no effect on the GRDP of the Central Java Province for the 2019-2020 period, one of which is due to personnel expenditures, both direct and indirect.

g. The Workforce has a negative effect on the GRDP of the Central Java Province for the 2019-2020 period with a coefficient of -23,24845.

B. Recommendation

To optimize the realization of Locally Revenue as a source of development funds in a region, it is necessary to have direct, good, and precise supervision and control from the central government and the community on the performance of regional governments. In particular, in allocating sources of development funds, including PAD and its sources, so that the implementation of regional autonomy through fiscal decentralization runs in accordance with its objectives to improve the welfare of the community and the independence of a region.

Local governments must be able to optimize the realization/allocation of regional shopping proportionally between direct and indirect expenditures that are more in favor of the interests of the community to be able to have a positive effect on the economy of the Central Java region.

Local and central governments must be able to provide better facilities and infrastructure to create community welfare and promote development so that problems caused by high population density, such as unemployment and poverty, can be prevented. For example, providing high employment opportunities and providing training for labor and human resources in the area will encourage community economic activity that can increase the economy (GDP) in the area.

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How to Maintain Bank Customer Loyality

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Abstract

The problem in this study is about the quality of services provided by banks in achieving loyalty to both parties (customers and banks) which is closely related to trust and relationship commitment and behavior. With high banking competition, customers are getting smarter, more demanding, aware of prices, more and more customer wants and needs as well as other product developments. This is obtained from the advancement of communication technology that is increasingly rapidly. The uniqueness of this research from previous research is how to maintain bank customer loyalty in terms of customer habits that always change along with technological advances. The research method used is a literature study that aims to gain an understanding of the use of technology that encourages customer and bank relationship commitment so as to achieve customer loyalty.

Keywords— Commitment Habits and Customer Loyalty

I. INTRODUCTION

In this era of globalization, competition for companies, including banking, is getting tougher and fiercer. This is due not only to product competition, but customers who are getting smarter, more demanding, more and more customer wants and needs, aware of prices and followed by the development of other products.The development of communication progress is also influential because it can provide access to information to customers. Likewise with the products offered by banks to customers. We understand that communication indicates whether an advisor is technically and functionally qualified. Communication as an important subject in achieving the highest quality of service. High communication skills are needed, to convince his clients. With proper communication a client can know the status of his investment. Opportunities in the future there may be risks encountered and expected capital gain/return.

Seeing these conditions, to get their perception of service quality, a success rate is needed in communicating well with customers. Service quality is an important factor that consumers consider in making purchases, because quality is closely related to customer satisfaction. Consumers are satisfied with the services provided by the provider and lead to increased relationships, consumer agreements in conducting product repurchase transactions. Consumer relationship commitment is strongly influenced by 3 forms: first Communication Effectiveness, second Service Quality, and third Trust. Establishment of good communication so that it can affect the quality of these services on customer communication. Banks have confidence in establishing good communication with service elements within the bank itself and attracting customer confidence in the bank.

The relationship between consumer communication and the bank is very strong through service quality and communication effectiveness. So the bank in achieving increased customer trust, required quality of service and communicate effectively. Then it should be improved with bank management. And the opinion clearly shows the existence of a relationship from the Customer. This means that if the trust of a bank increases, then customer relationship commitment will increase with service quality and communication effectiveness. So that the achievement of good communication between customers and banks can increase bank trust by improving service quality and communication effectiveness from banks to customers.

II. LITERATURE REVIEW

Before discussing how to process and analyze data, in this reference reference, several definitions related to how to maintain Bank customer loyalty will be explained. There are several things that Managers need to pay attention to in dealing with customers. To increase customer relationship commitment, the bank must increase consumer confidence, communicate with each other and communicate effectively so that it becomes an important issue for the company's activities.

Then based on the background of the formation of consumer loyalty, we can identify various kinds of problems that must be of particular concern regarding customer activities. According to the theory, there is a meaningful communication between consumer responsibility and relationship efficiency, service quality to

customers and consumer confidence with bank customer promises. Before discussing how to process and analyze data, in this library, several definitions related to how to maintain customer loyalty are described in the Bank.

There are several things that Managers need to pay attention to in dealing with customers. To increase customer relationship commitment, the bank must increase customer trust, communication effectiveness and service quality. So that service quality, communication effectiveness and customer trust with bank customer commitment are important issues for the company's operations. Then based on the background of the formation of consumer loyalty, we can identify several issues that need to be considered in managing consumers. Usually, theoretically there is a significant relationship between communication effectiveness and customer commitment, service quality with customer customers and between customer trust and bank customer commitment.

Then based on the background of the formation of consumer loyalty, we can identify several issues that need to be considered in managing consumers. Usually, theoretically there is a significant relationship between communication effectiveness and customer commitment, service quality with customer customers and between customer trust and bank customer commitment. The research conducted by Ayahqih Alfikri with a research entitled "Efforts to Maintain Customer Loyalty for Deposit Products at Bank Muamalat Indonesia Pangkalpinang Branch" in the results of his research explained that in an effort to maintain customer loyalty for deposit products at the Pangkalpinang branch by paying special attention, providing good service to customers , create mutually beneficial relationships between banks and customers, carry out continuous follow-up, offer attractive products to maintain customer loyalty, and provide support/appreciation to loyal customers.

The obstacles faced were intense competition, economic conditions, differences in customer satisfaction levels, limited funds for customer maintenance, far access roads from the office to customers' homes, lack of customer data and information such as banks not having customer phone numbers, customer dishonesty, do not know the customer's home address.

A. *Bank Treatment to Customers/Bank Customer Loyalty*

From previous research conducted by Ahmad Mardalis (Journal of Ayahqih Alzikri, 2018, DOI: 10.18860/ed.v6i2.5752, volume 6, no.2, 2018 entitled "Achieving Customer Loyalty" examines the elements of determining customer loyalty and explored where the review is most important for a bank in developing a loyalty initiative.

The existence of excellent and excellent service treatment from the bank to customers that makes customers happy, safe and comfortable so that the quality of the bank is very good in the eyes of its customers and is the key to the success of the bank itself in improving the quality and quality of banking.

Banks as financial institutions that play a role as a form of improving the country's economy. Changes in economic conditions have an impact on the customer's purchasing power decision process. According to Subagyo (2010:13), a collection of news articles, http://xerma.blogspot.com/2014/04/pengertian-loyalitas-nasabah-menurut.html?m=1 said that customer loyalty is a consistent repurchase of a brand by customers. The word loyalty is always used every day among businessmen and marketing, especially banking.

B. *Communication Effectiveness Assessment*

It is said to be effective communication if there is a reciprocal relationship / good communication between the communicator as a provider of appropriate information to consumers. So that consumers feel satisfied and do not believe the information provided. Neeru Sharma (2014:156) in the journal Agustinus Philipus Peppy Fernandez (2020), www.stiepasim.ac.id said that customer agreements are determined in the form of: (1) communication effectiveness, (2) service quality and (3) trust (trustworthiness).).), states the most important among relationship efficiency, service quality and consumer confidence.

Consumer trust is the capital for banks to maintain the quality and quality of banking so that customers continue to use bank products properly and smoothly.

III. Research Methodology

This research is descriptive exploratory and carried out with a normative approach. Explorative in nature by conducting field research in its implementation at the bank office, because this study aims to gain knowledge about service quality as the most important element seen by customers to make a purchase, this quality is closely

related to customer satisfaction. So the repurchase of goods or services offered, commitment to consumer relations is very influential with Communication Effectiveness, Service Quality and Trust.

IV. DISCUSSION

Effective communication of the right information is essential for successful communication. A financial advisor can be successful in his communication if he is able to provide correct information. So that information as an investment is provided through a communication language that is easy to understand.

Communication indicates a technically and functionally qualified advisor. Communication is the most important element to improve service quality. High communication skills are needed to convince his clients.

From these conditions, success in communicating can create customer perceptions of the quality of bank services. The success of communication and communication agreement of a bank engaged in banking financial services is very strong. As a result, the relationship between advisory clients is so strong. An advisor in providing financial services must successfully communicate with customers in order to instill self-confidence and reduce the perception of the occurrence of dangers/threats.

The emotional element of a good counselor when the client feels comfortable with him. Listening and understanding client needs including effective communication skills. Effective communication is one of the beneficial things that is obtained through the success of financial services. The success of communication is associated with the planned relationship between the advisor and his client.

Through regular contact with customers, answering their questions, allocating participation in an orderly manner through advisory investigations. These problems build trust in the relationship. Excellent communication quality can increase customer trust. Good relationships have the power to increase customer perceptions of the quality of bank services. Explaining various aspects of investment choices with useful information for customers, providing knowledge to customers through easy-to-understand grammar.

In marketing communication there are three goals, to disseminate information to influence purchases, attract consumers and increase audiences to make repeat purchases. Consumer responses form certain information awareness. Influence to make purchases and shape audience patterns into behavior with the hope of repurchasing.

The purpose of communication, trying to find out more, trying to compare, take action, buy or not buy, repurchase or switch brands. Service quality, service with every action is basically intangible and does not result in the ownership of anything.

We need to understand the meaning of service according to economic experts, the service aspect of the business world is closely united with bank services. Service as a stand-alone product. Meanwhile, trade and industry is an addition to the types of goods that are attached to the main product.

Service quality has several dimensions: **Faster** relates to time which describes speed and convenience. **Cheaper** is related to the cost of the product/costs that must be incurred by consumers. **Banking performance** is related to the criteria for the usefulness of various bank services, customer considerations when buying. **Features** as a second aspect of performance add basic functionality with development options. **Reliability** relates to success over a certain period. Measurement of the suitability of goods is related to consistency based on customer desires. **Durability** as a measure of the lifetime of a product with product durability. Serving Ability as speed, friendliness, comfort with improvement. **Aesthetics** as a feature is subjective with personal considerations and individual choices.So the aesthetics of the Bank's services are related to personal feelings, including certain characteristics. Perceived Quality is subjective and relates to the consumer's conscience to own the product.

We can know that one of the gaps due to incorrectly providing services, namely: The gap in customer desires seen from the administrative manager. in the field, bank administration managers do not understand the wishes of their customers well so that it affects customers because managers are not responsive to customer desires for excellent service to their customers.

Gap management view is able to understand customer desires. But not with certain clear performance standards. then three factors arise, first there is a full agreement by the manager on the quality of services provided to customers, secondly there is a shortage of resources, and the third is an excess of demand. Example: Bank management asks its staff to provide fast service without setting standards. The particular gap between the quality of service delivery is partly a result of the occurrence of the gap. Examples: lack of training for bank employees,

do not understand their work, work capacity exceeds the limit unable to meet the work standards set by Bank management.

One of the risks faced by the Bank is when the agreed commitments are not fulfilled. As a result, customer misunderstandings can occur in assessing the quality of the Bank's services. Good interaction between banks and customers is the first step to achieve the Bank's level of service quality. High communication intelligence is required to ensure customer trust.

Customer loyalty commitment is influenced by several variables. The commitment of consumer relations to the excellence of bank services is related to effective interaction, service quality and trust. Communication as a benchmark in achieving high service quality. High communication skills are very necessary to ensure the trust of consumers. This will form customer commitment.

What we need to pay attention to about banking organizations is to provide quality services to consumers. Several points that can be applied to customer service are the sector of effective interaction/relationship, service quality, and trust in bank customer agreements, so that there is a relative consideration of the incidence, distribution and interaction of social and psychological factors. So it is necessary for the managing banking organization to introduce the main criteria of service for all parties who provide banking services in order to be able to show good services/services as desired by consumers/customers.

A. *Bank Treatment To Customers*

What we need to pay attention to about banking organizations is to provide quality services to consumers. Some of the points that can be implemented for customer service are the sector of effective interaction/relationship, service quality, and confidence in the bank's consumer agreement, so that considerations are found on the relative incidence, distribution and interaction of social and psychological factors. So it is necessary for banking organizations that managers need to introduce the main criteria for services for all those who provide banking services so that they can show good service/services as desired by consumers/customers.

The principle that we need to understand in the field of commitment is that Directors and Employees have an agreement to communicate well with each other, strive to maintain communication with the Bank and remain loyal to the Bank. The Bank provides clear information about the capital saved by the Customers, Directors and Bank Employees. The bank never doubts the benefits and risks of an investment. The service quality of bank managers and employees is able to please and appreciate consumers.

In the field of consumer confidence, banking directors and employees are active in convincing their customers. Banks can keep their promises in customer funds, banks must be honest. Banks can be trusted, but consumers believe or do not believe in the Bank.

Consumer agreements, effective interactions/relationships and service quality and customer confidence. Without us realizing it, many customers have very strong agreements with banks when customers invest their funds. Due to the high number of customers at the same time assuming that the bank's relationship/interaction effectively is very large, the Bank provides services with such a high quality of service. As a result, consumer confidence through banking is so great. Most banks pay attention to the implementation of fostering customer commitment, communication, about service delivery and very good consumer confidence. So the three variables are considered to have satisfied bank customers, so that customer commitment can increase sharply.

B. *Communication Effectiveness Assessment*

From the author's observations that the effectiveness of bank communication to customers is quite good with indicators stating that the bank provides clear information about the investments invested by customers. So the indicator of communication effectiveness is ranked the highest about customer satisfaction served by the bank. The indicator with the lowest value is the indicator that the bank never hesitates to explain the advantages and risks of an investment.

Meanwhile, the assessment of service quality can be seen from the assessment parameters regarding aspects of service quality and has a good performance in investing data. Then the quality of customer service gets the highest rating of bank customer satisfaction. If the assessment is low on the quality of the bank. Banks are interested in their environment, so it implies that banks do not care about their environment.

We need to know the assessment of customer trust, the biggest assessment of customer trust is the indicator that consumers are so comfortable and safe injecting/saving their money to the bank. So with this indicator of customer trust, it can be seen that the highest rank for bank customer satisfaction is seen. While the lowest assessment in the variable of customer trust is that consumers become suspicious of the bank that covers up useful information about investment funds.

To assess customer relationship commitment, customers try their best to establish genuine communication with the bank. The customer commitment indicator is the highest ranking of customer satisfaction served. Meanwhile, the lowest rating is in customer commitment, stating that customers pay attention to alternative bank substitutes. This means that consumers are trying to really believe in the bank.

V. CONCLUSION AND RECOMMENDATION

The final touch of the business, is very important to be understood by banking managers. The correlation between the effectiveness of communication with the commitment of bank customers is positive. This means that the effectiveness of communication has a strong relationship with bank customers. In conclusion, there is communication that matches the consumer agreement and effective interaction/relationship. We recommend that bank management must improve continuously with the commitment of bank customers through improved communication, service quality and customer trust remain a concern so that success in business can be realized.

The suggestions from the author are:

a. There is an effective and good approach to customers so that customers are interested in the banking products offered/provided.
b. Provide excellent and excellent service to customers so that customers feel close, satisfied and comfortable in the bank environment.
c. Conducting good and accurate communication with customers so that customers believe in the information provided

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The Role of Nano Influencer in Strategic to Increase Promotion of Micro, Small, and Medium Enterprise (MSME) In Pandemi Covid 19

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Abstract

Nano influencers as one way of tactics that can be considered in digital marketing activities. In the era of the Covid-19 pandemic, the phenomenon of nano influencers is increasingly popular as a brand. Nano Influencers can be closer to ordinary people, many gaps with macro influencers, nano influencers can fill the void. Nano Influencers have the advantage of building relationships to create two-way interactions with their followers. The research method used is a descriptive qualitative method with online observation types of a number of nano influencer activities through Instagram, TikTok and YouTube in the period december 2021 to March 2022. Based on the flow of attention, interest, search, action and share, nano influencers are able to produce content that is able to attract attention, and interest of netizens. Not only the selection of interesting photos, influencers are also able to promote brands with copywriting that sells without eliminating the character and personal branding of the nano influencers themselves. With the nano influencers of regional local products can be lifted so that regional msmes will be more advanced and msmes will increase sales during the pandemic.

Keywords— Nano Influencer; Strategic Promotion; MSME.

I. INTRODUCTION

The development of the use of the Internet has shown rapid progress. According to the Directorate General of Aptika, in 2021 internet users in Indonesia will increase by 11 percent from the previous year, from 175.4 million to 202.6 million users. This increase needs to be balanced with a good understanding of activities in the digital space. One of the factors that influence the increase in internet users in Indonesia is the growing and diverse social media so that consumers can choose the social media they like.

The number of internet users in Indonesia has increased by 27 million or an increase of 16% from 2020 to 2021. Internet penetration in Indonesia reached 73.7% in January 2021. There are 170 million social media users in Indonesia in 2021. The increase in social media users from 2020 to 2021 increased or 6.3%. In 2021, social media users in Indonesia are equivalent to 61.8% of the total population in Indonesia in January 2021. In 2021 internet connection users on cellular phones are 345.3 million. The number of connection users from January 2020 to January 2021 cellular in Indonesia increased by 4 million users. The number of cellular connections in Indonesia in January 2021 is equivalent to 125.6% of the total population.

The average daily internet usage through any device is approximately 8 hours. For the use of social media through any device approximately 3 hours. Social media platforms that are widely used in Indonesia in 2021 are YouTube as much as 93.8% of the total population, Whatsapp as much as 87.7% of the total population, Instagram users as much as 86.6% of the total population and Facebook users as much as 85.5% of the total population. population number.The summary of Facebook users in Indonesia in 2021 is 140 million people, with the percentage of Facebook users being female as much as 43.9% and Facebook users being male as much as 56.1%. The summary of Instagram users in Indonesia in 2021 is 85 million people, with the percentage of female Instagram users being 52.4% and male Instagram users 47.6%.

The widespread use of social media is no longer just a facility for the needs of personal existence. Today, social media has turned into a business tool. One type of business that is developing on social media is digital marketing called influencers who market products by providing positive testimonials and invitations to purchase in the form of images and videos through social media (Wibawa, C., et.al, 2021). The presence of influencers on social media has a strong impact on society for businesses to convince consumers to buy the products being sold.Influence is the ability to influence, change one's opinion and behavior (Evelina & Fitrie, 2018). An influencer is currently a way of promoting products by influencing many people in various media and platforms as well as through social networking.The phenomenon of social media influencers currently has a major influence on people's consumption patterns. Influencers can influence people to follow the current style. Social media influencers influence people in buying promoted products. Social media influencers make people believe in a certain brand more as much as 51% (Edelman, 2018). The trust built by social media influencers increases the

number of purchases of a particular brand.

With the emergence of various types of social media, Instagram occupies the third position as the most used application, and its users reach 79% of the total population in Indonesia (Putri, N., Nadhifa, L., & Senalasari, W., 2021). The current use of Instagram is considered to be an alternative for business people to market products digitally, as many as 81% of people use Instagram as a search for products or services, besides that every month as many as 130 million people press content with the shopping category on Instagram. 90% of consumers get information digitally through Electronic Word-of-Mouth (E-WOM), and 46% make their purchase decisions based on positive comments on influencer social media accounts. (C. M. K. Cheung and D. R. Thadani, 2012). Influencer Marketing is one of the effective ways of developing a strategy using E-WOM by Social media influencers to influence consumers. Currently, marketers trust and recognize the huge potential of Influencer Marketing, 89% of them agree with the effectiveness of these marketing activities.

Social media influencers are divided into several types, namely macro influencers, micro influencers and nano influencers, of the three types of influencers depending on how many followers follow the social media influencer. Currently the price of macro influencer services is increasing, the presence of micro and nano influencers seems to be a cooling breeze. Nano Influencers are those who have followers below 20 thousand, while Micro Influencers have a number of followers from 20 to 100 thousand, and Macro Influencers whose number of followers is above 100 thousand. Nano influencers are individuals who tend to have high engagement even though they have not many followers. However, the content they share is usually already known by their small community and from experiences or activities in their daily fields that are liked by the audience. Having a small audience makes it easier for nano influencers to interact in two directions. Thus, the message conveyed will be accepted by their followers more easily. Nano influencers are one way to give an authentic impression about the product or service that will be promoted.

II. LITERATURE REVIEW

A. MSME

MSMEs are a business group with a large quantity and also have a big role in maintaining economic stability. MSMEs are one of the pillars of the people's economy. Micro, Small, and Medium Enterprises are one of the main pillars of the national economy that must obtain the main opportunity, support, protection and development as widely as possible as a form of firm alignment with people's economic business groups, without neglecting the role of Large Enterprises and State-Owned Enterprises.

Declining economic growth after the COVID-19 pandemic hit this country, the number of poor and unemployed people continues to increase and the quality of life and quality of human development has decreased as an impact that can be felt in everyday life. On the business side, MSMEs, which are one of the important pillars in the national economy, have also suffered a heavy blow due to the COVID-19 pandemic, far more severe than the previous crises that hit this country.

The COVID-19 pandemic poses significant obstacles for MSME actors in every business area, which includes sales, funding, operations, and supply, with the main constraints being in the sales (44 percent) and funding (27 percent) areas. The main obstacle to sales lies in the declining purchasing power of the people, the existence of health protocols that hinder sales and the lack of physical interaction. As the backbone of the Indonesian economy, MSMEs have an important role in the recovery process after this global pandemic and recession.

B. Influencer Marketing

An influencer is someone who has a large number of followers (followers) and has a strong influence on followers such as celebrities, public figures, youtubers, and others (Tokopedia. 2019). Along with the increasing number of social media users, influencer has become a new profession that is quite promising. Well-known brands are starting to look for influencers who are widely followed on social media. One way to promote a product that is quite effective during the COVID-19 pandemic is to use influencers. Influencers themselves are divided into four (Ismail, 2018), namely:

a. Mega-influencers are the category of social media influencers with the highest ranking. They usually have more than a million followers. Mega-influencers are often more famous than influential. They have a very diverse audience with different topics of interest. Examples are Atta Halilintar, Ria Ricis, Raffi Ahmad, Prilly Latuconsina, Tasya Farasya and many more.

b. Macro-influencers are influencers who are a level below mega-influencers. One way to identify macro-influencers is by their follower count, usually ranging from 100,000 to one million followers. Macro-influencers typically gain fame through the internet itself, either through vlogging, or by producing funny or inspiring content. For example: Putu Aditya (Videographer), Denis Adhiswara, Rachel Goddard and many others.

c. A micro-influencer is someone who has between 1,000 and 100,000 followers. Micro-influencers focus on a specific niche or area and are generally considered to be industry experts or topic specialists. Micro-influencers have stronger relationships than regular influencers. This is often driven by their perception of being the opinion leader of a topic. Micro-influencers, not the average celebrity or influencer, and often have a very uniform audience.

d. Nano-influencers are a relatively new type of influencer.

e. They tend to have fewer followers than micro influencers, which is less than 1,000 followers. A nano-influencer is someone who has influence in their community.

Social media Influencers who have few followers usually give an inclusive feel or have a close relationship with followers like close friends. They have their own topic that makes the charm so distinctive. Nano Influencers are social media influencers who have an audience of no more than 10,000. Currently, local MSME products have started to be widely promoted by nano influencers. One of the positive impacts of the COVID-19 pandemic is that social media users continue to increase, so nano influencers are one of the promotional tools for MSME products in marketing. One of the factors that make MSMEs want to use nano influencers is the affordable price, original content, authentic content, easy to collaborate with, and most importantly the close interaction with consumers. Thus, the influencer marketing strategy can be said to be effective during the COVID-19 pandemic. Nano Influencers are also said to look more natural when they are promoting so that they are convincing, in other words the influence is not much, but the opportunity to have an impact on the audience is quite large.

According to Sugiyama and Andree (2011:79) AISAS is a model designed to approach the target audience effectively by looking at changes in behavior that occur especially related to the background of internet technology advances. AISAS stands for Attention, Interest, Search, Action and Share where a consumer pays attention to a product, service, or advertisement (Attention) and generates interest so that a desire arises to collect information (Search) about the item. Consumers then make an overall assessment based on the information collected, then make a decision to make a purchase (Action). After the purchase, the consumer becomes a conduit of information by talking to other people or by posting comments and impressions on the Internet (Sharing).

According to Chen Ya li and Huang Tao Zhe (2012), AISAS is a development of AIDMA (Attention, Interset, Demand, Memory, Action) which is used in traditional marketing. Meanwhile, in the digital era, internet users can easily access information or share information, so the AIDMA model has changed to AISAS (Attention, Interest, Search, Action, Share).

C. *Platforms for influencers*

The use of social media platforms today makes it easier for influencers to act as intermediaries between potential buyers and brands. Many platforms have included online shopping and affiliate features. With the collaboration and partnership features on Tiktok, Instagram and Youtube, it is easier for brand owners to find the influencers needed in product promotion. With the features that have been prepared, certain product brands will first screen influencers based on the audience they have directly from within the application. On the other hand, influencers are offered a variety of ways to attract traffic to interactively promoted product pages, one of which is a sticker tool on Instagram.

Video content through Youtube has great power for digital marketing campaigns. Through videos uploaded on YouTube, video influencers can be well documented (Xio, Min. et.al, 2018; Angulo, 2016; Chu, 2009; Haryacha, 2014; Main, 2017; Smith, 2014). Video content posted by influencers on YouTube is a potential way of quite effective marketing (Fidelman, 2017). The continuous presence of YouTube influencers on this popular social platform, and the active role of consumers in following content consumption on YouTube, namely the influencer marketing model tends to be different from the traditional advertising or celebrity spokesperson model (Xio, Min. et.all, 2018). In order to explore how the perceived credibility of the information affects consumers' attitudes towards the video and the brands/products mentioned in the video, the exploration should begin by examining the antecedents related to the perceived credibility of the information.

Marketing carried out by social media influencers on the Instagram (IG) platform provides the opportunity for direct conversations with followers without any restrictions on location, time and barriers to communicate with their influencers. Social media influencers online promote the brand and in turn helps in product promotion, followers will usually follow the direction of the influencer. Influencers help in creating brand relationships with their customers. By being honest and using their followers' preferences, we can say that they have some kind of influence who will believe what they say (Buyer, 2016), this phenomenon makes this technique so effective. Traditional marketing techniques are mostly focused on mass consumers, unlike nano influencer marketing which only focuses on target audiences who are really interested in buying products that consumers need. Apart from using Youtube and Instagram, Tiktok is currently one of the most popular platforms. Currently Tiktok is used to explore creativity in making short videos. The trend of short videos uploaded on Tiktok makes Tiktok one of the promotional media for a product by influencers. In Indonesia, there are already a lot of social media influencers who started from Instagram and are now starting to explore TikTok.

TikTok's development is highly innovative and its algorithms globally are rapidly moving proving its appeal to the youth market (Weimann & Masri, 2021) as it mostly features short-form videos to create excitement and encourage creativity among its users. TikTok is a fast growing social media platform that gained 200% market share in the span of two years in April 2019 (Wang, 2020) compared to other social media sites. Chang (2020) states that the development of social media platforms will be both a threat and an opportunity. Just as TikTok is a platform that is currently growing which is still not much researched regarding its effect on marketing communications, consumer behavior, and purchase intention compared to other platforms, namely; Facebook, Twitter and Instagram. Thus, this study focuses on three dimensions of TikTok advertising: emotional, entertaining, and informative. Emotional advertising touches the hearts of its audience through stories and personal experiences, both positive and negative. Entertaining ads consist of video content that is funny and pleasing to the eye. Finally, informative advertisements provide detailed information about products and brands (Clarisse Jane G. Araujo, G.,J.,C., et.al, 2022).

III. Research Methodology

The paradigm used in this research is constructivism paradigm. Social constructivism is a perspective that is usually seen as an approach to qualitative research (Creswell, 2009). Through the constructivist paradigm, research seeks to know and understand. Patton (2009) qualitative analysis was carried out in three ways, namely in-depth interviews and open format interviews, direct observation, and the use of secondary data from other sources. The time of this research is set from December 2021 to March 2022. The first stage of this research is interviews with MSME actors. Data was collected through in-depth interviews with 15 trusted sources using the snowball sampling method. Through the constructivist paradigm, researchers are trying to find out and understand how the nano influencer strategy is to increase the promotion of Micro, Small and Medium Enterprises (MSMEs) during the Covid 19 Pandemic :

a. Observation methods, namely by searching directly from observing consumer behavior, and marketing strategies carried out by Micro, Small and Medium Enterprises (MSMEs). Collecting data on Nano Influencers that are often used by Micro, Small and Medium Enterprises (MSMEs), and seeing how they affect consumers.

b. The data research method used is a qualitative descriptive method, where the research analyzes the

Nano Influencer phenomenon which is increasingly in demand by the public. In this descriptive qualitative method, it is done by answering research questions from Nano Influencers who have social media Instagram, TikTok and Youtube, so as to produce a clear description of the role of Nano Influencers in the promotion strategy of MSME products. In addition, the data obtained were also generated from library studies and research literature studies in journals obtained from the internet.

III. RESULT / FINDING

The use of social media can now be maximized as a promotional media that can reach faraway areas. Since social media, Instagram has released the Instagram For Business tool, making it easier for business people to get data, promote products, and make product innovations. To support business processes, both large companies, as well as MSMEs carry out promotional strategies using influencers. For the selection of influencers, we don't even see the number of followers. With limited funds owned by MSMEs, during the COVID-19 pandemic, sales are not as good as before the pandemic. Even when they will spend promotion costs, they really calculate how the impact will be for the products being sold. Each influencer has their own way of convincingly promoting a product which can later be used as a testimonial to increase the trust of their followers.

Based on research conducted by Sociabuzz (2018) on 82 marketers, both marketers for brands, agencies, startups and online stores stated that the trend of influencer marketing is increasing. The purpose of using influencer marketing is to increase brand awareness (98.8%), educate target consumers (62.7%), increase sales (50.6%), increase followers (39.8%) and Search Engine Optimization/ SEO (25.3%). According to Hera Laxmi (2018) Influencer marketing is one of the important instruments in conducting brand campaigns. This is due to its soft selling nature and has the persuasive power to influence the audience in a subtle way.

The role of influencers is currently being calculated, because it can be one of the marketing strategies in building trust between products and consumers. The largest market share for Instagram, TikTok and Youtube is currently controlled by the millennial generation, namely the Y generation and the Z generation. Currently, the millennial generation is being targeted, because the behavior of purchasing goods is in accordance with marketing communications. According to Sugiyama and Andree (2011:), AISAS is a model of an effective communication approach to the target audience who is so close to the advancement of internet technology. AISAS stands for Attention, Interest, Search, Action and Share. In the AISAS technique, before the target audience makes a decision, consumers first look at the advertisement (attention) so that interest arises. During the information search process, consumers will weigh and compare with competitor products before deciding to buy (Action). After consumers buy products, consumers will provide information about the contents of the product in the form of comments, testimonials or product reviews through social media (Sharing). With this sharing activity, it will become a reference for other consumers in purchasing decisions.

Through marketing activities carried out by influencers, it will accelerate the target consumer to be achieved. An influencer will usually influence his followers to make a purchase. An influencer must have content that is relevant to a particular brand. An influencer has a duty to provide a review that can increase trust in a product, with that trust in addition to increasing followers, consumer confidence will also increase. This can be seen from the interaction between followers and influencers in the comments column of social media owned by the influencer. Content created by influencers must be interesting, diverse, and different from other influencers. Influencers must display a lot of interesting photos, tutorial videos, unboxing and other videos in a humorous style. Consumers usually prefer influencers to be warm, present, have a sense of humor, are good at educating products and can give confidence in the products being reviewed.

Nano influencers are influencers who have fewer followers than micro influencers. A nano influencer is usually someone who has influence in their community. Study found that Nano Influencers can have a positive impact on buying interest for MSMEs. The content provided by Nano Influencers is usually more original and has its own characteristics. Although when creating promotional content, Nano Influencers usually use modest properties. However, there are several things that need to be evaluated using Nano Influencers, namely the credibility of the information still needs to be reviewed, because Nano Influencers are still limited in scope. Apart

from this, Nano Influencers are usually not people who are experts or excel in certain fields, but they have the advantage of having a close relationship with their followers on social media.

The content created by Nano Influencers tends to have originality, because they use their daily lives to be used as content. Followers tend to be happier with original content uploaded by Nano Influencers. Social media users feel happy to see content, talk about content and disseminate information provided by Nano Influencers both on social media and in their immediate environment. Followers realize that Nano Influencers are not someone who has high credibility, but Nano Influencers have the power to build closer relationships with their followers to interact with each other.

V. CONCLUSION AND RECOMMENDATION

The use of Nano Influencers in the last two years can be a promotional strategy for MSME players to increase product sales during the COVID-19 pandemic. With the use of Nano Influencers by MSMEs, at least it reduces promotional costs which are usually more expensive when using Influencer Macros. Nano Influecer is more effective for less followers, not so large areas. The involvement between Nano Influencers and followers becomes a trust factor that influences the messages conveyed by Nano Influencers. The use of Nano Influencers can be said to be effective in achieving MSME targets in promoting their products.

This research is limited to the perspective of Nano Influencers who have collaborated with several Nano Influencers who have interests in campaigning for MSME products. Researchers did not conduct research comparing Mega, Macro, Micro influencers in this study.This is done because of the Nano Influencer phenomenon which is considered interesting to study. Chen Ya li and Huang Tao Zhe (2012), stated that AISAS is a development of AIDMA (Attention, Interset, Demand, Memory, Action) which is used in traditional marketing. Meanwhile, in the internet era, internet users can easily access information or share information, so the AIDMA model has changed to AISAS (Attention, Interest, Search, Action, Share). Previous research conducted by Hendriyani et al (2013) showed that AISAS can be applied to explain consumer behavior. This study was conducted to test the AISAS model in explaining consumer behavior of Twitter users towards BB (America's Bread and Bagel) products. The results of this study indicate that there is a significant correlation between AISAS variables, except for the Action and Share variables. The following are indicators of the AIAS variables in this study, namely as :

Table 1.

Variable	Item
Attention	Nano influence promotes products on social media such as YouTube, Instagram and TikTok Nano influence product reviews on Instagram, Tiktok and Youtube Nano influence provides promotional information on popular social media Nano influence tries to interact with his followers to establish closeness
Interest	Nano influencers will provide product information that they review in the form of videos and photos that will be shared on their social media Nano influencers will provide information related to purchasing the reviewed product, where to buy it, contact number that can be contacted Nano influencers will provide promos for the products being reviewed, such as discounts or free meals for birthdays, happy hour discounts and other promos.
Searching	Nano influencers will share product information on their social media timelines Nano influencers will share product purchase addresses Nano influencers will share product purchase contact numbers
Action	Nano influencers will provide information on how consumers buy products that have been reviewed The nano influencer will provide a link on social media for the product being informed Nano influencers will always mention social media every time they promote the product they are reviewing Nano influencers will greet followers who faithfully follow them during product live on social media Nano influencers will provide promos for the products being reviewed, such as discounts or free meals for birthdays, happy hour discounts and other promos.
Sharing	Nano influencers will renew the experience while consuming the product Nano influencers will update When visiting the outlet the product is sold Nano influencers recommend reviewed products to buy

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The Implementation of Village Financial System (SISKEUDES) in Supporting Village Financial Performance

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Abstract

The Village Revenue and Expenditure Budget (APBDesa) indicates the performance and ability of the village government in financing its administrations. But, The village government does not manage its budget properly and organizes financial reports manually. The Financial and Development Supervisory Agency (BPKP) has developed an application to improve the quality of village financial management and reduce cases of manipulation of financial statements. However, several villages have not used the financial system (Siskeudes) due to human resource capabilities. Therefore, this study aims to determine the implementation of Siskeudes to support the Financial Performance of villages in Bayongbong. This research is descriptive qualitative with primary and secondary data sources. Researchers used village documents, interviewed village officials, and observed village governments in Bayongbong to obtain research data. The finding is the implementation of the village financial system in Bayongbong was fair. Unfortunately, several obstacles, such as logging errors and the lack of ability of human resources to operate the system. In addition, human resources in several villages lack knowledge about the flow of the financial report. The conclusion is the implementation of Siskeudes in Bayongbong was implemented, but has not supported by the capacity of its human resources. Therefore, the village government needs to choose a Siskeudes operator who understands the financial system or improves the cpabilty of human resources through training because village financial reports reflect the performance of the village and local government.

Keywords— Financial performance; Government Financial Reports; Implementation of the Village Financial System; Village Financial Management.

I. INTRODUCTION

According to Law No. 14 of 2014 in the government financial system in Indonesia, article 1 paragraph 1 explains that the village is a legal community unit with certain territorial boundaries that have the authority to regulate and manage government affairs. The managing village finances establish the regulation about rights and obligations following community service needs (Agus & Madya Widyaswara, 2015). This management starts from the planning, implementation, operational, and reporting stages for one fiscal year from January 1 to December 31 for the current year period (Hartanti & Yuhertiana, 2018). To develop village financial management policies, the Financial and Development Supervisory Agency (BPKP) created an application to improve the quality of village financial management (BPKP, 2015). In addition, this application encourages the sustainability of village development with the management of village funds for the welfare of the village community. The Financial and Development Supervisory Agency (BPKP) implemented the Village Financial System (SISKEUDES) in July 2015 and December 2018. Currently (BPKP, 2015), the implementation of the SISKEUDES application reaches 93% or 69,707 out of 74,954 villages throughout Indonesia (Fauziah & Biduri, 2021).

The application (SISKEUDES) has advantages, namely complies with government regulations, makes it easier to manage village finances, makes it easier to use applications, has an internal control system, and has implementation instructions and application manuals. However, the weakness of the SISKEUDES application system is complicated to understand and use the application because it was just released. Even the village secretaries who have been using this application since two years ago are still having difficulties in operating it. The Village Government in Garut Regency, precisely in Bayongbong District, applies a financial system application for 18 villages. During the use of the financial application (SISKEUDES) some villages chose to re-manage and compile financial reports manually. Because employees feel the application slows down the preparation of village financial reports. According to the Bayongbong District, it is difficult to operate the application due to the lack of training for village employees to operate the application. Thus, the human resources of the village government in the sub-district lack control in managing village finances. However, the sub-district government continues to continuously socialize financial management using SISKEUDES to improve the skills and knowledge of the apparatus in operating SISKEUDES and avoid manipulation practices in village financial management. Three villages use the SISKEUDES application optimally in managing financial reports. The success of the three villages is supported by employees who have a bachelor's degree in economics education. Referring to Sahusilawane (2021), the finance system uses technology more effectively to support the financial reporting in the village. Then, it measures the performance of financial more effectively. The research from Musyaffi & Muna (2020) revealed that the SISKEUDES improve financial performance because the financial information reported is relevant to the regulations. Moreover, digital transformation in the process of reporting financial statements in the public sector is very concerned with the quality and reliability of data, especially on data accountability. Therefore, the data is analyzed and used by the local government in managing needs (Agostino, Saliterer, & Steccolini, 2022). This problem encourages researchers to analyze the description of the application of the SISKEUDES application in supporting village financial performance in the Bayongbong District.

II. LITERATURE REWIEW

A. *Implementation of Financial Management*

Implementation is a program carried out by an institution on the basis of certain policies (Rani, 2019) In the implementation of facilities and infrastructure to support the planned programs. Policy making on the one hand is a process that has a bottom-up logic, in the sense that the policy process begins with the delivery of aspirations, requests, or support from the community (Hudson, Hunter, & Peckham, 2019; Wahyuni, 2021). While policy implementation on the other hand has a top-down logic, in the sense of reducing abstract or macro policy alternatives into concrete or micro-actions. In this study, the implementation of policies related to the SISKEUDES application. The policy refers to the village financial management regulations in force at that time, namely the Minister of Home Affairs Regulation Number 113 of 2014 concerning Village Financial Management. The Village Financial System Application (SISKEUDES) is an application developed and implemented by the Financial Supervisory and Supervisory Agency (BPKP) to improve the quality of village government financial management (BPKP, 2015). In-Law Number 6 of 2014 village finances are money or property in connection with the implementation of village rights and obligations. The rights and obligations to generate income, financing, and expenditures must be regulated in fair and transparent village financial management.

Village financial management is a process or form of village financial management which includes four stages (BPKP, 2015), namely planning or the stages formulating various activities to be carried out in the village concerned. The village government carries out planning in the context of village development by its competence. The second step is the implementation of village finances as an activity of the existing planning process and in its implementation step by step in the village development process. Furthermore, the administration is a process of preparing reports and grouping all activities that have been carried out. Finally, village financial reporting is the last stage in village financial governance. When all processes are completed, they will be prepared as a financial report and reported to the concerned party.

B. *Financial Performance*

Financial performance is the determination of an organization and its employees periodically based on criteria, standards, and targets for predetermined operational effectiveness (Ariyanti & Alfatih, 2018). Meanwhile, according to Rudianto (2013) financial performance is the achievement of company management in the form of results or achievements for managing company resources effectively over a certain period (Trisnawati, Achyani, & Ulifiati, 2021). Meanwhile, according to IAI (Indonesian Institute of Accountants), efficiency or financial performance is the ability to control and manage company resources (Wahyuni, 2021). Financial performance is an achievement of the company through various activities to review the extent of the company's success within a certain period.

C. *Research Framework*

Many factors affect village financial performance in implementing the village financial system or SISKEUDES, namely the level of education, training, and the internal control system (Sari & Biduri, 2021). Those factors relate to the competence of Human Resources (HR), and the utilization of technology affects the quality and performance of financial reports. Meanwhile, data quality, top management support, and system quality do not affect the quality of village financial reports (Fauziah & Biduri, 2021; Musyaffi & Muna, 2020). Referring to Sahusilawane (2021), the finance system uses technology more effectively to support the financial reporting in the village. Then, it measures the performance of financial more effectively. Moreover, digital transformation in the process of reporting financial statements in the public sector is very concerned with the quality and reliability of data, especially on data accountability. Therefore, the data is analyzed and used by the local government in managing needs (Agostino, Saliterer, & Steccolini, 2022).

III. RESEARCH METHODOLOGY

This study uses a qualitative-descriptive method to systematically describe the phenomenon of the effectiveness of the implementation of SISKEUDES to support village financial performance. This study uses two types of data which include primary and secondary data. Researchers collected data by interviewing sub-district of Bayongbong for 4 people (sub-district head, sub-district secretary, head of the economic and development section for two persons). The data processing technique uses the Miles and Huberman model with three activities namely; (1) Reduction means summarizing, choosing the main points, putting aside the important things, and looking for themes and patterns because the data collected in the field is quite large and must be documented carefully and in detail. Therefore, it will provide a clear picture and make it easier for researchers to collect more data; (2) Presentation of data occurs after collapsing. It presents short descriptions, charts, relationships between categories, flow charts, and narrative text for qualitative research; (3) The final stage of the research process to understand the analyzed data is the Conclusion. Data processing begins with structuring the data in the field, then shrinking it into a unified form and classifying the data. (Creswell & Poth, 2017). This research

IV. RESULT / FINDING

The implementation of the village financial system takes place through an entry process that is consistent with existing transactions, then produces output in the form of legal documents and administrative reports. There are five

steps in village financial management or the Siskeudes application, namely planning. The village government plans a program or activity very well so as not to cause harm to the village government. Good planning indicates transparent and responsible village financial management in accordance with statutory regulations. In the planning stage, the village government issues Village Regulations and Village Head Regulations as a reference or guideline for implementing the Village Development Planning Deliberation (MusrenbangDes). In general, village governments hold deliberations from October to December about activities for the following year. This deliberation process was attended by the village head as the leader and person in charge, the village secretary, the Village Deliberation Agency (BPD), and village institutions including The Institute of Community Village (LPMD), Indonesian Ulama Council (MUI), and the head of a neighbor as well as other community. Discussions in the deliberation include the program for next year, problems that have occurred, identification of community needs, and others. The district government evaluates the results of the deliberation, then the village government publishes priority programs that are approved by the district government to be implemented for one fiscal year.

The implementation of the Village Revenue and Expenditure Budget (APBDes) includes all implementation activities in one fiscal year. At the program implementation stage, everything underlies the process of purchasing goods and services, preparing cash books, and other things. The initial step in the implementation stage is to implement and make the Village Budget Draft (RAPBDes). Then, the government socializes it to the participants about the amount of the budget for the program implementation on year. Next, carry out comprehensive activities with the parties involved in the village development program. The village government formed an Activity Management Team (TPK). The agreement of the Village Head and village institutions present. The main task of the team is responsible for the procurement of goods and services (Barjas). In addition, the village government and its employees carry out their main tasks and functions in terms of Requests for Funding and the disbursement of Village Funds for one fiscal year. If there is a change in priority program activities such as the occurrence of natural disasters, special local government policies in terms of reducing and increasing the Village Fund Budget in the middle of the activity. Therefore, the village government implements its budget amendment only once and no later than three months or the end of September before the end of the fiscal year. Therefore, the Village Government must immediately socialize the revised of budget to the community. In general, the implementation stages of all villages are the same, the difference is the programs from each village itself because each village has its activities and priority programs.

The administration is the process of recording transactions for one year to manage the processes resulting from budgeting activities and budget execution. In the process of receiving, spending, and administering the Village Fund Budget with the General Cash Book (BKU) which is the result of all transactions that occur, starting from small transactions to large transactions. Furthermore, there is a Bank Subsidiary Book which is used to record receipts and spending of funds in bank accounts. Generally, in the form of the bank statement concerned. There is also a tax supplementary book used to record income from taxes and also used to record (out) taxes received and will be deposited by the treasurer. After all, bookkeeping is prepared, then use the SISKEUDES application in inputting each activity by the village government SISKEUDES operator who is in charge of operating administration for Management. This stage depends on the transactions that occur in the budgeting or planning and the implementation stage. Therefore, the results will automatically be recorded in administration during it well recorded. Reporting reflects the activities carried out on the results of activities during one fiscal year. The village government makes financial reports per semester in the second week of July. This report is referred to as the budget realization report. The government submits a budget realization report to the relevant agencies to be accountable to the district government. Compilation of realization reports through the Siskeudes application by operators and village administrative staff. Then, the village secretary validates the realization report. Meanwhile, the village as the leader approved the report.

Accountability is the final process of financial management activities. The government is responsible for all outputs to all related parties. Accountability covers all Financial Reports of activities as a whole for one fiscal year in contrast to the Reporting Stage which is only one semester or half a year from the Village Financial Report. Accountability begins with Monitoring Evaluation by authorized officials by applicable laws and regulations. Monitoring and evaluation officers hold accountability for all activities, both physical and non-physical. Then, the officer reviews the results of the work and compares the results in the field with the notes on the Realization of Activity Implementation Reports, Budget Realization Reports, and Notes on Financial Statements (CALK). This accountability begins at the end of the fiscal year until March of next year. The results of this Financial Report are operated by the Siskeudes operator in the Siskeudes application and monitored by the Head of the Village Finance Division which is then ratified by the Village Secretary and approved by the Village Head as Village Government Accountability. However, only Cikedokan, Ciela, and Mulyasari villages make Village Government Accountability Reports (LPPDes) with SISKEUDES.

V. CONCLUSION AND RECOMMENDATION

The conclusion of this research is implementation of SISKEUDES in Bayongbong District has been going well according to the following stages;

a. Planning, carried out by deliberation to determine what programs or activities are priorities for one fiscal year and as well as drafting and formulating Village activity budgets for the next one-year period, have been implemented very well. every village in the Bayongbong sub-district;

b. Implementation, in the process the implementation is by applicable regulations and is carried out very well and carefully by each village in Bayongbong District so that the desired program becomes a reality and can be carried out;

c. Administration, in the administrative process, the village apparatus is concerned as the operator of SISKEUDES in compiling revenues and expenditures that occur in existing Village programs and compiling according to the order of Village programs that occur during one fiscal year,

d. Reporting and Accountability, the Village Government reports the results of activities to the District Agencies and the Inspectorate by the agency's needs and must be by what they want, and in the Villages in Bayongbong District there are no problems in terms of accountability, the difference is accountability to the community and institutions -village institutions carried out by Cikedokan Village, Ciela Village, and Mulyasari Village by making Village Government Accountability Reports (LPPDes) as a form of Village Government transparency to the general public so that there are no suspicions and allegations of misappropriation of Village Funds.

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Does The Self-Assessment System Run To Collect The Entertainment Tax In Garut?

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Abstract

The entertainment industry in Garut has massive potential to increase the tax revenue as a tourist area in West Java. Unfortunately, the self-assessment system is slightly effective because the truthfulness level of entertainment entrepreneurs is descending, and the number of entertainment entrepreneurs among tax officers is not proportional. This research aims to investigate the tax collection by the government (Bapenda) for entertainment taxpayers. The method in this study uses a descriptive qualitative method. Primary and secondary data were obtained by interviewing tax collectors and using documents related to entertainment tax in Garut from Bappenda. The results showed that the entertainment tax collection system in Garut with a self-assessment system was following established procedures. However, the system is less effective because the taxpayer's understanding of the entertainment tax and self-assessment system is not fully understood. Then, taxpayers have low awareness until they do not report their taxes. In addition, entertainment entrepreneurs whose business licenses have expired do not extend their licenses. Then, the government cannot fully detect it because of the number of officers and the entertainment business imbalance. The conclusion is that the self-assessment system method for collecting entertainment taxes is not yet fully effective due to factors of understanding, awareness of taxpayers, and the insufficient human resources of tax collectors. Therefore, Bapenda requires to socialize the procedure for the self-assessment system and the importance of paying entertainment tax to entertainment industry entrepreneurs. And add more workers to be involved as officers to provide supervision to taxpayers

Keywords— Entertaintment tax; local tax revenue; self-assessment system

I. INTRODUCTION

In managing regional development, it necessary financial sources originating from the region concerned, then it is necessary to have several financial policies taken by the government to regulate the concepts of regional development. Natawijaya (2010) classifies the regional income into two main sources, namely income from the central government including state taxes, customs duties, subsidies, and state donations. Second, income originating from the region itself includes regional taxes, regional companies, regional original income, mandatory contributions, and other revenues. The Law No. 32 of 2004 concerning the Financial Balance of Central and Regional Governments, each region is increasingly required to finance the implementation of government activities and regional development through increase regional original income. The sources of regional revenue i.e regional original income, balancing funds, regional loans, other legitimate regional original income.

Tax as a sources of revenue for a country that is paid by the public. Tax is also a collection fee that can be imposed by the government based on the provisions of laws and regulations, tax is a manifestation of the participation of the community or taxpayers to directly and jointly carry out tax obligations needed in state financing for national and regional development. Therefore, the government continues to explore each potential and optimize revenue. Regional autonomy is a consequence of reforms that must be faced by all regions in Indonesia. Therefore, learning is needed in each region to be able to turn a challenge into an opportunity for the progress of the region

Garut as an autonomous region in West Java tries to increase its regional income every year, because the weak capacity of local revenue affects economic capacity. This district whose revenues are financed by donations and assistance from the central government through general allocation funds and special allocation funds. Therefore, to maximize and increase the revenue or fiscal resources of a region, local governments must increase and have the power to collect levies and local tax revenues. Entertainment tax is a tax for entertainment activities, such as shows, games, and others. The entertainment referred to (a) movie shows, (b) art, music, dance and/or fashion shows, (c) beauty contests, bodybuilding and the like, (d) exhibitions, (e) discotheques, karaoke, nightclubs, pubs, bars, live music (live music), music with disc jockeys (DJ), (f) circus, acrobatics and magic, (g) billiard and bowling games, (h) horse racing, (i) motorized vehicles, (j) agility games, (k) reflexology and fitness center, (l) massage parlors and steam baths/spa; and, (m) sporting events. Therefore, entertainment is the potential sectors for the local government of Garut Regency to be utilized in order to assist economic development in Garut. The Regional Regulation Number 01 of 2016 sets up different rate for entertainment tax i.e 20% for entertainment tax; 75% for fashion shows, beauty contests, discotheques, karaoke, nightclubs, massage parlors and steam baths/spa, tariffs; 10% of folks entertainment; and any kind of facilitate in karaoke or music studio for 10%. From the data obtained, the achievement of targets and the realization of entertainment tax in Garut since 2014 and 2018:

Table 1. Target and Realization of Garut Regency Entertainment Tax Revenue 2014-2018

Period	Budget Amandement (Rp)	Realization (Rp)
2014	1,000,000,000	1,013,880,633

2015	1,250,000,000	1,274,191,039
2016	2,120,000,000	2,219,966,395
2017	3,200,000,000	3,270,710,409
2018	4,200,000,000	5,173,749,937

The table indicates that during five years the revenue of entertainment tax achieved the target. However, this achievement. However, some entertainment business are not registered as taxpayers at the Regional Revenue Agency. Therefore, the realization of entertainment tax does not reflect the reality. Due to many factors namely the ineffectiveness of self-assessment, low honesty from entrepreneurs, and the lack of employees who handle entertainment taxes. Based on the problem, the researcher wants find the collection system of entertainment tax in Garut.

II. LITERATURE REVIEW

A. *Regional Tax*

Mardiasmo (2016) refers to Law No. 28 of 2007 concerning the third amendment to Law Number 6 of 1983 concerning General Provisions and Tax Procedures, are: "Compulsory contributions to the state owed by individuals or entities that are coercive in nature based on the act, with no direct compensation and used for the purposes of the State for the greatest prosperity of the people". The regional tax is a mandatory contribution to the region from an individual or entity that is coercive under the law, without getting direct compensation and is used for regional needs for the greatest prosperity of the people (Mardiasmo,2016). Siahaan (2016) revealed that regional tax is an individual or entity contribution for the local development.

B. *Entertainment Tax*

Entertainment tax is a kind of tax on the provision of entertainment. Entertainment is all kinds of spectacles, shows, games and/or crowds enjoyed for free. The object of the entertainment tax is the provision of entertainment for a fee. What is meant by entertainment includes, among others, film shows, arts, music and dance performances, discotheques, karaoke, nightclubs, billiard games, agility games, massage parlors, steam baths, and sports competitions. In the entertainment tax, not all entertainment arrangements are taxed. There are several exceptions that are not subject to tax, namely the provision of entertainment that is free of charge, such as entertainment held in the context of weddings, traditional ceremonies, and religious activities.

C. *The Entertainment Tax Collection*

Halim (2015) tax collection is an activities starting from collecting data on objects and subjects of taxes or levies, determining the amount of taxes or levies owed to collecting taxes or levies to taxpayers or levies as well as supervising their deposit. Siahaan (2016) revealed that entertainment taxpayers who take entertainment in the district or city concerned are required to register their business with the district or city Regional Revenue Service (i.e Bapenda). The taxpayer must fill out the registration form clearly, completely and return it to the tax officer, then the tax officer records the registration form and data collection in the taxpayer master list based on the serial number used as the basis for issuing the Regional Taxpayer Identification Number (NPWPD).

According to Siahaan (2016) the procedures for payment and collection of taxes are (1) Payment of the Entertainment Tax owed is made to the regional treasury, bank or other place appointed by the regent or mayor in accordance with applicable regulations. Payment must be made using a Regional Tax Payment Letter (SSPD), it must also be made in full. The installments of tax payments as well as delays in tax payments can be made with the approval of the regent or mayor and must be done regularly; (2) The collection of Entertainment Tax is carried out if the tax payable is not paid after the payment is due. Tax collection is carried out by first giving a warning letter or warning letter or other similar letter as the beginning of the tax collection action. If the amount of tax payable that must be paid is not paid within the period specified in the warning letter, it will be billed with the issuance of a Forced Letter. After the issuance of the Forced Letter, the tax collection action can be continued with confiscation, auction, prevention and hostage-taking if the taxpayer still does not want to pay off his tax debt.

D. *Research Framework*

Sumarsan, (2013) explains that taxes have a very important role in the life of the state, especially in the implementation of development because taxes are a source of state income to finance all state expenditures. Currently, with regional autonomy, it is hoped that regional development will grow quickly and evenly. Therefore, each region must maximize the potential in it to increase regional income. According to Siahaan (2016) in accordance with Law Number 28 of 2009 Article 1 points 24 and 25, Entertainment Tax is a tax on the implementation of Entertainment. While what is meant by entertainment is all kinds of spectacles, performances, games, and or crowds enjoyed for free. The determination of the entertainment tax is carried out using a self-assessment system, where taxpayers are given full trust to calculate, calculate, pay and self-report the entertainment tax payable using the Regional Tax Return (SPTPD).

Siahaan (2016) for the entertainment tax procedure, taxpayers who already have a Regional Taxpayer Identification Number at the beginning of each tax period are required to fill out a Regional Tax Return. The Regional Tax Return is filled out clearly, completely and correctly and signed by the taxpayer or his proxy and submitted to the mayor/regent or appointed official in accordance with the specified time period. Generally, the SPTPD must be submitted no later than fifteen days after the end of the tax period. Based on the Regional Tax Return submitted by the taxpayer and data collection carried out by the Regional Revenue Service officer, the regent/mayor or an official appointed by the regent/mayor determines the entertainment tax payable by issuing a Regional Tax Assessment Letter (SKPD).

Halim (2015: 502) defines collection as "a series of activities starting from collecting data on objects and subjects of taxes or levies, determining the amount of taxes or levies owed to collecting taxes or levies on taxpayers or levies as well as supervising their deposit".

With this entertainment tax collection system and procedure, it should be a means to facilitate optimal entertainment tax collection so that entertainment tax collection can make a greater contribution to local revenue. However, in this study, a study was conducted on the collection of entertainment taxes, because based on the data there were several problems, namely that there were several entertainment entrepreneurs who were not registered with the Garut Regency Bapenda due to several factors, including the ineffectiveness of the entertainment tax collection system, the honesty factor of the organizers. entertainment and the lack of local revenue agency data collection employees. The analyzes used to solve the existing problems are collection analysis to find out the real system and procedures.

According to the variable that has been determined, namely the collection of entertainment taxes, the dimensions of these variables are systems and procedures. This system and procedure as a control of the implementation of entertainment tax collection carried out by local revenue agency, so it has indicators that play an important role. In the system, a self-assessment system is carried out, there are Regional Taxpayer Identification Number, Regional Tax Return, Local Tax Deposit. While in the procedure there are indicators of data collection/registration, calculation, deposit and billing.
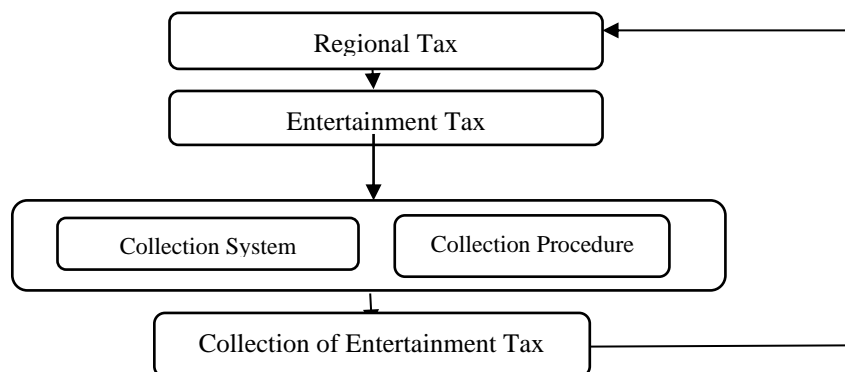
Fig.1 Research Framework

III. RESEARCH METHODOLOGY

The methods in this research is descriptive analysis. The type of data use qualitative data that obtained from The Regional Revenue Office of Garut Regency. The data source used primary and secondary data relate with entertainment tax. The data collection technique are conducted with literature review, documentation, and interviews. Interview according to Sugiyono (2015: 231) is to find a statement and answer from a certain topic related to certain things through 2 or more people.The researcher used the sample as the object to be studied or as a source of data and the sample was taken using purposive sampling technique. Purposive sampling according to Sugiyono (2017:218) is a sampling technique for data sources with certain considerations. This particular consideration, for example, is the person who is considered the most knowledgeable about what we expect, or maybe he is the ruler so that it will make it easier for researchers to explore social objects / situations and can represent the characteristics or characteristics of the population to be studied. The samples are presented in the following table:

Table.2 Purposive Sampling on the Entertainment Taxpayer sample

No.	Tax Payers	Criteria
1	Cinema XXI	>1 year paid
2	Time Zone GP	>1 year paid
3	Mandi Bola GP	>1 year paid
4	Kolam Renang Lembur Kuring	>1 year paid

5	Kolam Renang Antralina	>1 year paid

The data analysis using the growth,, average of entertainment tax, estimated annual entertainment tas, growth rate, effectiveness of tax rate, and contribution. The location of research conducted in Regional Revenue Office at Otista Street No. 278 Garut.

Data analysis in this study, which uses descriptive methods with qualitative data types

- a. Data reduction
- b. Data display
- c. Conclusion drawing/verification

The steps taken in carrying out data reduction are researchers collect various information, theories and documentation studies related to the calculation of potential, growth rate, effectiveness and contribution of entertainment tax, realization budget and target of entertainment tax revenue, Regional Tax Revenue and PAD, as well as an overview regarding the Regional Revenue Agency of Garut Regency. The next stage is to present data on targets and realization of Regional Taxes, regional income and Entertainment Taxes for the last five years from 2014-2018. Then analyzed to assess its potential. The presentation of the data is done by making a chart or table which will then be explained in a narrative manner. In the final stage, the researcher will explain the research results in the form of a description and assisted with graphs to make it easier to draw conclusions from the research results and answer the problems contained in the research.

IV. RESULT / FINDING

A. *Entertainment Tax Collection System in Garut Regency*

1. Collection of Entertainment Tax

The collection Entertainment Tax cannot be left to third parties. However, it is possible to cooperate with third parties in the tax collection process, including printing tax forms, sending letters to taxpayers, or collecting data on tax objects and subjects. Activities that cannot be collaborated with third parties are activities for calculating the amount of tax payable, supervising tax payments and collecting taxes. In the field results, it is also appropriate that there is no tax collection carried out by third parties, only the taxpayer and the tax authorities who supervise. The procedure to collect the entertainment tax reflected in Fig.1:
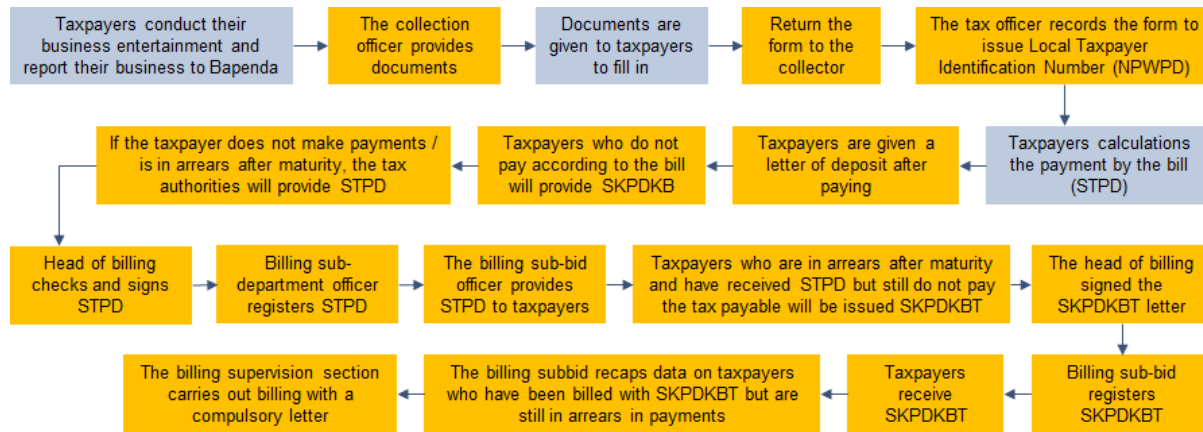
Fig.2. The procedure of entertainment tax collection

2. Tax Determination

Entertainment tax is part of district or city taxes in accordance with Regional Regulation No. 01 of 2016 Article 32 concerning Regional Taxes. The entertainment tax rate is set at 20%. specifically for entertainment in the form of fashion shows, beauty contests, discotheques, karaoke, night clubs, massage parlors and steam baths/spa set at 75%. 10% for folk/traditional arts entertainment.

Based on the results of interviews with tax officers at the Regional Revenue Agency of Garut Regency, the entertainment tax collection system in Garut Regency is a self-assessment system. This is confirmed by a statement from Mr. Wardi Sudrajat S.IP which states "the entertainment tax collection system in Garut Regency uses a self-assessment collection system, namely the authority determined by the taxpayer himself in calculating, calculating, paying and self-reporting the tax payable". Meanwhile, according to interviews in the field, not all taxpayers studied stated that they knew about tax collection using the self-assessment system, but there were some taxpayers who still did not fully understand the entertainment tax as a whole and only knew the outline or not in detail.

3. Tax Assessment Letter

Based on the Regional Tax Return (SPTPD) and data collection carried out by the officer appointed to determine the tax payable after five years of audit by issuing a Regional Tax Assessment Letter (SKPD), the SKPD must be paid off by the taxpayer no later than thirty days after the receipt of the SKPD by the taxpayer. taxpayer or other specified period. If the tax payer exceeds the stipulated time or is due, the taxpayer does not or underpays, he/she will be subject to a 2% penalty.

4. The Strategy of Government

Bapenda also implements an entertainment collection system, according to the results of interviews there is a control system, namely by control or (supervision) in accordance with Regional Regulation No. 01 of 2016 concerning Regional Taxes that the Regent or appointed official is authorized to supervise proof of payment in the form of receipts/tickets/ an equivalent document given to the user/tenant/who enjoys the services or facilities owned or controlled by the taxpayer.

In the implementation of entertainment tax collection, one of the efforts made by the Regional Government of Garut Regency is the socialization which is held once a year including other local taxes. The place for the socialization was carried out at the Garut Hall by inviting all taxpayers. This is a problem because in the field there are several taxpayers who complain about the socialization carried out by the Garut Bapenda which tends to be less effective and does not specifically discuss entertainment taxes, but local taxes in general. And the short socialization time triggers taxpayers to still not understand the explanation of the socialization.

V. Discussion

During the research, with the imposition of sanctions for taxpayers who do not comply with their taxes, but these sanctions are not effective because some taxpayers consider the sanctions to be less strict and with the implementation of a self-assessment system that should calculate, pay and report taxes owed by the taxpayers themselves will but government also collects taxes by officers, officers who always come to taxpayers and collect taxes owed, should be a good means of implementing entertainment tax collection, but there are still many entertainment providers who are

not registered. This is because taxpayers are not fully aware of the detailed systems and procedures related to the entertainment tax, one of Bapenda's obstacles regarding taxpayers is the awareness of paying taxes. Taxpayers feel that the tax that must be paid is from their pocket while they do not collect taxes from consumers, especially for small taxpayers.

Taxpayers' awareness is still low on their tax debts or in paying taxes. Whereas tax is one of the obligations that must be paid by the community to finance general expenditures in an area. (Erianto: 2018). The theory that supports tax collection according to Mardiasmo (2016) is the theory of devotion, as a devoted citizen, the people must always be aware that paying taxes is an obligation. Also according to Adam Smith (1776) in his book Wealth of nation one of its contents is the principle of equality (the principle of balance with ability or the principle of justice): tax collection made by the state must be in accordance with the ability and income of the taxpayer. The state should not act discriminatory against taxpayers.

Simple systems, mechanisms (procedures) and procedures for the implementation of tax rights and obligations are characteristic and features of the self-assessment system. Especially with regard to increasing the balance of rights and obligations for taxpayers in a fair and equitable manner so that taxpayers can carry out their tax rights and obligations better, it can also increase regional revenue along with increasing taxpayer compliance and awareness (Mardiasmo, 2016).

VI. CONCLUSION AND RECOMMENDATION

Based on the results of research and discussions that have been carried out regarding the analysis of entertainment tax collection at the Garut Regency Regional Revenue Agency, the authors can conclude that the entertainment tax collection system in Garut Regency uses a self-assessment system. However, some taxpayers lack an understanding of the entertainment tax system as a whole.

The overall collection procedure is carried out in accordance with existing theories and regulations. The collection of entertainment tax using self assessment system and the government as supervisor. Unfortunately, the revenue of entertainment tax does not reflect the real value. Due to some entertainment business are not registered as taxpayers at the Regional Revenue Agency. This case indicates the ineffectiveness of self-assessment, low honesty from entrepreneurs, and the lack of employees who handle entertainment taxes.

Therefore, researchers suggest that the government should provide counseling about systems and procedures that are carried out in a simple way. Hence, these systems and procedures can be implemented more effectively. Furthermore, the government should not compare doing a pick test on major holidays or on holidays, because in collecting the entertainment tax the income cannot be generalized to normal days. The Garut Regency Revenue Agency is expected to be more active in carrying out outreach to places of entertainment that have not been registered, such as fitness venues, motorcycle races, sports competitions, exhibitions and arts, music, dance/fashion because based on Regional Regulations the place of business is required. If the socialization is carried out, the number of taxpayers will increase and income from the entertainment tax sector will increase to the maximum. Likewise, taxpayers to be more aware of the importance of paying taxes, entertainment taxpayers are required to collect taxes directly from consumers because those who pay taxes are people who receive services for entertainment services.

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Triple A and Supply Chain Integration: Literature Review from the Indonesian Automotive Industry

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Abstract

This study aims to identify supply chain management integration models in the automotive industry in Indonesia through supply chain agility, adaptability and alignment. Supply chain activities are a determining factor for the company's success in facing competition in the market. The speed of responding to the market, the ability to adapt to changes in the internal and external environment, as well as harmony in the production process must be integrated into all supply chain management activities. Supply chain integration connects the internal activities, processes and products within the company. The integration is becoming increasingly complex with the rapid development of technology and increasingly dynamic market needs. This research connects the company's integration process with important capabilities that must be owned by the company, namely agility, adaptability and alignment. Method was used deep in descriptive qualitative research through narrative literature review with a case study approach with focus group discussion, this research by taking case studies on several automotive companies in Indonesia. The narrative literature review is also used to analyze the theory in describing the supply chain integration model. The results of this study indicate that agility, adaptability and alignment are important elements in optimizing supply chain integration, especially in the automotive industry. The application of an integrated supply chain model at this time is suitable to be applied by companies, because this system is able to manage the integration from the internal, processes and products by managing supply chain agility, adaptability, and alignment capabilities.

Keywords— adaptability; agility; alignment; automotive industry; integration; supply chain

I. INTRODUCTION

The increasingly fierce industry competition, diverse market demands, and increasing customer needs have caused customers to become more demanding with their preferences (Zhang & Chen, 2006). This happens because of changes in the market that make the product life cycle shorter, uncertain and difficult to predict (Christopher & Rutherford, 2004; Goldman, 1982). This change also makes the product introduction stage more competitive and demand volatility high. Globalization greatly affects the development of the automotive industry (Bechmann & Scherk, 2010; Spatz & Nunnenkamp, 2002) in the industrial era 4.0. Globalization creates significant opportunities (Katerina & Aneta, 2014), but at the same time, forces consumers to improve product quality (Alden et al., 2006), organizational efficiency (Ezeh, 2020; Josephine, 2014; Wokoma & Iheriohanma, 2010), and product innovation to attract customer interest and expand markets (Stefanovska & Tanushevski, 2016). This means that automotive companies must be able to be more responsive and flexible in meeting customer demands in order to compete in the market.

Significant development opportunities are created due to the influence of globalization (Ocampo & Martin, 2013), but also put pressure on producers in efforts to improve quality (Lambin & Meyfroidt, 2011; Randhir, 2016), organizational efficiency and product innovation (Petricevic & Teece, 2019; Rajapathirana & Hui, 2018) to attract customer interest and increase a wider market share. If manufacturers in the automotive industry want to succeed in winning the market, then these challenges must be able to be faced, be more flexible and able to adapt to various technological developments (Dachs, 2018; Verhoef et al., 2021) and be responsive to customer demands (Binder & Clegg, 2007).

One indicator of the assessment of the success of a company is the ability to maintain its existence. That is, the company needs to have added value or competitive advantage from similar companies or competitors (Hosseini et al., 2018; Rua & Santos, 2022). Competitive advantage is the company's ability to meet the expectations, desires, needs, income and willingness of service users (Mustaqiem et al., 2021; Prasilowati et al., 2021). If the conditions of competition are low or even there is no competition, then the product is not needed by the company. Conversely, if the level of competition is higher, then the product becomes increasingly important in the company.

Supply chain integration in every company in the supply chain is able to affect the performance of all other supply chain members both directly and indirectly and ultimately affect the efficiency of the supply chain. productivity of the entire supply chain, as well as the company's competitive advantage (Al-Kamel et al., 2021; Latuconsina, 2021; Sukati et al., 2012). Supply chain integration focuses on the relationship between suppliers, customers, and the

company itself (Awad & Nassar, 2010; Tarifa-Fernandez & Burgos-Jiménez, 2017), which must be managed properly. How to make suppliers take responsibility for product quality, good and long-term relationships with suppliers and customers, and so that product distribution from upstream to downstream is on time to end users.

Effective and efficient supply chain management requires integration of the entire production process that goes beyond procurement (Saroha & Yadav, 2013), production and logistics activities (Kim et al., 2020). Supply chain integration is becoming very important but previous research shows that there is a lack of understanding regarding supply chain integration in practice (Paul Childerhouse & Towill, 2000; Sahay, 2003). There have been quite a number of studies related to supply chain integration and supply chain agility, adaptability and alignment, but there are still few that link the two in the formation of models. This study aims to identify supply chain management integration models in the automotive industry in Indonesia through supply chain agility, adaptability and alignment.

II. Literature Rewiew

A. Supply Chain Agility

The ability of the company internally and externally is very important in its relationship with key suppliers and customers to adapt and respond quickly to market changes as well as potential and existing problems (Greeff & Ghoshal, 2004; Teece, 2018). Supply chain agility can be achieved by synergizing various forms of flexibility from all parties in the supply chain (Ariadi et al., 2021; Hoek et al., 2001; Irfan et al., 2019), thereby empowering individual members to respond more effectively to highly volatile markets. Due to the fact that supply chain agility is an externally centered outcome or concept, as a capability, not a competency (Li et al., 2008; Shekarian et al., 2020). Agility is the speed with which a company responds to key supply chain outcome measures (Chan et al., 2017; David M. Gligor et al., 2015), such as reduced manufacturing lead time (Lebosse et al., 2017), increased new product introductions, and increased levels of customer service. Agility is the result of integrating alertness to change (opportunities or challenges) both internally and externally with the ability to use resources to respond to change in a timely and flexible manner (Alzoubi & Yanamandra, 2020). Today's rapidly changing business environment makes enterprise supply chain agility an important factor influencing global business development and strategic ability to deal with change

This agility comes from four sources: organization, technology, people, and innovation (Mathiassen & Pries-Heje, 2006). Supply chain agility is considered an ability (Boubaker et al., 2019; Jermsittiparsert & Kampoomprasert, 2019), but several studies on agility indicate that agility is a competency that measures speed and flexibility (Lai et al., 2021). Agility can also be an advantage in delivering value to customers, dealing with change easily, valuing human knowledge and skills, and forming virtual partnerships. The level of agility of a company's supply chain indicates the strength of the interface between the company and its market. In supply chain agility there are several indicators, namely production time, development cycle time, frequency of new product introductions, level of customization, worldwide delivery capability, level of customer service, delivery reliability, and response to changing market needs (Bindi et al., 2021; David M. Gligor et al., 2015).

B. Supply Chain Adaptability

Changes in business needs and environment require companies to be able to adapt their supply chain strategies in response to the maturity of their products and markets (Chen et al., 2012; Dasaklis & Pappis, 2013). Adaptability is the company's ability to adapt the supply chain design in response to the company's internal and external changes by modifying the supply chain (Kopanaki, 2022; Madhani, 2017). When companies try to improve their supply chain adaptability, several problems will arise such as uncertainty in quality, delivery time and costs (Angkiriwang et al., 2014; Chang & Lin, 2019). Companies are also very likely to feel the need for new suppliers that are more responsive to develop the supply chain base in an effort to reduce uncertainty.

The company's ability to adapt to these changes is carried out by responding to changes in: availability of resources, logistics infrastructure, government and environmental regulations, labor costs and worker skills (Fish, 2015; Tipping & Kauschke, 2016). The dimensions of the growing business climate must be responded to by the company's adaptability. Many government policies related to trade and tariffs both nationally and internationally are changing and increasingly complex. Meanwhile, the emergence of national security issues has increased trade barriers and tax and customs calculations. These changes make adaptation of the company's supply chain very important, because the company must be able to adapt its strategy (Jahre & Fabbe-Costes, 2005). Supply chain adaptability can be enhanced by creating product designs that are flexible and adaptable across different types of markets. The adaptability of the system includes: monitoring the world economy to identify new basic supplies and markets, using intermediaries to build new suppliers and logistics infrastructure, creating flexible product designs, and determining where products stand in terms of technology and product life cycles.

C. Supply Chain Alignment

Alignment is the company's ability to align the interests of all partners in the supply chain with the interests of the company (de Man & Luvison, 2019; Narayanan & Raman, 2004). Integration of information systems throughout the company's supply chain and optimal coordination are important for the supply chain alignment process (Zulkarnain

et al., 2020). Companies must align internally and externally with all supply chain partners. Aligned business functional processes include procurement and purchasing of materials, production processes, marketing, and logistics throughout the supply chain to gain competitive advantage (Power, 2005; Samawi et al., 2019; Saroha & Yadav, 2013).

Efforts to encourage supply chain alignment, such as: (1) system integration and easy access to information on plans, forecasts and sales among supply chain partners (Lotfi et al., 2013), (2) defining the roles and responsibilities of supply chain partners (Ryu et al., 2009), (3) aligning incentives with supply chain partners to maximize partner performance and benefits (Norrman & Naslund, 2019), and (4) share risks, costs and benefits equitably with supply chain partners to improve supply chain performance (Chakraborty et al., 2014; Whitten et al., 2012).

D. Supply Chain Integration

Integration is the biggest challenge in supply chain management. The integration that is meant is not only the internal scope of the company, but includes the external scope with all supply chain partners from upstream to downstream (Saeed & Kersten, 2019). Supply chain integration also does not involve a particular dominance, but is the merging of companies and activities in their supply chains through information. Supply chain integration is an implication of close cooperation between buyers and suppliers, joint product development, and development of information systems that facilitate the flow of information (Power, 2005; Prajogo & Olhager, 2012). The key to a company's success in achieving competitive advantage is effective supply chain integration. The purpose of integration between companies with suppliers and consumers is to create and coordinate supply chain processes in a way that is difficult for competitors to imitate (Koufteros et al., 2010). This supply chain integration is based on a division of activities that occur in the supply chain, companies and consumers. Based on the level of structure, supply chain integration is divided into three levels, namely the functional level, internal level and external level, each of which relates to consumer, manufacturing, distribution and purchasing issues (Felea & Albăstroiu, 2013). Meanwhile, based on the dimensions that surround it, supply chain integration is divided into consumer integration, information integration, distribution and logistics integration, supplier integration and purchasing integration (Msimangira & Venkatraman, 2014).
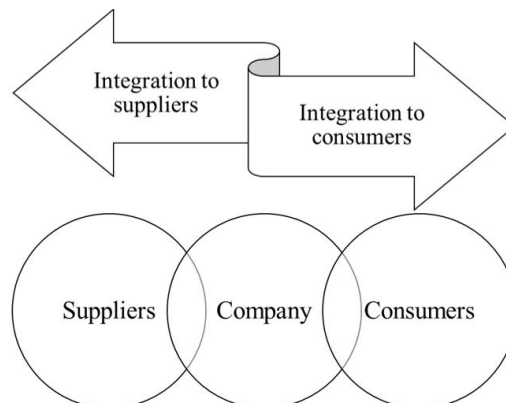
Fig. 1. Supply chain integration model (Source: Setiawan & Suhardi (2005), modified by researcher)

The direction of integration in the supply chain is the company's inclination towards suppliers and or consumers. Whereas what is meant by the level of integration is the breadth or narrowness of the company's integration range towards suppliers and or consumers. Some companies decide not to integrate much with consumers and suppliers and thus have a narrow degree of integration, while others integrate broadly with consumers and suppliers following a wide degree of integration. There are companies that integrate in a balanced way both towards suppliers and consumers. However, certain companies are still undergoing one-way integration. Determination of direction and level of integration aims to determine the strategic position of the company. The higher the level of integration, in the sense that the reach to suppliers and consumers is wider, the greater the potential benefits. When companies integrate and act as a single entity, their performance will increase throughout the supply chain.

III. Research Methodology

This research uses deep in descriptive qualitative research through narrative literature review with a case study approach with focus group disscussion. This study aims to make a descriptive, systematic, actual and accurate description of the process regarding the facts, characteristics and relationships between the phenomena being investigated. The case study research process is carried out through: (1) developing the concept of determining the case, and designing a systematic data collection, (2) prepare, collect, and analyze data; and (3) designing a supply chain integration model.

The sample which is the unit of analysis in the case study is taken from three companies that are included in the top five companies with market share in Indonesia in January-February 2022 according to Gaikindo, namely PT

ABC, PT XYZ and PT PQR. The selection of these three companies is considered capable of representing the automotive industry in Indonesia because they have a total market share of 61.2 percent. The data collection technique was carried out through a literature study by taking annual reports and sustainability reports of PT ABC, PT XYZ and PT PQR for the last five years, then carried out an analysis related to the development of operating strategies and supply chain strategies that have been carried out by each company.

IV. RESULT / FINDING

The COVID-19 pandemic that has hit the world has changed the global order, including major changes in technology, politics, regulations, social, economic, and environmental fields. Prior to the pandemic, the global production system underwent globalization where the production supply chain was spread across various fields to take advantage of specialization, economies of scale, labor supply, proximity to raw materials, and proximity to final markets (Brakman et al., 2020). But with the pandemic, the situation has reversed. Having supply chains spread across the globe carries a critical risk when the flow of goods across countries is bottlenecked (Park et al., 2020).

After the pandemic, various industries will build resilience by building supply chain ecosystems that are more concentrated in the regional and even national scope (Golan et al., 2020), no longer scattered in various countries. The problems that occurred were both in terms of the decline in consumer purchasing power due to the economic crisis to the difficulty of export-import transactions due to health and safety factors between countries during the pandemic (Halimatussadiah et al., 2020). However, the Industrial sector is still the largest contributor to the national GDP in 2020, which is 17.89%. This figure increased when compared to 2019 of 17.58%. Import export performance in 2020 was a surplus of 14.17 billion US dollars. The realization of investment in the industrial sector in 2020 is Rp. 72.9 trillion. One of the most important industrial sectors in the development of a country is the automotive industry (Saberi, 2018). This is due to an increase in the use of cars, an increase in car production and car exports worldwide

Indonesia is the largest motor vehicle market in ASEAN, Indonesia's relatively low Car Ratio of 99 cars per 1000 population indicates the automotive industry has great potential to grow in the future (Fig. 2).

	Motorcycle Sales Volume (Thounsand Unit)	Car Sales Volume (Thounsand Unit)
■ Q2-2020	313,63	24,04
■ Q1-2021	1293,93	187,03
■ Q2-2021	1156,16	206,44
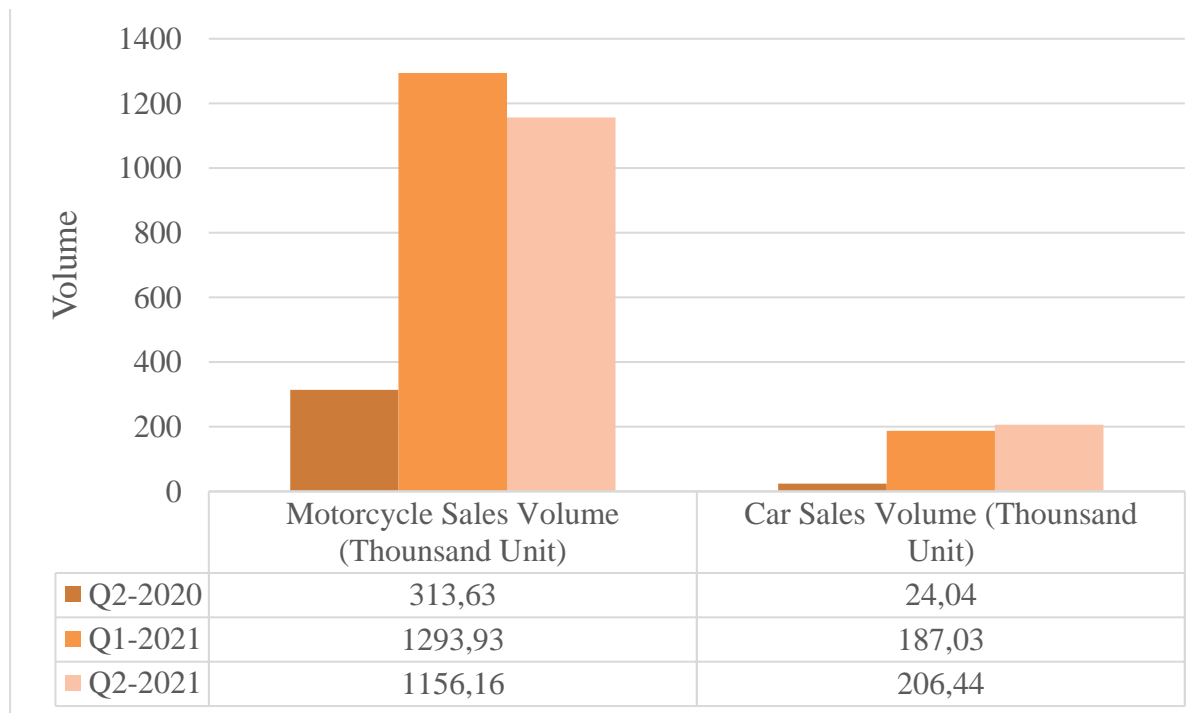
Fig. 2. Motorcycles and Car Sales Volume (Source: Gaikindo (2021), modified by researcher)

The growth of the manufacturing sector in Indonesia in the second quarter of 2021 was supported by the automotive industry. However, the automotive industry still has major challenges in terms of supply chains, especially material supply for both domestic and global needs.

PT ABC, which is one of the automotive companies with the largest market share in Indonesia, currently has a production capacity of two hundred and fifty thousand units of vehicles per year, with a domestic content level ranging from 75%-85% which is an important added value of the company's presence for national industry. The company's products have been exported to eighty countries in Asia-Pacific, Middle East, Latin America, Africa, and the Caribbean. In an effort to increase competitive advantage, PT ABC entered into an alliance with PT XYZ. The two companies began to build an alliance since 1967, in 1998, PT. ABC acquired a controlling stake in PT. XYZ. Since 2004, the two companies have cooperated in vehicle research and development. The collaboration between the two Japanese manufacturers has agreed to make the small car segment the main weapon in its global strategy.

In controlling its supply chain to meet domestic and global needs, PT ABC builds partnerships with local producers by ensuring that all products contribute and add value to the domestic industry. The five types of cars produced already have more than 75% local content and will continue to strive to increase the level of local content by focusing on localization of the upstream industry. PT ABC conducts various competency and expertise development programs for local suppliers to be able to improve product quality that meets company standards in order to be able to face global competition.

PT PQR, which is also a competitor of PT XYZ and PT ABC, will produce a new model car that will be exported to thirty-one countries in the world which are only produced in Indonesia. PT PQR plans to move its component factories from India to Indonesia to increase the local content of models produced in Indonesia and to increase responsiveness to global product demand as a result of the production of the new model.

The three automotive companies in Indonesia carried out a similar strategy, namely increasing cooperation with local supplier partners to increase production while maintaining the spare parts used to always comply with global standards. This strategy will be successful if the company has the main capabilities, namely agility, adaptability and harmony. Supply chain integration both functionally, internally and externally from upstream to downstream needs to be owned by the company to improve the performance of the entire supply chain and achieve competitive advantage.

V. DISCUSSION

In Indonesia, the automotive industry sector represents industry 4.0 competition, the automotive industry consists of diverse companies, complex product and technological innovation, digitalization in production and service, and increasingly intense global competition. The company will have a regional supplier network to streamline economies of scale, while logistics activities for product distribution and after-sales service are usually carried out by dealers both dependent and independent within national boundaries.
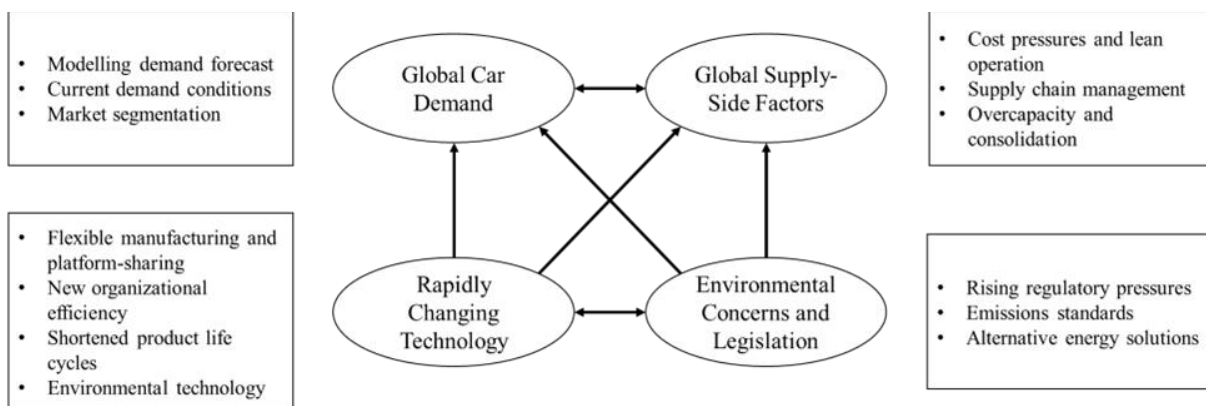
Fig. 3. Automotive industry framework (source: Schlie & Yip (2000) modified by researcher)

The supply chain in the automotive industry is basically the same as the supply chain in other industries. Broadly speaking, the levels of the supply chain in the automotive industry are parts suppliers, manufacturers, dealers, and customers (Gobetto, 2014). There are many complexities experienced in any supply chain. If there are obstacles or problems in one part of the supply chain, it will certainly affect the performance of the supply chain as a whole. Fig. 3 shows the basic supply chain structure in the automotive industry.
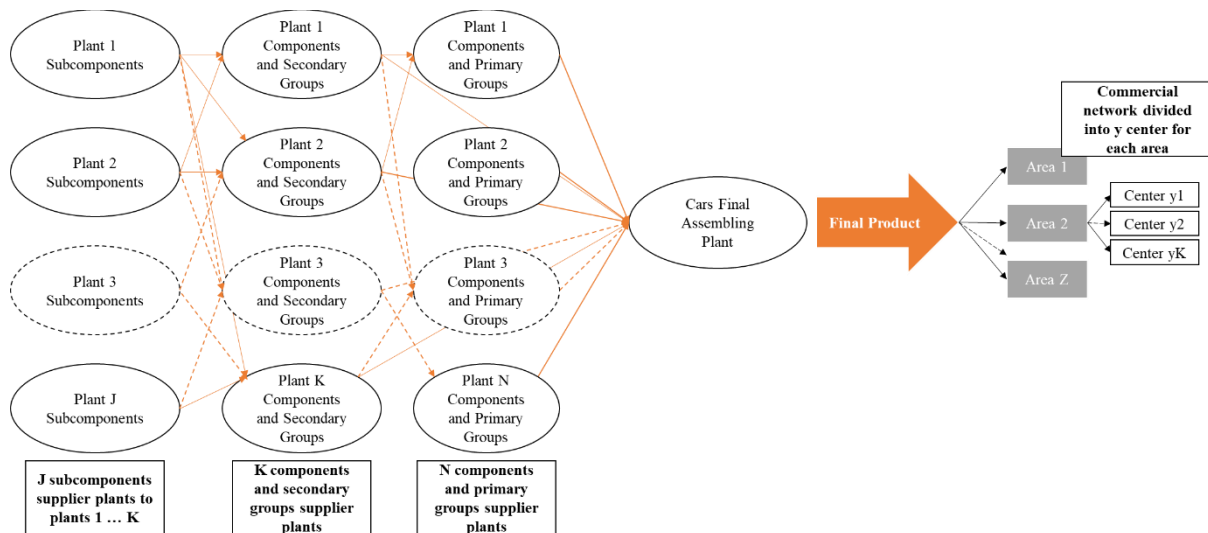
Fig. 4. Supply Chain structure in automotive industries (Source: Gobetto (2014), modified by researcher)

As representatives of the automotive industry in Indonesia, PT ABC, PT XYZ and PT PQR have strived to create a supply chain that is able to respond to market changes that are so fast and unpredictable. The development of the three companies over the last five years based on annual reports and sustainability reports shows an overview of the strategies used by the company in managing its supply chain to become a superior company. Demand and supply fluctuate faster and wider than ever before, including post-pandemic industrial developments requiring companies to be agile and responsive to changes in the business environment. An agile supply chain must respond to a variety of market situations quickly and cost-effectively, not just one of them.

The slow response in launching new products or innovations will cause the company to lose market share. So, it is important for companies to evaluate their business cycles, supply of raw materials to their logistics processes to improve their supply chain performance as a whole. Supply chain agility in the automotive industry can be seen from the ability to sense, flexibility and speed (Eckstein et al., 2014). In the case of PT ABC, the company has quite good dynamic sensing. PT ABC is able to sense short-term changes in technology, competition, demand and supply changes. Understanding and realizing dynamic patterns of change in the market is part of agility, because by understanding market patterns internally and externally, companies are able to optimally scan the environment (Aslam et al., 2018; Lu & Ramamurthy, 2011). Therefore, dynamic sensing is an important element in agility in the automotive industry. Agility also includes the company's ability to flexibly and quickly respond to short-term and temporary changes in the supply chain and the market environment with the existing supply chain (Al Humdan et al., 2020; Li et al., 2008).
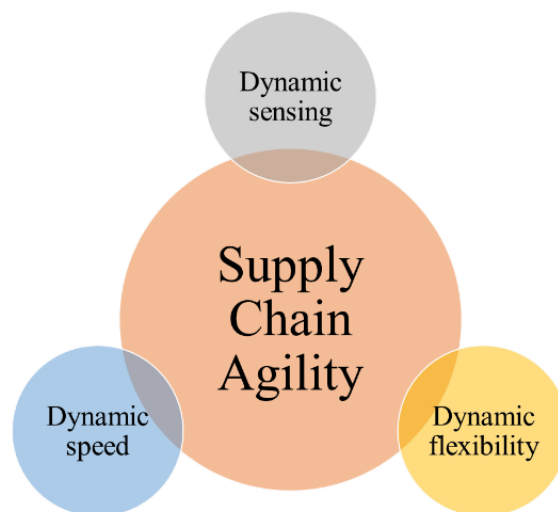
Fig. 5. Supply chain agility (Source: Eckstein et al. (2014), modified by researcher)

The three automotive companies in Indonesia are intelligently using an agile supply chain to differentiate their car products from competitors. PT ABC is known for its rapid product innovation, PT XYZ is known for its cost efficiency, while PT PQR is known for its product quality. All three companies have created agile design and supply chain processes. The entry of environmentally friendly cars such as hybrids to pure electrics to Indonesia, was quickly responded by the company. So that currently PT ABC is the pioneer of electrification vehicles in Indonesia and has the most electric-powered product lines.

Supply chain agility in the company can be built through: (1) integration of information systems to partners quickly and continuously to improve market response (Verhoef et al., 2021), (2) developing collaborative relationships with suppliers and customers for business development (La Rocca et al., 2019), (3) making flexible products so that they can produce various types with only substantial differences at the end of the production process (D. M. Gligor, 2013), (4) control the supply of inventories (Kumar et al., 2019), (5) build a reliable logistics system (Suradi et al., 2020), and (6) develop human resource capabilities to carry out various company plans (Saha et al., 2017).

Adaptability describes the strategies that companies need to make their supply chains dynamic, so that they are able to meet changing needs and the rapidly changing environment from time to time. The three companies never stick to the same supply network when markets or strategies change. They continuously adapt their supply chain to suit changing internal and external needs. Adaptation is not an easy process, but it is important to develop in order to provide sustainable benefits. Not only changes in supply and demand, supply chains also face almost permanent market changes caused by economic, social and political conditions, advances in technology and information systems, and changing demographic trends. Companies will not be able to face competition for a long time if they do not adapt their supply chains.

PT ABC's strategic alliance with PT XYZ has an impact on the adaptation of their supply chain. Both companies intelligently adjust supply chains based on their product markets. PT. ABC will focus on technologies related to the environment, safety, user experience and convenience. Meanwhile, PT. XYZ will continue the technology that 'wraps' the vehicle and fuel efficiency technology. PT. ABC and PT. XYZ combines their operations and supply chain in their respective capabilities and technical experience.

PT ABC has expertise in tracking and understanding market trends and geographic preferences, so it can adapt quickly and produce product innovations that are faster than its competitors. Supply chain adaptation may have an impact on increasing costs, but the company is able to adapt products to demand and manage inventory well.
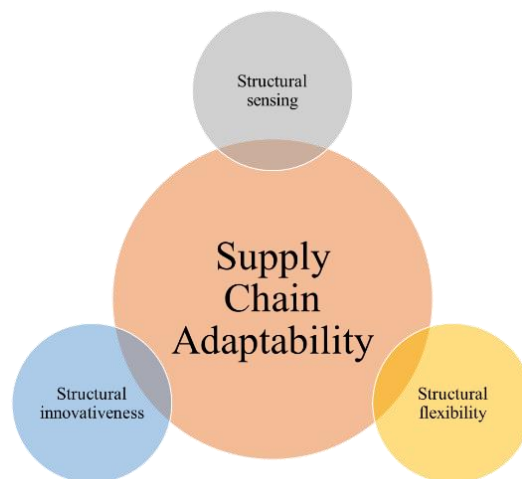
Fig. 6. Supply chain adaptability (Source: Eckstein et al. (2014), modified by researcher)

PT PQR has good structural flexibility in responding to changes in the global market and environment. Companies in the automotive industry must seek to reduce the environmental impact of their products as well as the impact of suppliers throughout their supply chain. PT PQR works closely with all of its suppliers around the world to carry out sustainable initiatives and develop supply chain innovations. The company tries to adapt to the local community and community environment to become a long-term environmental partner. In creating an adaptable supply chain, companies must have the ability to predict and analyze trends, as well as the ability to change the supply chain network in response to market changes (Christopher & Peck, 2004).

Aligning the interests of the company with all partner companies in the supply chain must be done carefully (Vachon et al., 2009). Suppliers, manufacturers, fabricators, to distributors will try to maximize their own interests. So, there must be a common interest between companies in the supply chain to maximize supply chain performance. PT PQR's initiative in aligning its interests is carried out by considering environmental aspects, human rights, safety and social responsibility, as well as implementing fair and transparent business principles. Every supply chain partner involved must follow established rules to build good relationships and increase trust internally and externally (Greeff & Ghoshal, 2004).

The annual meeting program conducted by PT PQR globally to share social trends and provide feedback to suppliers on the results of inspections, is a good effort in aligning the company's strategy and business direction as well as the substance of its initiatives. In addition, the company also gives awards to suppliers who have achieved the best results and fulfill business, social and governance requirements.

The misalignment of interests can lead to chaos in the supply chain network (Akın Ateş et al., 2022; Simangunsong et al., 2012). The problem that often occurs is that suppliers are not able to meet the demand for raw

materials so that the company does not have sufficient inventory to produce cars. Supplier incompetence can also occur due to lack of cost and production capacity. One way that companies can do to align the interests of the company with partners is by defining the terms of the relationship related to the fair sharing of risks, costs and rewards.
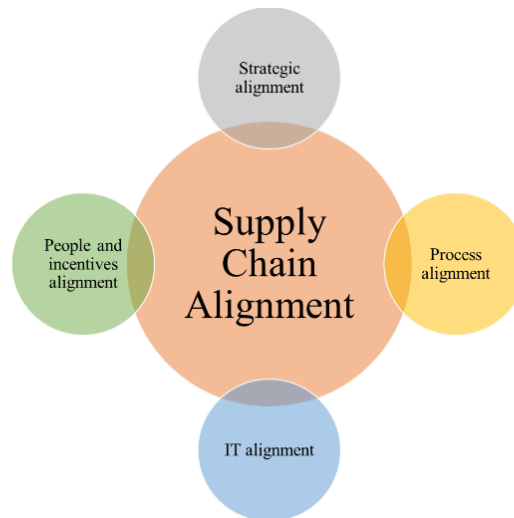
Fig. 7. Supply chain alignment (Source: Eckstein et al. (2014), modified by researcher)

All three companies create supply chain alignment in several ways. Alignment starts with aligning business development strategies domestically and globally (Sahay et al., 2006). Strategic alignment is important to ensure that company goals are achieved and supply chain performance is optimal (Queiroz et al., 2020). Furthermore, the alignment of technology and information systems so that all companies in the supply chain can easily access the same business information. The next alignment is related to the alignment of business processes and work processes in the supply chain to increase efficiency, reduce environmental burdens, as well as compliance and risk management in the logistics process. Alignment of individual behavior, which means the company ensures the roles and responsibilities of each partner of the company run well so as to reduce the potential for conflict. It is also necessary to align incentives to maximize supply chain returns and performance. Companies must predict the behavior of supply chain partners and analyze the behavior of competitors.

The strategic alliance between PT ABC and PT XYZ presents a new challenge in integrating their supply chains. Both companies must integrate the information they already have for the benefit of supply chain performance, internal processes are becoming increasingly linked and tied to each other. Supply chain integration is concerned with the integration of functional, internal and external processes by improving communication, partnerships and optimizing cooperation. Supply chain integration also applies new technologies to improve the flow of data and information and to physically coordinate the flow of products between supply chain partners. Functionally, supply chain integration includes the integration of information, processes, quality, and resources.
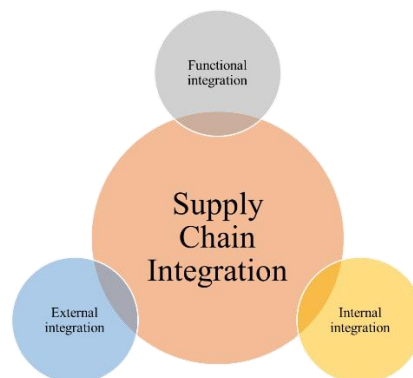
Fig. 8. Supply chain integration (Source: Alfalla-Luque et al. (2013), P. Childerhouse & Towill (2011), modified by researcher)

In a business environment based on technology, information and networks, the three companies place great strategic importance on supply chain integration. Supply chain integration can help companies reduce inefficiencies in planning, production, manufacturing and distribution activities. Integration can also reduce supply chain risks such as shortages or overstocks, on-time deliveries, and long lead times. Effective supply chain integration will lead to increased profits, expansion of market share, operational efficiency, and effectiveness of corporate governance.

Supply chain performance depends on the ability of supply chain partners to adapt to a dynamic environment. By linking supply chain integration with managing company capabilities in agile, adaptability and alignment (AAA), it

is expected that the company's overall supply chain performance can be further improved. The development of the AAA model and supply chain integration in the automotive industry allows it to be applied to various companies because basically the nature of the supply chain is the same, namely coordinating all product creation activities from upstream to downstream to maximize supply chain performance.
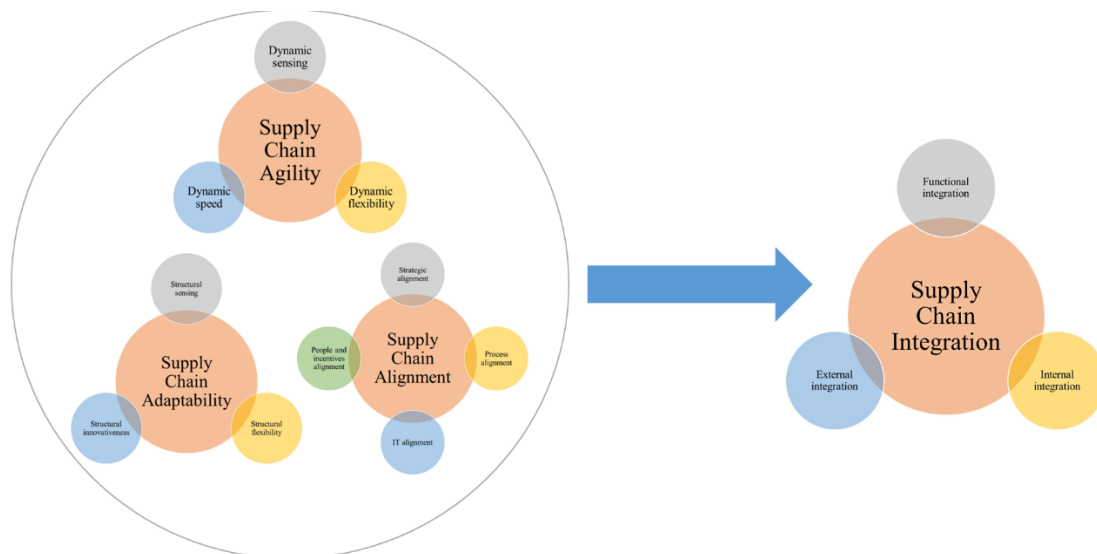
Fig. 9. Triple A and supply chain integration model (Source: modified by researcher)

VI. CONCLUSION AND RECOMMENDATION

Agility shows the company's ability to respond quickly and responsively to changes, flexibility and efficiency of the supply chain in facing the challenges of the internal and external environment in a dynamic business. Adaptability shows the company's ability to structure supply chain strategies to meet environmental changes and increase excellence. Meanwhile, alignment ensures that the company and all company partners have a uniform vision, mission and strategy as well as incentives from partners to be able to provide mutual benefits and success. The three companies have been working on this AAA capability.

Linking AAA with supply chain integration can give the company a competitive advantage and develop sustainably. The success of the supply chain integration process requires both connectivity and simplification components. Connectivity means the establishment of communication and cooperative relationships between all company partners from upstream to downstream, both internal and external to the company. Simplification means eliminating functions in processes that are less relevant or redundant in business processes to achieve effectiveness and efficiency.

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Impact of the Implementation of Fiscal Decentralization on Poverty Alleviation in Tanggamus Regency, Lampung Province in 2018-2020

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Abstract

This study aims to examine the effect of the Village Fund, the Family Hope Program, and the Smart Indonesia Program on Poverty in Tanggamus Regency, Lampung Province in 2018-2020. Therefore, in an effort to improve the quality of public services , the creation of an increase in the welfare of the community, especially in the fieldsof health, education , the economy and in order to increase the achievement of the Poverty Level. The data used in this research are secondary data obtained from the Integrated Social Welfare Data , the National Legal Documentation and Information Network , the Central Statistics Agency, the Social Service, and the Education and Culture Office of Tanggamus Regency , Lampung Province . The data analysis used is panel data analysis with Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches . Selection of the best model using the Chow test and Hausma test . The results of this research are proves that thefixed effect model is the chosen model . Based on the goodness test of the fixed effect model approach it is proventhat the estimated model exists with the value of the determinant coefficient or R-square (R2) is 0.6916, this meansthat 69.16% of the Poverty variable is explained by variations of the three independent variables, the Village Fund, the Family Hope Program, and the Smart Indonesia Program. Based on the goodness of the model (test F)proves the Village Fund, the Family Hope Program, and the Smart Indonesia Program collectively affect Poverty.Based on the effect validity test (test t) it can be seen that partially the Village Fund and the Family Hope Program significant effect on Poverty . While the Smart Indonesia Program no effect significant to Poverty .

Keywords— Village Funds; Hope Family Program; Smart Indonesia Program; Poverty

I. INTRODUCTION

Poverty is one of the problems that humans always face. The problem of poverty is the same as the age of humanity itself and the implications of the problem can involve all aspects of human life, although it is often not realized that its presence is a problem for the human being concerned. In short, poverty can be defined as a low standard of living, namely the existence of a level of material deficiency in a number or group of people comparedto the standard of living generally applicable in the society concerned. (Suliswanto, 2017).

Indonesia as one of the most populous countries cannot escape the problem of poverty. With the increasing poverty rate, the government has implemented various policies to deal with this problem. In Tanggamus Regency itself, government programs have been running, including the Village Fund, social assistance such as the Family Hope Program, and the Smart Indonesia Program. This study aims to see the effectiveness of the fiscal decentralization program through the Village Fund with Regional Poverty in Tanggamus Regency which is spatially located in Lampung Province and it is found that the distribution of the poor is quite high in the Tanggamus Regency area.

This poverty problem has become one of the government's focuses in implementing village fund policies with the main goal being able to alleviate poverty in their respective regions. The Central Bureau of Statistics defines poverty as an economic inability to meet the basic needs of food but not food which can be measured in terms of expenditure. Meanwhile, the poor are people who have an average monthly per capita expenditure belowthe poverty line.
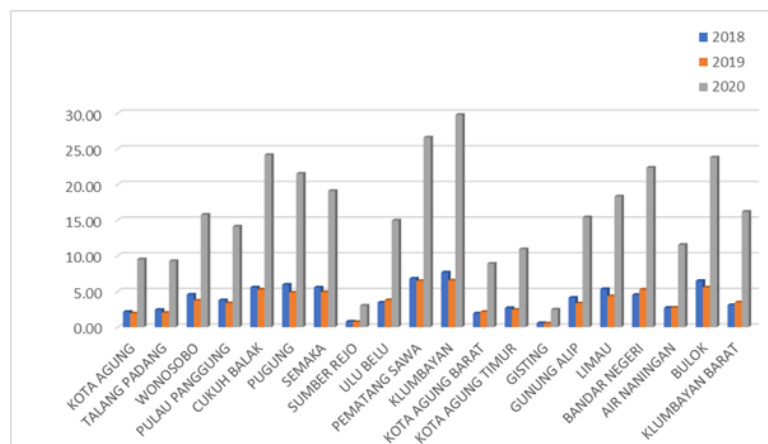
Fig 1. Percentage of Poor Population per District in Tanggamus . RegencyYear 2018-2020 (Soul) (source: Tanggamus in Numbers)

In alleviating poverty in Tanggamus Regency, it is one of the priorities, showing the percentage of povertyin 20 sub-districts in Tanggamus Regency in the 2018-2020 period. It can be seen that the percentage of poverty in sub-districts in Tanggamus district changes from year to year or fluctuates. The highest sub-district in Tanggamus Regency is Klumbayan sub-district in 2020 at 29.76%, where in 2019 it was 6.54%, and in 2018 it was 6.81%. This is due to the fact that the village of Klumbayan sub-district is located in a coastal area where people often work, relying only on one of their indigenous products, such as fishermen and agricultural products.

This area is often flooded and access to this area is quite difficult to reach. Meanwhile, the reduction in the percentage of poverty is focused on the Gisting District, which is 2.47% in 2020, where in 2019 it is 0.52% and in 2018 it is 0.56%. This is because the sub-districts in this village are very advanced from the level of education, health, agriculture, horticulture and tourism, from this it really helps the economy in Gisting District.

In this effort, Tanggamus Regency focuses on three sectors as an effort to reduce poverty, namely the education sector, the health sector and purchasing power. The government's efforts to further reduce poverty are inseparable from various policies, the government continues to encourage economic growth, maintain price stability and create jobs. The government also continues to develop infrastructure in these underdeveloped areas.

With regard to micro, the government provides direct assistance, both food subsidies, cash, and support from health insurance for the poor.

With the increase in the poverty rate, the government has implemented various policies in overcoming this problem with the Village Fund, the Family Hope Program (PKH), and the Smart Indonesia Program (PIP). One of the purposes of using the Village Fund is to finance government administration, development implementation, community development and empowerment. Village Funds are prioritized for village development (Government Regulation Number 60 of 2014).

II.   LITERATURE REVIEW

A.   *Poverty Theory*

According to Nugroho and Dahuri (2012), poverty is an absolute or relative condition in an area where a person or group of people is unable to meet their basic needs according to the prevailing values or norms. If viewed from the economic aspect, poverty refers to the gap between weak *purchasing power* and the desire to fulfill basic needs.

B.   *Village Fund Theory*

The distribution of Village Funds came into effect in 2015 as a mandate from Law Number 6 of 2014 concerning Villages. The enactment of Law Number 6 of 2014 introduced the Village Fund as a Transfer Fund from the government to the village through the Regency/City government. The Village Fund began to be allocatedin the 2015 Fiscal year with the allocation formula set out in a Government Regulation .

The Ministry of Finance stated that the distribution of Village Funds has a purpose, namely, to improve public services in villages, to alleviate poverty, to advance the village economy, to overcome development gaps between villages, to strengthen village communities as development subjects. Thus, one of the distributions of theVillage Fund is to reduce the poverty level.

The Village Fund is given in order to support the implementation of village duties and functions in the administration of government and village development in all its aspects in accordance with the authority it has, Based on Law Number 6 of 2014 the government allocates annual village funds in the APBN which is given to each village as one of the source of village income

H1 : Village Funds have an effect on Poverty

C.   *Expected Family Program Theory*

According to the Minister of Social Affairs Regulation Number 1 of 2018 concerning the Hopeful Family Program, the family of hope program, abbreviated as PKH, is a program of providing conditional social assistanceto poor and vulnerable families and/or someone who is registered in the integrated data of the poor handling program, which is processed by the data center. and social welfare information and are designated as beneficiaryfamilies of the Family Hope Program. Distribution of non-cash social assistance explained that the distribution of social assistance is the implementation of poverty reduction programs which include social protection, social security, social empowerment, social rehabilitation, and basic services. Distribution of social assistance providedin the form of money based on the determination of the Social Assistance Provider.

H3: The Family Hope Program has an impact on Poverty

D. Smart Indonesia Program Theory

According to the Minister of Education and culture regulation number 10 of 2020 concerning the Smart Indonesia Program, that the Smart Indonesia program is assistance in the form of cash, expansion of access and learning opportunities from the government given to students and students who come from poor or vulnerable families for education costs. .

H4: The Smart Indonesia Program has no effect on Poverty

III.   RESEARCH METHODOLOGY

The population in this study is data on the realization of State Revenue and Expenditure reports for all Regencies/Cities, Tanggamus Regency, Lampung Province. Year 2018-2020. The data used in this research are secondary data obtained from the Regent's Regulation (PERBUP) issued by the National Legal Documentation and Information Network, the Implementing Unit for the Family Hope Program under the auspices of the Social Service, and the Education and Culture Office of Tanggamus Regency, Lampung Province. This study uses a panel data analysis tool to determine the effect of the independent variable on the dependent variable.

A.   Analysis Tools and Models

This study uses a panel data analysis tool to determine the effect of the independent variable on the dependent variable. With the following econometric model:

$$P_{it} = \beta_0 + \beta_1 LogVF_{it} + \beta_2 LogFHPF_{it} + \beta_3 LogSIPF_{it} + \varepsilon_{it}$$

Information :
P	= Percentage of poor people per sub-district (percentage)
VF	= Village Fund (rupiah)
$FHPF$	= Family Hope Program Fund (rupiah)
$SIPF$	= Smart Indonesia Program Fund (rupiah)
β_0	= Constant
$\beta_1, \beta_2, \beta_3$	= Independent variable regression coefficient
ε	= *Error Term* (error factor)
i	= District/District i (*cross section)*
t	= Year (*time series)*

B.   Variable Operational Definition

a.   Poverty Percentage
The poverty percentage data used in this study is the percentage of the number of poor people per sub-district in Tanggamus Regency. This data was obtained from the Social Welfare Integrated Data which was processed by the Social Service Office of Tanggamus Regency.

b.   Village Fund
The Village Fund used in this study is the amount of Village Fund received in each sub-district in Tanggamus Regency. This data is obtained from the Regent's Regulation (PERBUP) issued by the National Legal Documentation and Information Network of Tanggamus Regency.

c.   Hope Family Program
The Hope Family Program data used in this study is the amount of the Family Hope Program funds receivedin each sub-district in Tanggamus Regency. This data was obtained from the Implementing Unit for the Family Hope Program under the auspices of the Tanggamus District Social Service.

d.   Smart Indonesia Program
The Smart Indonesia Program (PIP) data used in this study is the amount of SD and SMP Smart Indonesia Program (PIP) funds received by each sub-district in Tanggamus Regency. This data was obtained from the Department of Education and Culture of Tanggamus Regency

IV. RESULT/FINDINGS

A. *Estimated Results*

Based on the previous explanation that the Village Fund, Family Hope Program, Smart Indonesia Program in Tanggamus Regency, Lampung Province in 2018-2020 is estimated by panel data regression analysisthrough the formulation of the econometric model as follows:

$$P_{it} = Q_0 + Q_1 LogVF_{it} + Q_2 LogFHPF_{it} + Q_3 LogSIPF_{it} + s_{it}$$

Information :

P	= Percentage of poor people per sub-district (percentage
VF	= Village Fund (rupiah)
FHPF	= Family Hope Program Fund (rupiah)
SIPF	= Smart Indonesia Program Fund (rupiah)
β_0	= Constant
$\beta_1, \beta_2, \beta_3$	= Independent variable regression coefficient
ε	= *Error Term* (error factor)
i	= District/District i (*cross section)*
t	= Year (*time series)*

The estimation results of panel data regression using the *Common Effect Model* (CEM), *Fixed Effect Model* (FEM), and *Random Effect Model* (REM) approaches can be seen in table 1.

A. Table 1 . Panel Data Regression Results

Variable	Regression Coefficient		
	CEM	FEM	BRAKE
C	-17.84561	-231.8612	-19,01980

Log(VG)	7.597972	48.95542	7.882644
Log(FHPF)	4.371303	7.990174	4.554952
Log(SIPF)	-9.302556	-6.961965	-9.577288
R^2 _	0.253600	0.691635	0.258858
Adj.R^2	0.213614	0.508283	0.219154
F-statistics	6.342258	3.772170	6.519681
Prob F-statistics	0.000886	0.000184	0.000734

B. Model Selection

Chow test

The Chow test is one of the tests used to choose which model is better in panel data regression, namely between the *common effects* estimation model and the *fixed effect estimation model* . With the following hypothesis:

H_0 : *the common effect model* is better than the fixed effect *model*
H_A : *fixed effect model* is better than *common effect model*

The Chow test is carried out by looking at the *p-value* , if the *p-value is significant* < by 5%, it is better to use the *fixed effect model* , but if it is not significant with the *p-value* > by 5%, it is better to use the *common effects models.*

C. Table 2. Chow Test Results

Effects Test	Statistics	df	Prob.
Cross-section F	2.766257	(19.37)	0.0039
Cross-section Chi-Square	53.038703	19	0.0000

Based on Table 2 , the results of the Chow test show that the probability value of the Chi-square Cross-section is 0.0000 < by 5%, meaning that the *p-value* is smaller than (0.05) thus rejecting the null hypothesis (H_0). and failed to reject the alternative hypothesis (HA) . So the conclusion is that the *fixed effect estimation model* is better than the *common effect* estimation model, so the appropriate estimation model to analyze is the *fixed effect* model.

Hausman Test

In the initial test of the Chow test, it was found that the *fixed effect the model* is better to use than the *common effect model* , then perform the Hausman test. Hausman test is one of the tests used to compare the right model used in panel data regression, namely between *fixed effects model* or *random effect model* . With the following hypothesis:

H_0 : *random effect the model* is better than the *fixed effect model*
H_A : *fixed effect model* is better than *random effect*

Hausman test can be done by looking at the p-value, if the p-value is significant < then it is better to use the *fixed effect model* , but if the p-value is not significant > 0.01 then it is better to use the *random effect model.*

Table 3. Hausman test results

Test Summary	Chi-Sq. Statistics	Chi-Sq df	Prob.
Random cross-section	33.072025	3	0.0000

Based on Table 3 , the results of the Hausman test show that the *Cross-section Random probability value* of 0.0000 < is 5%, meaning that the *p-value* is smaller than (0.05) so that it rejects the null hypothesis (H_0) and fails. reject the alternative hypothesis (HA) . so that the conclusion is that the *fixed effect estimation model* is better than the *Random effect* estimation model, so the appropriate estimation model to analyze is the *fixed effect* model.

Based on the model selection test, both the Chow test and the Hausman test described above, the best and selected model is the *Fixed Effect Model* (FEM). With the estimation results of *Fixed Effect Model* (FEM) which are presented in table 4.

D.   Table 4. Fixed Effect Model . Estimation Results

P = -231.8612 + 48.95542 log(VF) it + 7.990174 log(FHPF) it – 6.961965 log(SIPF)			
	(0.000)	(0.0000)	(0.5285)**
R2 – = 0.691635; DW.-stat = 2.621683; F-Stats. = 3.772170; Prob. F. Stats. = 0.000184			

Source: Central Statistics Agency, Social Service, Education and Culture Office, data processed. **Description** :*Significant at = 0.01; ** Significant at = 0.05; ***Significant at = 0.10. The number in brackets isthe empirical significance (*p-value*) t statistic.

E.   Table 5. Effects and Constants of Fixed Effect Model (FEM)

No	Subdistrict	Effect	constant
1	Naningan water	16,35487	-215.50633
2	semoung country airport	17.24652	-214.61468
3	Bulok	9,98549	-221.87572
4	Just enough	-14,39854	-246,25974
5	Gisting	24,77919	-207.08201
6	mountain alip	8,60080	-223.26040
7	Klumbayan	26.08566	-205.77554
8	West Klumbayan	31.08097	-200.78023
9	great city	5,64976	-226.21144
10	Great western city	-17.46456	-249.67987
11	Eastern great city	8.16449	-223,69671
12	Lime	6.65311	-225.20809
13	rice field	-1.88359	-233,74479
14	back	-35,79864	**-267.65984**
15	stilt island	-18,68049	-250.54169
16	So	-20,71229	-252.57349
17	Sumberrejo	8.57226	-223,28894
18	gutter field	-16.10563	-247.96683
19	Ulu belu	-8,70217	-240,56337
20	Wonosobo	-29,42723	-261,28843

Model Goodness Test

Coefficient of Determination (R ^{2})

Based on table 4 shows that the value of the coefficient of determination or R-square (R2 $^)$ is 0.691635, this means that 69.16% of the Poverty variable is explained by variations of three independent variables, namelythe Village Fund, the Family Hope Program and the Smart Indonesia Program . While the remaining 30.87% is explained by other variables outside the model that are not included in the study.

Model Existence Test (F-Test)

The model can be said to exist if the entire number of independent variables simultaneously affects the dependent variable. The following is the hypothesis formula for the existence of the research model:

H_0 : 1 = 2 = …= n = 0, the model used does not existH
$_A$: 1 2 …≠ n 0, the model used exists
The criteria in this test are:
H_0 : accepted if the probability or significance of F >
H_A : rejected if probability or significance F

Based on table 4 shows that the probability value of F-statistics is 0.000184 < 0.01 so that it rejects the nullhypothesis (H_0) and fails to reject the alternative hypothesis ($_{HA}$). So, the conclusion is that the model used exists

or simultaneously the variables of the Village Fund, the Family Hope Program and the Smart Indonesia Program together have an effect on Poverty.

Effect Validity Test (t-test)

The effect validity test tested the significant effect of the independent variables individually. The effect validity test is the *t test* . H $_{0 \text{ on the}}$ *t* test is = *0.* Which means the independent variable to i has no significant effect; and its *HA* 0, which means the ith independent variable has a significant effect . H $_0$ will be accepted if the p value (*p value*), probability or significant empirical statistic t > ; H $_0$ will be rejected if the p value (*p value*), probability, or significant empirical statistic t .

Table 6. Test the Validity of the Effect of Independent Variables

variable	t-stats	Prob.t	Criteria	Conclusion
VP logs	5.626275	0.0000	< 0.01	Influential
FHPF logs	5.102341	0.0000	< 0.01	Influential
SIPF logs	-0.636234	0.5285	> 0.05	No effect

Interpretation of the Effect of the Selected Model Independent Variables

Based on the validity test of the influence contained in Table 6 , it has been proven that the independent variables that have a significant influence on poverty in Tanggamus Regency, Lampung Province, are Village Funds and Family Hope Program Funds. Meanwhile, the Smart Indonesia Program variable has no significant effect.

Based on the research results, the Village Fund Variable has a probability of 0.0000 which isstatistically significant at the degree = 1% (0.01) with a linear-logarithmic relationship pattern. That is, if the Village Fund increases by 1 Rupiah, then Poverty will increase by (48.95542 : 100) = 0.4895542 rupiah . On theother hand, if village funds decrease by 1 Rupiah, poverty will decrease by 0.4895542 rupiah, and the Family Hope Program increases by 1 rupiah, then poverty will increase by (7.990174 :100) = 0.07990174 rupiah. On theother hand, if the Family Hope Program decreases by 1 Rupiah, then poverty will decrease by 0.07990174 rupiah.

V.   CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research that has been carried out, it can be concluded that the test results for selecting the best estimator model prove that the *fixed effect model* (FEM) is the chosen model . Based on the goodness of the *fixed effect model* (FEM) approach, it is proven that the estimated model exists with the value ofthe determinant coefficient or R-square (R^2) is 0.691635, this means that 69.16% of the Poverty variable is explained by variations of three independent variables, namely Village Funds, Family Hope Program, and Smart Indonesia Program. While the goodness-of-fit test of the model (test F) proves the Village Fund, the Hope Family Program, and the Smart Indonesia Program collectively affect Poverty. The last is that the effect validity test (t test) can be seen that partially the Village Fund and Family Hope Program variables significant effect on Poverty While the Smart Indonesia Program does not have a significant effect on Poverty.

Based on the effect table and the constant random effect coefficient model, it can be seen that the constant value of each district/city in Tanggamus Regency, Lampung Province, the highest constant value is Pugung Regency. with a value of -267.65984 . Meanwhile, the district with the lowest constant value is West Klumbayan Regency with a value of -200,78023. Thus the relationship with the influence of the variable Village Fund, Family Hope Program, and Smart Indonesia Program for Poverty in Tanggamus Regency, Lampung Province , Pugung Regency has a higher poverty rate while West Klumbayan Regency has a lower poverty rate .

This study has several limitations, namely the research period is only 3 years, only using the variables of the realization of the Village Fund, the Hopeful Family Program and the Smart Indonesia Program. The object ofresearch is only the districts/cities in the Ex-Residency of Besuki , East Java province . For further research,

it isexpected to increase the time of the research , add the independent variables and the latest data by using differentmethods and increasing the number of samples by expanding the research area So it is hoped that the research results will be much better.

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Factors Affecting Income Inequality in West Java Province: A Panel Data Analysis

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Abstract

The purpose of this study is to analyze the effect of poverty level, human development index, population, and GRDP per capita on income inequality in West Java Province during the period 2016-2020. The method used is panel data regression model with the selected model FEM. The results show that only one variable has no significant effect on income inequality, namely population. The poverty rate, GRDP per capita, and the human development index have a significant effect on income inequality in West Java from 2016 to 2020. Therefore, the West Java Provincial Government must pay special attention to variables that have a significant effect on income inequality to reduce the level of inequality.

Keywords— Income Inequality; Poverty Level; GRDP, Population HDI; Panel Data

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I. INTRODUCTION

Indonesia is a country consisting of thousands of islands, the difference in regional characteristics is a consequence that cannot be avoided by Indonesia. This non-uniformity affects the ability to grow which in turn causes some areas to grow rapidly while other areas grow slowly. This growth ability then causes income inequality between regions.

Inequality can be interpreted as an inequality in the distribution of income of a country. This is in accordance with the opinion (Hakiki, 2015), to achieve equitable development in each region, Indonesia is directed at the regional development process where the community is expected to be able to manage existing resources with the cooperation and support of the central government, regional government, and the private sector. . In order to be able to create jobs and stimulate activities in the economic and industrial sectors in their respective regions.

The main goal of development is to create community welfare, where one of the indicators is seen from the even distribution of income. According to Williamson (in Sjafrizal, 2008: 95) in the early stages of economic development, disparities in income distribution will enlarge and be concentrated in certain areas that were initially relatively advanced, for example in industrial development, infrastructure and human resources. Then at a larger growth stage convergence occurs and inequality in income distribution will decrease. The income inequality calculation that is very popularly used by economists is the Gini Ratio Index, because this calculation is sufficient to explain the relationship between high-income population groups and other population groups.

West Java is one of the provinces of Indonesia located on the island of Java, has 9 cities and 18 regencies with an area of about 35,378 km². The diversity of cities and regencies owned by the West Java region makes this region inseparable from the problem of inequality in economic development, following is the Gini Ratio data for West Java for 2016-2020.

Table 1. West Java Gini Ratio Data for 2016-2020

West Java	Gini ratio				
	2016	2017	2018	2019	2020
	0.423	0.403	0.407	0.402	0.403

Data source: BPS

From the data above, it can be seen that the Gini ratio of West Java Province between 2016-2020 still tends to fluctuate even though the difference is not too significant and is still below 0.5 in the medium or moderate category. In 2016 the Gini Ratio was 0.423, which was the highest in the 2016-2020 period and the lowest was 0.402 in 2019. Many problems have resulted in income inequality in West Java Province which tend to remain unchanged from 2016-2020 or 5 years, because indeed the income inequality between regions is a problem in

development that is carried out spatially (spatial planning). The achievement of economic growth cannot overcome the problem of income inequality because of the unequal distribution of income. The uneven development process is due to the fact that there are areas that are experiencing fast growth, while some other areas are experiencing slow economic growth. Each region has different characteristics, therefore not all regions experience progress and development. Regions that do not experience the same progress and development are caused by differences in the results of their resources, the level of mobility of production factors between regions, poverty levels, human resources measured by the Human Development Index (HDI) which differs between regions.

II. LITERATURE REVIEW

In this study also uses a variety of literature from several previous researchers to strengthen the results of the study, such as research (Laitul Khusnah, 2015) show that DAU, GRDP and Manpower have a significant influence on income inequality. DAU has a negative and significant influence on income inequality, while the GRDP variable is positive and significant on income inequality, there is only one variable that is not significant, namely Educated Workforce. To overcome the problem of income inequality, the government as the holder of authority in policy making must focus on variables that have a significant effect on inequality without ignoring other insignificant variables.

Research (Muhammad arif, Rossy Agustin Wicaksani, 2017) shows that the variables of the Human Development Index (HDI), Economic Growth, Labor have a positive and significant influence on income inequality, while the Population Number variable is not significant because the faster population growth is not matched by the availability of job opportunities so that the unemployment rate also increases, meaning that it will reduce the value of community productivity and in aggregate regionally it will correct the value of people's percapita income to be lower.

Research (Raudhatil Wirda. Z, Fakhruddin, Fitriyani, 2020) on provincial income inequality in Indonesia using independent variables, namely inflation, poverty rate and economic growth, the results show that inflation and poverty level variables have a significant effect on income inequality. significant inflation affects income inequality in a negative direction, meaning that when inflation increases, income inequality will decrease, as well as poverty significantly affects income inequality in a positive direction. This shows that if poverty increases, income inequality will also increase. The impact between poverty and income inequality is influenced by the population. Poor families have a large number of family members. As a result, the economic situation worsens because income inequality also worsens, while economic growth does not significantly affect income inequality because economic growth is needed to improve people's welfare but is not effective in reducing inequality in income distribution.

III. RESEARCH METHODOLOGY

This study uses a quantitative approach, and also using Multiple Linear Regression Model with panel data, which is a combination of cross section data consisting of 27 districts/cities in West Java Province and time series data from 2016-2020. The dependent variable in this study is income inequality measured by the Gini Index (GI), while for the independent variables there are 4 namely, poverty level (POV), Total Population (TP), Gross Regional Domestic Product (GRDP), Human Development Index (HDI). This study takes the Province of West Java as area to be researched between 2016-2020, all data are sourced from the National BPS and BPS West Java Province. the formula or econometric model can be written as follows :

$$GI_{it} = \beta_0 + \beta_1 LOG\ GRDP_{it} + \beta_2 POV_{it} + \beta_3 TP_{it} + \beta_3 HDI_{it} + \varepsilon_{it}$$

Where :

GI = Gini Index

LOGGRDP = Gross Regional Domestic Product

POV = Proverty

TP	= Total Population	
HDI	= Human Development Index	
β_0	= constant	
$\beta_1\,\beta_2\,\beta_3\,\beta_4$	= Shows the regression coefficient of the independent variable	
i	= Shows district/city *cross section data*	
t	= Shows the year *time series data* 20 16-2020	
ε_{it}	= error component at time t for unit coss section	

IV. RESULT / FINDING

Table 2. The results of panel data estimation using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM)

Table 2. Panel Data Regression Results

Variabel	Koefisien Regresi		
	CEM	**FEM**	**REM**
C	-0,074041	-0,292204	-0,127224
LOGGRDP	0,000803	-0,013404	-0,001892
POV	0,004842	0,009857	0,006695
TP	0,00000005,43	0,0000001,36	0,000000010
HDI	0,005442	0,010984	0,006575
R^2	0,235155	0,651363	0,192595
Adjusted. R^2	0,211438	0,549819	0,167559
Statistik *F*	9,915384	6,41455	7,692788
Prob. Statistik *F*	0,00000	0,00000	0,000000

A. Test Selection of Estimated Model

Chow and test test Hausman used for choose the estimated model best between CEM, FEM, and REM. If on Test the selected model Chow is FEM and on Test Selected Hausman model also FEM then the model is estimated best is FEM.

B. Chow test

Chow test used for determine the estimated model between CEM (PLS) or FEM. H_0 the Chow test states that the estimated model is the *Common Effect Model* (CEM) , and H_A on the Chow Test it's real right that the estimated model is the *Fixed Effect Model* (FEM) with provision if mark probability Prob F > 0.05 then H_0 not rejected with the conclusion that the model was selected *Common Effect Model* (CEM) whereas if indigo probability Prob.F < 0.05 then H_0 rejected with the conclusion that the model was selected *Fixed Effect Model* (FEM) .

Table 3.Results Estimate Chow test

Effects Test	Statistics	df	Prob.

Cross-section F	4.729356	(26,103)	0.0000
Cross-section Chi-square	105,276220	26	0.0000

Based on Table 3 looks that results Test Chow Analysis Influencing Factors Inequality Income Province West Java 2016-2020 shows mark prob.F of 0.000 < 0.05, so that H_0 rejected, it can be concluded that the selected model is the *Fixed Effect Model* (FEM) .

C. Test Hausman

Test Hausman used for determine the estimated model between FEM or REM. H_0 the Hausman test states that the estimated model is the *Random Effect Model* (REM), and H_A the Hausman test states that the estimated model is the *Fixed Effect Model* (FEM) estimated model with provision if mark probability Prob Chi-Sq > 0.05 then H_0 is not rejected with the conclusion that the model selected *Random Effect Model* (REM) , while if indigo probability Prob Chi-Sq < 0.05 then H_0 rejected with the conclusion that the model selected *Fixed Effect Model* (FEM)

Table 4. Results Estimate Test Hausman

Effects Test	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Random cross-section	9.236073	4	0.0555

Based on Table 4 looks that results Test Hausman Analysis Influencing Factors Inequality Income Province West Java 2016-2020 shows that mark Prob Chi-Sq of 0.0555 < 0.10 so that H_0 rejected. This it can be concluded that the selected model is *Fixed Effect Model* (FEM).

XIII. DISCUSSION

Table 5. Results Fixed Effect Model (FEM) Estimation

GI_{it}= -0.292204 -0.013404 $LOG\ GRDP_{it}$+ 0,009POV_{it}- 0.0000001.36 TP_{it}+ 0.010984HDI_{it}
(0,0358)** (0,000)* (0,431) (0,000)*
R^2 = 0.65136; Adj R^2= 0.54981; F.Stat = 6.41455; Prob F-Stat = 0.0000

Note: *Significant at = 0.01; ** Significant at = 0.05; *** Significant at = 0.10; The number in brackets is the probability value of the t statistic.

D. Coefficient of Determination (R 2)

The magnitude of the coefficient of determination (R2 $^)$ the effect of Gross Regional Domestic Product, Poverty, Population, and Human Development Index on income inequality is 0.6513 , meaning that 65.13% of the variation in income inequality variables can be explained by Gross Regional Domestic Product, Poverty, Total Population, and Human Development Index and the remaining 34.87% is influenced by other variables that are not included in the research model.

E. Simultaneous Significance Test (F Test)

Simultaneous significance test (F-test) was conducted to determine the independent variables affect the dependent variable simultaneously (simultaneously). The hypotheses in the F test are 0 : The model used does not exist and : The model used exists. 0 is rejected if the p value (p-value) of the probability F-Statistics < , and 0 is not rejected if the p value (p-value) of the probability of F-Statistics > . Based on Table 4.4, it can be seen that the p value (p-value), probability, or empirical significance of the F statistic is 0.0000 < 0.05 so that 0 is rejected with the conclusion that the model used exists.

Table 6. Effect Validity Test (t Test)

Variable	t- stats	Prob	Alpha	Conclusion
LOGGRDP	-2126856	0.0358	< 0.05	Influential significant at = 0.05
POV	5.01646	0.0000	< 0.01	Influential significant at = 0.01
TP	-0.78913	0.4318	> 0.10	No influential significant

HDI	4.99038	0.0000	< 0.01	Influential significant at = 0.01

Based on the effect validity test (t test) for the GRDP variable in the *Fixed Effect Model* (FEM) it has a negative and significant effect on the number of poor people. The GRDP variable has a regression coefficient of -0.01340 with a prob value of 0.0358 which is statistically significant at = 5% (0.05). Based on the effect validity test (t test) for the poverty variable in the *Fixed Effect Model* (FEM) it has a positive and significant effect on the number of poor people. The variable income per capita has a regression coefficient of 0.009857 with a prob value of 0.0000 which is statistically significant at = 1% (0.01). Based on the effect validity test (t test) for the variable human development index on the *Fixed Effect Model* (FEM) it has a positive and significant effect on the number of poor people. The human development index variable has a regression coefficient of 0.01098 with a prob value of 0.0000 which is statistically significant at = 10% (0.10).

Based on the estimation results on panel data, it can be seen that the coefficient value of the GRDP variable has a negative and significant influence on income inequality with a linear-logarithmic model which means that for every 1 percent GRDP increase, income inequality will decrease by 0.0134 percent. The results of this study are in line with research conducted by (Lailatul Khusnah, 2015) which explains that the effect of GRDP on income inequality has a negative and significant effect, which means that the higher the value of the gross regional domestic product, the lower the level of income inequality (gini ratio) and vice versa, the higher the value of the regional gross domestic product. GRDP reflects the success of a region in improving the resources owned or available so that income inequality is reduced.

Based on the estimation results in panel data, it can be seen that the poverty variable has a positive and significant influence on income inequality with a linear-linear model which means that for every 1 percent increase in poverty, income inequality will increase by 0.009857 percent. The results of this study are in line with the research conducted by (Raudhatil Wirda. Z Fakhruddin, and Fitriyani, 2020) who show the results that the effect of poverty on inequality is positive and significant, this shows that when poverty increases, income inequality will also increase. The impact of poverty on income inequality is influenced by population, because basically the majority of poor people have a large number of family members, as a result the economic situation worsens because income inequality worsens.

Based on the estimation results on panel data, it can be seen that the population variable has a negative and insignificant effect on income inequality with a linear-linear model which means that for every 1 person increase in the population, it will reduce income inequality by 0.00000001.36 percent. This is in line with research conducted by (Muhammad Arif, and Rossy Agustin Wicaksani, 2017) which shows that the results of the influence of the population on income inequality have a negative effect, which means that a large number of people does not affect the level of income inequality in East Java Province.

Based on the estimation results in panel data, it can be seen that the human development index variable has a positive and significant influence on income inequality with a linear-linear model which means that each human development index increases by 1 percent, it will increase income inequality by 0.010984 percent. This is in line with the research conducted by (Muhammad arif, Rossy Agustin Wicaksani, 2017). which states that partially the human development index has a positive and significant effect on income inequality. This indicates that if the HDI has increased, the distribution of income has increased. Conversely, if the HDI decreases, the contribution of income will also decrease. The results with a positive and significant influence can be explained that one of the HDI instruments is life expectancy which is a key factor in creating a productive workforce.

V. Conclusion and Recommendation

Based on the research that I have done, it can be concluded that there are 3 variables that have a significant effect on inequality in West Java Province, namely, GRDP, Poverty, and the Human Development Index. Meanwhile, the total population leads to a negative and does not significantly affect income inequality.

This research can be a recommendation and reference for the government, especially West Java Province as a policy-making authority in its efforts to overcome the problem of income inequality, first the government must focus on variables that significantly affect income inequality such as improving the quality of human resources, infrastructure, economic governance. community to increase GRDP, secondly do not forget other variables that do not have a significant effect on inequality because the problem of income inequality is a very complex matter and there must be a strong and harmonious relationship between the community and the community. government to achieve equal distribution of income.

This research, there are still many shortcomings and only 4 independent variables were studied to find out how they affect income inequality, there are still a lot of other independent variables that need to be investigated by other researchers and related to income inequality in order to add references in the scientific world as well as a reference for government to address the problem of income inequality.

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Core Values AKHLAK BUMN On Millenial Generation Job Satisfactions

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Abstract

The purpose of this study was to analyze the implementation of the performance of the Melenia generation of BUMN as for the five aspects of the AKHLAK Model. which stands for Amanah, Competent, Harmonious, Loyal, Adaptive, Collaborative, as protection of Core Values and Core Purpose change operating practices, specific goals and strategic BUMN solutions describe how to Accelerate Culture Transformation, and five aspects of job satisfaction, namely the work itself, work wage income, Careers, Bosses, Colleagues, while the characteristics of the millennial generation have three components: Intentions, Personality and Needs. Melania's generalization expectations of performance become a Beilef Brand, Moral Model, Characteristics of the Millennial Generation and job satisfaction. This research uses a descriptive qualitative approach. go directly to the field, act as observers with content analysis, data collection techniques with structured interviews and FGDs involving 5 participants with age criteria and part of the field of work in the millennial generation from 1980-2002 the subject of the research object is millennial generation employees in state-owned companies. From the results of the research, there are several new discoveries regarding the Implementation of the Moral Belief Brand Model which can be concluded in the aspect of Amanah. Lack of fulfillment of promises and commitments, lack of responsibility for task decisions and actions that do not pay attention to moral and ethical values. Competent aspects of the millennial generation are able to increase self-competence in challenges and changes, lack of helping others to learn. Able to complete the task well. The Harmonious Aspect of the millennial generation really respects other people's backgrounds and can build a conducive work environment. The Loyal aspect of the Melenia Generation does not pay attention to the good name of the Company, does not want to sacrifice for the company to obey the leadership if there is a need. The Adaptive Aspects of the Melenia Generation are in working quickly to adapt, continuing to make improvements following technological developments, in working proactively. Harmonious aspects of the normal millennial generation provide opportunities for colleagues to complete work, are open to working together to produce added value, and can utilize resources for common goals. The research resulted in new discoveries related to the moral belife brand as well as from several characteristics of the millennial generation in the aspect of job satisfaction and it was found that participants showed characteristics that were more concerned with material work values, and work experience had an individual nature of narcissism requiring clear superior direction. Job satisfaction The millennial generation tends to work to complete their own tasks and is not optimal. The level of effort carried out is easily disappointed and avoids risk. lack of work synergy and organizational support. Lack of understanding of the responsibilities of the bureaucracy is felt to be long and hampering.

Keywords— Corporate Values AKHLAK Model; Millennial Generation; Job Satisfaction

I. INTRODUCTION

The more advanced the development of the world of technology and information, the industrial revolution 4.0 and also the era of society 5.0 the more complex the way to run a business in this era. The way to manage a good and efficient company today is clearly different from the conventional way. This era full of challenges is also known as the VUCA era, an acronym consisting of:

a. *Volatility*. Regarding things like about two mobile phone brands: Nokia and Blackberry. With the development of technological advances, mobile phones have turned into smartphones. A very drastic change that the two brands failed to follow its development and finally failed to compete and were evicted from the smartphone industry.

b. *Uncertainty*. No stranger to mobile banking, with the decreasing frequency of customers visiting ATM machines that have been provided by banks. Currently, almost all transaction needs can be completed with a smartphone without knowing the place and time

c. *Complexity*. Regarding the Go-Jek company, what type of company is it, it's very abstract, I'm sure it will be confusing to answer. neither a bank nor a transportation provider.

d. *Ambiguity* (ketidakjelasan). Go-Jek's example is a testament to how complex and ambiguous the company is. able to carry out various functions able to compete to be better than the best. With the arrival of the Covid-19 pandemic as well as being one of the actors, the VUCA era is coming faster.(Agustian, 2020)

About how BUMN prepare themselves to face the VUCA era with all its challenges. Can BUMN survive and survive until 2045 when the country is 100 years old? In the midst of a very severe storm, limited vision of the future, requires two very fundamental things. Namely compass and anchor. The compass as the north star helps determine direction, and the anchor is a tool to prevent the ship from being swallowed up storm. In BUMN, the compass is the vision and mission of the BUMN, while the anchor is the core values of AKHLAK. (Agustian, 2020) State-Owned Enterprises (BUMN) have a role as agents to meet the government's needs for independence, prosperity, sustainability, equity, and control the livelihoods of Indonesian citizens. The hope is that BUMN can be managed as accountable professionals. This is a joint commitment as a business entity, which is required to be able to provide added economic value in the form of tax dividends and economy in promoting national development.With the issuance of the Circular Letter of the Minister of State-Owned Enterprises of the Republic of Indonesia Number: SE-7/MBU/07/2020 dated July 1, 2020 concerning the Core Values of Human Resources of State-Owned Enterprises that every State-Owned Enterprise is obliged to implement The Core Values of Human Resources of State-Owned Enterprises as Corporate Culture are the basis for forming the character of human resources within the State-Owned Enterprises, Subsidiaries, and Consolidated Affiliated Companies. become the basic symbol of BUMN behavior. (KataData.com, 2022).

The ministry officially replaced the Core value on July 1, 2020. It is not just an image, it is a form of BUMN transformation. The modern visual core values created by the Ministry of BUMN are part of the commitment to involve millennial generation employees to become good mentors as well as emphasize the BUMN moral values at every step of the BUMN. The strategic role of BUMN in the progress of the nation, the welfare of the people makes this sector very vulnerable to political practices. (KataData.com, 2022). Therefore, the loyalty and credibility of human resources is the key to realizing the function of BUMN. Many employees or even BUMN officials go to prison just because they are related to corruption, collusion and nepotism, this is proof that so far human resources in BUMN have not prioritized morality. Core values Morals as the basis for welcoming the future in 2030 - 2040 Indonesia is predicted to experience a geographical bonus, namely the number of productive age population aged 15 years -64 years more than productive age population under 15 years and above 64 years. in this period the productive age population is predicted to reach 64% of the total population, projected at 297 million people, the maximum benefit of abundant productive age human resources must be balanced with improving the quality of human resources in terms of education and competence, including its relation to morals at work. (Kusnandar, 2021) The Ministry of BUMN established a transparent Talent management system. In terms of occupying a position that has qualified and innovative performance, he is the one who has the right to occupy the position. BUMN in recruiting millennial talent, human resources. Good corporate actions will lead to a reputation and good name as fuel for the organization to remain sustainable and competitively superior. (KataData.com, 2022). In emphasizing human resources, SOEs cultivate an innovative work climate in order to create business opportunities that can make business breakthroughs in the era of the Industrial Revolution 4.0 and also the future era of society 5.0 in order to produce individuals who are capable of competitive competence. (Maulamin et al., 2021). BUMN adapt to changes in managing human resources that can make it easier for BUMN

to produce competent talent in the face of changes in business models in the future that are real to face changes, prepare various future readiness human resource developments to face changes in management, business models.(B. E. Becker & Huselid, 2006)

Core values AKHLAK is the core of the company so that it becomes the mindset that is reflected in all company activities in the belief that the Brand is a connector for other Brand elements. although sometimes abstract, the existence of brand beliefs can inspire internal companies to communicate with employees and the market. (Clifton & Harter, 2019). Every company puts Barnd's belief in a company slogan or tagline. on the practice of Brand beliefs can be reflected directly in the behavior of the Company and employees that are constant and long term.(Baumgarth, 2010)

Core Values AKHLAK are usually applied to human resources, which are company assets that are the main source of the company in carrying out its functions. Thus the company is able to manage and maintain optimally owned human resources in order to achieve company success. (Jim Collins, 2020). Managing and maintaining human resources can be done by considering job satisfaction. Human resources themselves. Job satisfaction is an attitude and role related to aspects of work. Human resources are currently filled with workers in the millennial generation group and Generation Z is defined by (Buzza, 2017) generation born from 1980 to 2002 (Sparks Coburn & J. Hall, 2014) it is recorded that the millennial generation population in Indonesia reaches 34%, meaning that one third of Indonesia's population is the millennial generation at the age of the millennial generation, the most productive age. (Ozcelik, 2015) based on the fact that the millennial generation has a lower level of job satisfaction than the older generation touring. (Rony, 2019) study or Davinsi payment also uses the same thing, many millennials feel the lack of job satisfaction is not appreciated at work . (Schroth, 2019). Job satisfaction is determined based on individual criteria and job characteristics. This is revealed in the individual characteristics of the work situation that determine a person's assessment of what should be in the job. Job characteristics have not been a determinant of the millennial generation's expectations for their future work, the working millennial generation is more willing to get big profits from future jobs than their previous jobs. In addition, the millennial generation refers to evaluating the experiences experienced by the millennial generation. (Madara et al., 2018) said that the millennial generation's expectations for work are influenced by the group that is used as a reference regarding the type of work and its appropriate conditions. Individual characteristic factors consist of behavioral values, personality traits and needs, values are individual beliefs in right and wrong behavior in work goals to be achieved and undesirable. (Papavasileiou & Lyons, 2015). Personality traits such as prominent self-esteem, aspirations as a reference for millennial generation job satisfaction. Self-esteem as a value assumes the extent to which the millennial generation is able to fulfill the requirements for carrying out tasks at work. Needs are everything that is needed to obtain prosperity. (Naim & Lenkla, 2016) Needs are important because individuals will want more work factors which are tools to meet needs in work, the need for awards can be met by various factors, one of which is recognition. (Nachiappan et al., 2014) represent importance in job satisfaction. Millennial generation employees have high job satisfaction and are good at achieving the goals and objectives set by the company. (Childs et al., 2015)

With good job satisfaction owned by millennial generation employees, it is hoped that organizational goals can be achieved. Aspects of the concept of employee job satisfaction is the result of a synergy of a number of factors, namely: (1) The work factor itself (Work itself) This satisfaction can be achieved when the work of the Millennial generation is in accordance with the interests and abilities of the employees themselves. (2) Pay Factor Where the Millennial generation feels that the salary or wages they receive are in accordance with their workload and balanced with other employees who have the same tenure and rank level. (3) Promotion Opportunities Factors Opportunities owned by the Millennial generation to increase their position in the organizational structure. 4) Supervision Factor Millennials feel they have a superior who is able to provide technical assistance and motivation 5) Factors Coworkers Millennials are satisfied with their coworkers who are able to provide technical assistance and social encouragement. (García et al., 2019b).

The character of the millennial generation brings knowledge on aspects of work to become a criterion for job satisfaction for the millennial generation. This study will explore how the core values of the AKHLAK. model . The character of the millennial generation and job satisfaction criteria. There are several previous studies related to the problem of this research, namely the performance of the millennial generation, previous research by. (Jang & Juliana, 2020) performance on millennial generation loyalty, using descriptive and verification methods. Research conducted by. (Kriswinahyu, 2020) which focuses on the influence of Generation Y organizational culture and performance on OCB (*Oragniztions Chitizship Behavior*). Researcher by (García et al., 2019a) the influence of organizational support commitment and performance as a factor in the work of the millennial

generation. Research by (Schwatka et al., 2020) performance factors in generation Y jobs at Bank BCA. (Sparks Coburn & J. Hall, 2014) on the contribution to the level of performance how satisfied millennials are at work. (Pintaningdyah, 2017) also tries to uncover the effect of performance on millennials in Thailand. (Khadijah, 2019) Millennial generation performance in Malaysian multinational companies. (Noermijati et al., 2020) the influence of the performance of the millennial generation in Colombia. (Kim & Choi, 2018) the company's hallmark on performance and commitment by the millennial generation. (Ling et al., 2018) the perceived performance of the millennial generation in the nursing field. Based on several studies above, the performance of the millennial generation can be influenced by several factors at the level of maturity. The research above uses a lot of quantitative research methods to test the effect of some of the literature reviews above, there are several updates that can be done in this research to explore and assemble the implementation of the core values of the AKHLAK Model, the job satisfaction criteria itself in the millennial generation where previous research has proven more factors that influence job satisfaction for the millennial generation. Based on the novelty, the researcher is interested in exploring the implementation of the core values of BUMN AKHLAK. Characteristics and criteria as a measure of millennial generation job satisfaction. With the implementation of BUMN AKHLAK and certain characteristics in the millennial generation. The novelty of this research will use a qualitative methodology with the object and subject of millennial generation workers in BUMN. Collecting research data using semi-structural interviews and FGD. The method used is research data analysis in the form of qualitative content analysis analyzing data in the form of text and clarified in certain categories with job satisfaction criteria in research focusing on job satisfaction aspects related to the core values of the AKHLAK Model in BUMN.

II. LITERATURE REVIEW

A. AKHLAK BUMN

AKHLAK become the basis for a successful achievement of the BUMN design to establish a world-class reputation. The reputation of BUMN companies is very important to achieve. Moreover, President Jokowi gave the mandate so that BUMN have a good reputation in the eyes of national and international. Borrowing a management science approach, (B. Becker & Gerhart, 1996) that the formation of strategies for success begins with human resources (*resource*), (*action*), and (*intent*). In this case reputation becomes the goal (*intent*) the creation of a good organizational process (*action*), begins from AKHLAK (*resource*). A simple strategy formation is arranged in BUMN Indonesia, specifically BUMN, lots of smart and great people. But smart and great is not enough. Because capability alone is not enough. Capabilities must be in line with competence as the basis is behavior, this is where morality is the basis of competence. (*core competency*) must be owned by all employees of the millennial generation BUMN. *Core competency* coated *core capability* namely talent, intellectual can form a strong foundation based on human resources. (Marcus Buckingham& curt coffman, 2021) Human resources are the main key for organizations to achieve competitive advantage. With AKHLAK good millennial generation employees BUMN starting from the highest level to the lowest level, becomes a driving factor for good corporate behavior.

Loyalty and credibility of Human Resources (HR) as the key to realizing the function of BUMN. There are already many employees or even officials BUMN went to prison for corruption, collusion and nepotism (KKN). The practice of 'deposit' in BUMN, to the existence of a 'facilitator' in carrying out various projects. This is proof that human resources in BUMN have not prioritized morals. Now, BUMN are internalizing core values AKHLAK in all state-owned companies, all subsidiaries and even consolidated affiliated companies. Core values or new culture

AKHLAK it is an acronym for: Amanah, Kompeten, Harmonis, Loyal, Adaptif, dan Kolaboratif. process of finding AKHLAK also carried out by conducting an inventory of all core values owned by 108 companies BUMN(Agustian, 2020)

The results of research on all of these core values, SOEs found that in fact the core values were different. Sometimes a company calls it trust, while in other companies it calls it trust or honest, all that really is Amanah. One company calls it professional, another company calls it excellent, superior, smart, all of which means competent. what is the belief that if all employees BUMN work with good morals then BUMN will be able to make an optimal contribution to the nation with a good image, it fits if it is used as an acronym for core values

AKHLAK.

a. Amanah: Hold fast to the trust given
b. Kompeten: have the ability to work, always learn in developing capabilities
c. Harmonis: Harmony, caring for each other and respecting differences
d. Loyal: Dedicated and prioritizing the interests of the nation and state
e. Adaptif: Continue to innovate, enthusiastic in moving, facing change
f. **Kolaboratif: Building a synergistic collaboration. (Maulamin et al., 2021)**

The Character of the Millennial Generation Raises Expectations on Job Satisfaction Aspects

The term millennial was first defined by Howel when a child was born in 1982 entering preschool (Sparks Coburn & J. Hall, 2014). Merriam Webster, Millennial is a term derived from the word millennium, which is the period of a thousand years or people born between the 1980s and 1990s. millennial generation born between 1982 and 2002 (Ertas, 2015) sources about the year of the millennial generation there are differences between them, but it can be concluded that the millennial generation is the generation born from 1982 to 2002. The millennial generation is often also called generation Y which is an abbreviation in English, namely "youth"(Schroth, 2019)

The millennial generation is a generation that was born together with technological developments with different characteristics compared to other generations. The characteristics of the millennial generation can be explained through their values, personality traits and needs, (Childs et al., 2015) The millennial generation has values that are believed to be guidelines for behavior, values that are believed to focus on values that are important for the millennial generation in the workplace. The values in the workplace that are believed by the millennial generation are material ones such as wages, status, promotions and benefits as work priorities (Buzza, 2017) The millennial generation considers free time more important outside of work, compared to other generations (Madara et al., 2018). Overall, the millennial generation is more concerned with material things in their work. The millennial generation has inherent personality traits that distinguish it from other generations, namely individualism and narcissism (Naim & Lenkla, 2016) explaining the individualism of the millennial generation makes him focus on the rights of his own desires. There is an advantage with the individualism of the millennial generation, namely in treating others individually, it does not involve racial or gender actions in socializing (Andrade & Westover, 2018). Millennials' narcissism makes you feel special. Narcissism has a bad side, which is a lack of soft skills needed to work in organizations. Millennials tend to criticize with anger and blame others for failure (Clifton & Harter, 2019). as with individualists, narcissism also has the advantage that it makes them feel confident, visionary and friendly meaning this trait will fit when made a leader (Clifton & Harter, 2019; Nabyla, 2016)2012). In addition to their values and personality traits, the characteristics of the millennial generation have a need for feedback from superiors (Muliawati, Triyana & Frianto, 2020). In the workplace, the millennial generation really needs feedback and wants to be given clear directions in solving problems and tasks. Millennials are used to giving feedback, so that the millennial generation thinks that their boss or supervisor at work will act dynamically. evaluation to improve performance (Rony, 2019), Millennials need good feedback more than being negative. Millennials are afraid that this will affect their self-esteem (Madara et al., 2018)., The millennial generation needs certainty in the work structure and direction, always directed to seek approval and reinforcement, so that in the workplace it can lead to a tendency to always seek direction and guidance from superiors. These characteristics raise the millennial generation's expectations for their work. These expectations are considered unrealistic and disproportionate to their abilities and skills (Andrade & Westover, 2018). The study assessed that these expectations were acceptable and quite realistic.

The millennial generation has certain characteristics that can lead to expectations in the world of work, including job satisfaction. Expectations are individual beliefs and beliefs regarding things that should happen in certain conditions (Schroth, 2019) Parents of the millennial generation treat and educate with a culture that is easy and instant so that certain characteristics can be attached to the millennial generation from the beginning of life, the millennial generation is treated special, spoiled and even doesn't get rejected, banned by parents, teachers or adults (Madara et al., 2018). It forms their seemingly limitless self-esteem (Nur khotimah 2020). too selfish (Childs et al., 2015) Traits such as high self-esteem and narcissism can lead to higher expectations at work (Sparks Coburn & J. Hall, 2014) During the growth period of the millennial generation observing the values applied by parents when working, the Baby Boomers Generation applies the importance of Loyalty, commitment at work in the hope of obtaining success, the millennial generation observes what the Baby Boomers generation applies as parents in their work (Salim, 2021) This value is also important in implementing the expectations of the millennial generation.

The millennial generation has expectations in the world of work, the millennial generation's expectations are considered too high and unrealistic because of the imbalance between abilities and expectations of their own abilities. (Papavasileiou & Lyons, 2015). Having high expectations in work that makes the millennial generation want to always look for jobs that can provide everything they want such as flexibility, high wages, get promoted in a short time (Salim, 2021). The millennial generation wants a promotion within a short period of about 15 months after entering work (Childs et al., 2015). The millennial generation expects to have good bosses who are able to communicate openly and positively (Khadijah, 2019). The millennial generation wants to have a variety of challenging and flexible tasks. And given the freedom to complete the work (Salim, 2021). Although the millennial generation is known to have high expectations on work, it is possible that the millennial generation has realistic expectations, revealing that the millennial generation has realistic expectations of wages when work is the first thing. Expectations that are based on important aspects of work related to job satisfaction, promotions, leadership, work wages, co-workers and the nature of the work itself, thus the expectations expressed by the millennial generation can be used as a series of millennial generation job satisfaction criteria. (Schroth, 2019).

B. *Job Satisfaction*

Job Satisfaction is a positive assessment of the work and work experience that a person feels. Job satisfaction in this study, measured using the following dimensions:

a. Work itself (Work itself) Millennials assume job satisfaction can be achieved if the work is in accordance with the interests and abilities itself.
b. Rewards (Pay) Millennials feel that the salary or wages they receive are in accordance with the burden
c. work and balanced with the same period of work and rank level
d. Promotion Opportunities The Millennial generation has the opportunity to increase their position in the organizational structure
e. Supervision Millennials want to have a superior who is able to provide technical assistance and motivation.
f. Millennial Generation Coworkers are satisfied with their coworkers who are able to provide technical assistance and social encouragement. (Jang & Juliana, 2020)

Core Values Model AKHLAK BUMN (Amanah, Kompeten, Harmonis, Loyal,Adaptif)	Job Satisfaction Expectations Millennial Generation Characteristics (values, traits, personalities and needs) (Job, Rewards, Promotion, Supervision, Coworkers)
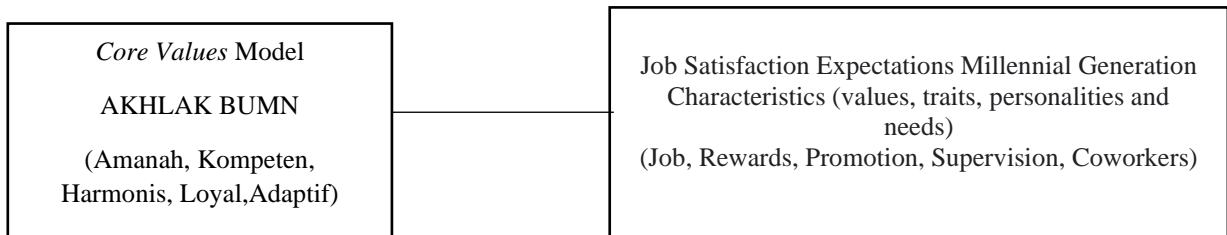
Fig 1.

III. RESEARCH METHODOLOGY

In this study, the author uses the constructivism paradigm, "The constructivism paradigm is based on general thoughts about theory" (Creswell, 2013) Theories produced by researchers and constructivist theories are based on non-objective ideas and are constructed through a process of interaction between groups, communities and cultures. indicators as the basis for conducting research. The approach used in this study is a qualitative approach chosen because it is in accordance with the paradigm and problems chosen by the author. Qualitative research is research that examines quality, activities, situations, or materials with a strong emphasis on thorough descriptions in describing the details of everything that happens in a particular activity or situation.(Creswell, 2013)

As a social science research method that collects and analyzes data in the form of words (oral and written) human actions. (Creswell, 2013) The author does not attempt to calculate or quantify the qualitative data that has been obtained, thus does not analyze the figures. The method used is a descriptive qualitative approach. Research goes directly to the field, acting as an observer. This research is descriptive by describing and making a description of the Implementation of the AKHLAK Model Model. Characteristics and job satisfaction of the millennial generation of BUMN. The subject and object of the research is a millennial generation employee who is actively working at the working age of 25-35 years correspondent 5 millennial generation employees. In accordance with the purpose of writing this research, namely to modify the implementation of the AKHLAK Model on the job

satisfaction of the millennial generation of BUMN. Meanwhile, the object in this study is the Ministry of BUMN. Data collection techniques used interviews and FGDs, both using Zoom and online. Test the validity of the data in qualitative research includes testing, credibility, transferability, dependability, and confirmability (Creswell, 2013) Triangulation processing method,) says triangulation in credibility testing is checking data from various sources at various times. source triangulation, data collection technique triangulation, and time engulfed Source, Technique and Time. (Creswell, 2013).

IV. RESULTS / FINDING

A. Literature Study Result

1. Core Values Model AKHLAK BUMN Amanah

For the millennial generation of BUMN, it is difficult to do in their daily work habits, they feel that trust is important for their future progress, which must enter into their thoughts and work behavior as integrity, sincerity, consistency, and trustworthiness. The millennial generation of BUMN in fulfilling promises and commitments is very important. The millennial generation of BUMN does not want a bad reputation for fear of not being trusted, but in reality it is sometimes difficult to do this in the world of work. Likewise in being responsible for tasks, decisions, and actions taken such as arriving late to the office, working half-heartedly and prioritizing the pay, not completing assignments on time do not carry out the direction of the leadership, as a result the targets achieved are below expectations. The millennial generation adheres to moral and ethical values, sometimes the millennial generation likes to mumble when working, working with only "sincere" intentions, aka the goal is full, often baper in the office usually due to dating, and other problems outside of work in developing themselves very much. both because of the amount of information and knowledge that is easily available today. When building good relationships with other people, they interact very quickly online but in a direct manner it is still lacking and rigid, millennials are always dissatisfied with what they get at work. Always accept new things or challenges, work with variations, don't want to do the same thing.

2. Kompeten

The millennial generation understands in increasing self-competence to answer the ever-changing challenges in every job, as in helping others learn is still lacking because of individualism in work but they have the belief that helping others can be a source of additional income, and assumes the people being taught have not of course become rivals, maybe even become partners. They sometimes complete tasks with good quality depending on their quality or mood, There will be a point when they feel very bored with the current life which results in a lack of performance shown at work.

3. Harmonis

The millennial generation in terms of harmony at work is often perceived which results in misinformation, that's natural. Because the name one organization can happen, but if there is a problem they try and are less able to solve the problem. In work rights, when you get a job outside of your daily work, it still gives a negative impression. resulting in conflict disputes, this is the most common. The millennial generation respects other people's backgrounds and does not compare everyone in the work environment.

4. Loyal

The millennial generation in work related to the value of Loyalty they can maintain the good name of fellow employees, leaders, BUMN, and the State but in everyday work Employees never want to have an opinion, do not dare to say agree or disagree. Obedient only when seen. Does not respect office rules. Not liking and loving his work, willingness to make sacrifices to achieve a bigger goal is still lacking because it is an individual who puts his own interests first, especially the interests of the needs of daily life. They are very relatively obedient to the leader as long as it does not conflict with law and ethics. The millennial generation likes leaders who are able to motivate and inspire employees, Give sincere appreciation and praise, which means making others feel important to be honest and have integrity, dare to admit mistakes, and really listen and respect opinions. Listening with the ear and listening with the heart are different, when listening with the heart, then you really empathize.

5. *Adaptif*

For the Adaptive millennial generation, namely Innovation, Enthusiasm for change, and Proactive the millennial generation in working Quickly adapting to be better (do not think satisfied but always try to be better). The millennial generation at work can continuously make improvements following technological developments, and act proactively. But they fail to understand the change and its implications. Melanial generation has tolerance for change

6. *Kolaboratif.*

The millennial generation in terms of collaboration, namely the willingness to work together and synergize for better results, is less felt due to its individualistic nature. Plus the behavior. Millennials at work Provide opportunities for all parties to contribute, Open in working together to generate added value. They can drive the use of various resources for a common goal. In working together, you don't see someone's background.

B. *Job Satisfactions*

The work factor itself for employees of the millennial generation of BUMN, the quality of work that has expertise in the IT field is important, due to the demands of a job completion system using IT based. The millennial generation is able to complete their tasks. The millennial generation in responding to their main duties and responsibilities, still lacks understanding so that in completing work assignments they become less professional, which results in maladministration and obstacles in completing work. For them, there is no systematic socialization with integrity in order to provide an understanding of the importance of organizational values and how to implement them in their daily work behavior. The millennial generation is still individualistic in their work.

The millennial generation does not understand or do not master the existing tupoksi related to their work, on the other hand there is also a millennial generation who has the habit of procrastinating work, there is still a lack of personal awareness to discipline and complete work effectively and efficiently. The millennial generation's low work motivation is caused by the need to increase welfare and refers to wages. The millennial generation in accelerating the completion of work assignments is still lacking due to their seriousness in working at will. Due to the lack of accountability and transparency in job descriptions between fields and daily work responsibilities, they still do what they like in their job duties. The millennial generation in terms of working time and attendance is often late in arriving so that the working hours are erratic, sometimes they come home late at night to complete their work assignments. In terms of the work system that. too complicated and takes a long time millennials are very selective in choosing a job and usually they avoid and choose jobs that are interesting, new and have challenges. In the work of the millennial generation, it is still not systemized according to the applicable rules, they move what is in front of them and are accepted, so that's what they do first, resulting in the system at work being slow to complete a complete job.

The millennial generation can adjust the main tasks of the organization, but in the main tasks of their work they work individually, because the millennial generation or the main tasks of the organization want to advance the organization. The millennial generation at work and their satisfaction feels the lack of coordination meetings and continuous work evaluations, so it is natural that their work responsibilities in personal work take precedence over work in the form of teams or organizational fields. The millennial generation in the job description of their respective job responsibilities already has a list of jobs according to their job achievements, as well as the connection between working the millennial generation working alone and individually, lack of togetherness. Melania generation in working individually, so that individuals work less optimally in this regard and become selfish in their own work. The millennial generation often makes mistakes in work contracts so that it affects the volume of work weight, for the millennial generation there are new and challenging jobs that they immediately take without thinking about the length of the impact. They tend to take risks when decisions are short on time which is their authority, in job satisfaction there is still overlapping of responsibilities and unclear instructions so that there is still behavior to avoid duties and responsibilities at work, the millennial generation assumes that all jobs must have risks for them. It's a normal thing, so that when they work and are still not firm enough, they take decisions or policies every time that hinders the target work that should be accomplished.

The millennial generation in their burdens and responsibilities, if there are activities in their unit or field, they usually look for safety and avoid risks. They prefer jobs that match their hearts or preferences and also new challenging jobs with new risks of responsibilities that are still not described. The millennial generation assumes that because work activities have been carried out in accordance with SOP and job descriptions and so they already

know what the risks will be and what needs to be done is to manage these risks, which will be accepted by the team, the field group, not their individual. on the importance of values that support work culture and lack of responsibility for the main tasks and functions. Their lack of understanding of this causes each individual to have unclear duties and responsibilities because the melanial generation lacks an understanding of organizational values, so that the melanial generation in interpreting the soul of the Corps has not been maximized, resulting in not feeling like they have the soul of the BUMN. the responsibility of the melanial generation is still the lack of comprehensive personal socialization about the value of BUMN and the lack of awareness of the millennial generation towards the concern of BUMN organizations. For the millennial generation, although socialization has been carried out and in textbooks, there are already clear guidebooks distributed to them, but in implementation it cannot be fully implemented because there is no understanding or lack of ability to carry out things that have become the provisions of applicable regulations and also carrying out herring activities have been carried out by the leadership every morning. The current condition of the melanial generation is required to work multitalented, have high integrity, master information.

However, implementation in organizations often lacks Human Resources even though BUMN are built based on prototypes based on decisions issued on the basis of government law. Therefore, as a logical consequence of the millennial generation, one of them is to provide support for making commitments and work achievement targets. Related the workplace for the melanial generation is too far from where they live, and even having to be separated from their family results in often being late for office attendance as well as problems with focusing at work. The millennial generation considers that their work is often delayed because the tasks given overlap due to lack of human resources, there are still many additional tasks and protocol activities so that the main tasks are disrupted. And for work attendance, be present at the time of entering working hours at 08.00 WIB. The melanial generation still lacks personal and non-organizational awareness to complete work effectively and efficiently, in group work it is still not dynamic at work. In terms of work, the millennial generation is used to procrastinating even though they already have a motto AKHLAK.

Rewards for Employees The millennial generation of BUMN considers the need to improve facilities and infrastructure to support work so that they can complete their duties and responsibilities. For the millennial generation, it is considered necessary to have additional honors at all levels or work positions such as work allowances, health in order to support the smooth running of activities that have been programmed, such as in terms of providing additional honorariums and improving health services and the need to improve welfare such as work allowances, job allowances, housing. official vehicles and other facilities. Employees of the millennial generation of BUMN need an adjustment in salaries and work benefits based on the current needs index, especially for the level of staff level, in order to minimize the gap in the provision of job responsibilities that exist between staff and structural/functional officials. They consider that the reward for submitting and receiving the bureaucratic process related to additional wages or honorariums is a long and cumbersome process. Employees of the Generation of State-owned Enterprises for inadequate salaries or allowances are not evaluated in comparison to their needs, competencies and daily living needs. The millennial generation of BUMN employees in terms of assignment allowances, transportation and official travel are still lacking for transportation needs and food costs at work. All activities require a clear and adequate budget, especially for supporting facilities for the implementation of work tasks both within the city and to the region, the promotion opportunity factor. To improve health services, the necessities of life and transportation are not optimal because the infrastructure is still minimal. Budget assignment to regions already there but still not good for the cost of lodging, transportation and meals. For the level of salary and honorarium still use the old rules so that they are still outdated and not updated, no new rules have been issued. Employees of the millennial generation of BUMN, current welfare, especially office allowances, are still lacking. Employees of the millennial generation of BUMN consider that there is still a lack of welfare related to official homes, official vehicles and personnel security. The absence of official residences and transportation equipment for employees to pick up and drop, especially for those who live far from the office. Employees of the millennial generation of BUMN consider the performance allowances between structural or functional staff and officials to be very different, so this is what causes a decrease in morale and job satisfaction. Employees of the millennial generation of BUMN feel that at this time welfare is quite adequate, but for support in work, it needs addition and rejuvenation.

Employee Promotion Opportunity Factors The millennial generation of BUMN is related to career development and education, it is in accordance with the quality and quantity of work carried out by each employee, the procedures and requirements are too difficult and long. All activities require a clear and adequate budget, especially for supporting facilities for the implementation of work tasks both within the city and to the region, the promotion opportunity factor. According to the employees of the millennial generation of BUMN, there are still

employees who are placed in one position that is not in accordance with their competence. There are still many employees who are 50 and 60 years old, where current conditions require them to understand and carry out activities related to the use of technology or IT because there are still many who are ignorant of technology, which is different from the millennial generation of BUMN employees who are fluent in using technology and understand the use of technology and IT. in support of carrying out their work duties. Due to the fact that there are still employee positions that are not in accordance with the expertise possessed because taking office takes time. The old one was because finally employees who were aged 50 years and over who served as leaders both structurally and functionally. This resulted in the interest of the Millennial Generation Employees of BUMN declining because they had to wait a long time to become leadership officials due to the work process.

The millennial generation of BUMN employees in terms of careers related to education, further development facilities for career paths are determined by education because they have to carry out their level of education so they have to spend money and time to support their positions and ranks. In the career process, there is still an official who occupies his current position but does not have expertise in that field, because the position must be filled immediately so that it seems forced. Or the position is occupied by a person close to the leadership so that the job is held by an honorary or contract employee. Employees of the millennial generation of BUMN in their careers when officials place certain positions, both structural and functional, must pass several requirements. However, when carrying out many activities that do not fulfill formally related to education, on the other hand there are positions that must be filled immediately, eventually many officials whose competencies are not in accordance with the positions they occupy. The existence of vacant positions is due to the requirements. Lack of formal competency certification staff. Lack of personnel in the fields that are in accordance with their positions so that they are less able to control that, lack of understanding of duties and responsibilities and individualism factors. There is still a long time and bureaucracy to move up the career level, which is felt by the millennial BUMN employees. There is still an unequal distribution of personnel in every field and department. For employees of the millennial generation of BUMN, in terms of career, there is no position and there is still a lack of socialization about understanding how to do it in terms of career paths. In career-related work activities in terms of position determination, it has not been assessed by achievement. In the work and career path process, human resources are adequate, but there are certain positions that are vacant so that the work of the vacant position is covered by other officials so that there is a term double job.

Supervision for Employees The millennial generation of BUMN believes that there are still leaders who always dictate the work of their subordinates, they are not given the trust of their subordinates, and in their work are orders without explaining and practising, leaders are still not firm in making decisions and do not dare to reprimand their subordinates and provide sanctions both formal and informal. there are still leaders who appoint certain people to complete work that contains resilience and avoids risk responsibility in completing the work. Leaders in placing personnel positions are very subjective, not based on the competence of the person, but even for factors of closeness and friendship. For employees of the millennial generation of BUMN, there are still leaders or superiors who tend to only command and sometimes the orders are not clear, so the staff will explain and perceive it themselves. There are also leaders of discipline and responsibility as well as visionary managers. There are still leaders who do not or do not understand their duties and responsibilities so that they have a unclear vision of goals. There is still a leader, what he says is not the same as what he does. There is a leader who deserves to be made a adapila pantan who only reprimands and orders his subordinates. Employees of the millennial generation BUMN are happy to see the behavior of the leader living a simple life but not being stingy with his subordinates or members of his work team. Employees of the millennial generation of BUMN leaders already have the principle of leading by heart, even though they have high strength and power, but there are still some who still don't understand power management. Leaders in making decisions lack coordination so that the results are less than optimal and tend to have errors. There are still leaders who are afraid to make decisions to advance the organization. An employee of the millennial generation of BUMN stated that the current leader has passed the fit and proper test and assessment, there should be no more leaders who are less assertive and afraid to make decisions and avoid the risks of their work responsibilities.

The Co-Worker Factor The millennial generation of BUMN is related to co-workers, there are still employees or co-workers who take over their authority which is not their authority. The placement of employee personnel is not evenly distributed so that sometimes it hampers the harmony of teamwork and the arena of ignorance or inability to carry out their work responsibilities. There is still work that should be done in teams but is done individually in making SPM decisions, this results in less than optimal work results and tends to have errors. In colleagues, it is necessary to increase work synergy and work behavior that supports each other between all fields and departments even though each section has a different work pattern. In coworkers doing work

assignments, there is still overlapping responsibilities which are reinforced by unclear job completion directions, so that coworkers are still looking for safety and avoiding risky job responsibilities. work assignments are not completed due to the absence of coworkers for reasons of being far away and not having transportation costs to attend the office. In the case of co-workers, if there are colleagues or personnel who are passionate about innovating in their work and helping to coordinate fellow fields and departmental units in doing team work, there are still those who highlight negative things such as projects and others that generate more money for individual benefits. . At the time of determining the work program plan, budget, etc., there is a system in which work targets must be submitted together in terms of access to different fields or departments which cannot be completed directly. In carrying out the main duties of co-workers, they continue to carry out work with good teamwork so that the achievement of work is quite good and solid. In co-workers, there is inequality in human resources in the organization, resulting in inefficiency in the main tasks and work being carried out, the cause of which is the lack of human resources and the lack of competence in human resources, resulting in inequality of human resources which results in inequality in working with co-workers.

V. CONCLUSION AND RECOMMENDATION

Based on the results of the research and discussion that have been described previously, the authors obtain the results as for some of the conclusions put forward with the core values of the BUMN AKHLAK Model, the characteristics of the millennial generation and job satisfaction are as follows:

a. There are research findings related to the core values of BUMN AKHLAK. The value of trust for employees of the millennial generation of BUMN in fulfilling promises and commitments is considered very important because they are afraid of not being trusted with their reputation but in reality it is sometimes difficult to do at work. Likewise in being responsible for tasks, decisions, and actions taken late to the office. moral and ethical values sometimes the millennial generation in carrying out work is carried out depending on the situation and conditions at that time, the millennial generation is related Competent understands in increasing self-competence to answer the ever-changing challenges in terms of work, as in helping others learn is still lacking due to the nature of individualism in work. The millennial generation in terms of harmony at work often has perceptions that result in misinformation. Millennial generation in work related to values Millennial generation loyalty can maintain the good name of fellow employees, leaders, BUMN, and the State but in everyday work it is still lacking, because it is related to individual interests and needs. For the millennial generation Adaptive is Innovation, Enthusiasm for change, and Proactive the millennial generation in working Quickly adapting to be better. The millennial generation in terms of collaboration, namely the willingness to work together and synergize to produce better results, is less felt due to the nature of its individualism and narcissism, overconfidence, which is too high and sometimes does not match its expectations in the real world.

b. There are research findings related to the characteristics of the millennial generation in job satisfaction. The work factor itself for employees of the millennial generation of BUMN, the quality of work that has expertise in the IT field is important, due to the demands of a job completion system using IT based. The millennial generation is able to complete their task. Rewards for Employees The millennial generation of BUMN considers the need to improve facilities and infrastructure to support work so that they can complete their duties and responsibilities. For the millennial generation, it is considered the need for additional honors at all levels or work positions such as work benefits, health in order to support the smooth running of activities. Employee Promotion Opportunity Factors The millennial generation of BUMN is related to career development and education, it is in accordance with the quality and quantity of work carried out by each employee, the procedures and requirements are too difficult and long. Supervision for Employees The millennial generation of BUMN believes that there are still leaders who always dictate the work of their subordinates, they are not given the trust of their subordinates, and in their work they are commanded without explaining and practising, leaders are still not firm in making decisions. The Co-Worker Factor The millennial generation of BUMN is related to co-workers, there are still employees or co-workers who take over their authority which is not their authority. The placement of employee personnel has not been evenly distributed so that sometimes it hampers the harmony of teamwork.

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Analysis of Economic Gap Between Districts in Bali Province in 2017-2021

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Abstract

The purpose of this study was to determine the development of economic disparities between districts in Bali Province in 2017-2021. The research used in this study is a quantitative research using secondary data type panel data. The results of this study indicate that only one variable that has no significant effect on economic inequality is GRDP. Labor Force Participation Rate, Human Development Index and Minimum Wage have a significant effect on economic inequality in the province of Bali in 2017-2021.

Keywords— Economic Inequality (Gini Index); Labor Force Participation Rate (LFPR); Minimum Wage; Human Development Index (IPM) and GRDP

I. INTRODUCTION

Economic inequality has become a common problem in a country, both developed and developing countries. The issue of economic disparities between regions has become a global phenomenon. Indonesia is one of the developing countries that has not been able to achieve financial stability. One of them is seen in the unequal distribution of people's income. If everyone gets the same share of the economy's production, payment is distributed perfectly evenly (Rahardja & Marunung, 2008). The impact of the occurrence of economic inequality can be a positive impact or a negative impact. The positive effects of economic inequality is that it can encourage other less developed regions to be able to compete and increase economic growth so that prosperity will be achieved. The negative impacts of economic inequality include economic inefficiency, weakening social stability and solidarity, and high inequality will be seen as unfair (Todaro, 2004). This negative impact will become a development problem in creating community welfare.

Noegroho and Soelistianingsing (2007), said that inequality also often occurs significantly in the province itself. Disparities between regions arise due to development that is concentrated at one point. Various programs developed to bridge the gap, both in terms of income distribution and regional disparities, have not produced significant results. In fact, development policies that are carried out to encourage economic growth can increase the gap in both income distribution and regional disparities.

As one of the regions with a fairly high distribution, Bali also experiences inequality in the acceleration of development between regions. The development carried out in the region aims to increase the income per capita of the people and catch up with the lagging economic growth compared to other regions. Since the Law on Regional Autonomy, districts throughout Indonesia have been trying harder and harder to develop their territories, which handed over autonomy down to the district/city level.

Table 1 Bali Gini Ratio Data For 2017-2021

province	Gini Ratio				
Bali	2017	2018	2019	2020	2021
	0,384	0,3774	0,3662	0,369	0,378

Data source BPS Bali Province

In table 1, it can be explained that the Gini index for the province of Bali for the last five years, namely 2017 to 2021, shows results that are still fluctuating, where the highest Gini index number in 2017 was 0.384 and then decreased in 2018 by 0.3774 then dropped again in 2019 of 0.3662 meaning that in these three years the development of the Bali Province Gini Index has shown good result because it is decreasing. Still this downward trend did not last long in 2020, the Bali Province Gini Index has increased by 0.369 and will continue in 2021 by 0.378. The data also shows that the Gini index for the province of Bali is still relatively low because it is still below 0.5 but has not shown a consistent trend towards significant development from year to year.

II. LITERATURE REVIEW

A. The Effect of Gross Regional Domestic Product on Economic Disparities

Previous research conducted by (Kurniati Mansyur1, et al., 2021) "Analysis of the Effect of Economic Growth, Investment and Government Expenditure on Inequality in Regional Development of South Sulawesi Province." The results of this study show that GDP is not significant to inequality. This is in accordance with the theory put forward by Todaro (2013) that in the early stages of economic growth, inequality tends to worsen, and in the next step, inequality will improve, but at one time there will be an increase in disparity again and finally down again.

B. The Effect of Labor Force Participation Rate (LFPR) on Economic Gap

Previous research conducted by (Riri Hana Salsabila, 2022) "Analysis of the Effect of Mining Activities, Road Length, Landfill, and Minimum Wage on Regional Inequality in Kalimantan Island in 2014-2019" and (Rara Min Arsyillah, 2019) "Analysis of the Role of Education and Employment Against Inequality in Indonesia's Income Distribution (Case Study of 34 Provinces in Indonesia 2013-2017)". This study indicates that the level of labour force participation is positively and significantly related to the inequality of income distribution in 34 provinces in Indonesia. The results of this study are under research that states that the level of labor force participation has a positive and significant effect on income inequality. As the number of working-age population increases, the number of workers in the workforce increases. An increased labour force participation rate is predicted to be able to increase the resulting output with the assumption that an increase in productivity levels accompanies an increase in the number of works. If the work produced increases along with the increase in productivity, it would be able to increase income and reduce income inequality.

C. The Effect of Human Development Index on Economic Gap

Previous research conducted by (Aliyah izza pradipta and Riko setya wijaya, 2022) "Factors Affecting Income Inequality through Economic Growth in the Province of the Special Region of Yogyakarta", and (Maria Agape, et al., 2022) Analysis of the Effect of Microfinance Institutions and the Index Human Development Against Income Inequality in Indonesia. Research result can be explained that during the years 2007 – 2021, the human development index did not have a significant effect on income inequality. This means that with the increase in the human development index in Yogyakarta Province, inequality will decrease.

D. The Effect of Minimum Wage on Economic Gap

Research conducted by (Rosita Juliana, Aris Soelisty, 2019) "Analysis of the Effect of Economic Growth, Population, Pad, IPM, and MSE on Inequality in Banten Province" and (Alifia Nadia Tsamara, Agus Suman, 2021) "Analysis of the Effect of Agglomeration, Infrastructure, Minimum Wage, Number of Working People, and Human Development Index on Inequality of Income Distribution Between Regencies/Cities of East Java". The results of the MSE research have no significant effect on inequality. The structure of the Javanese workforce is dominated by the agricultural, plantation, forestry, hunting and fishing sectors, most of which are casual workers and not under contract, so the impact of the minimum wage policy cannot be felt. Then workers in the non-industrial sector must accept the result of the continued increase in the price of basic needs so that workers cannot meet their basic needs. This phenomenon makes the minimum wage which was initially expected as a solution to, become one of the causes of inequality in income distribution.

III. RESEARCH METHODOLOGY

To determine the magnitude of the influence of an independent variable on the dependent variable, this study used a Multiple Linear Regression model with panel data. The dependent variable in this study is economic inequality as measured by the Gini Index (GI), while for the independent variables there are 4 namely GRDP, Labor Force Participation Rate (LFPR), Human Development Index (HDI) and Minimum Wage. This study takes the Province of Bali as the area to be studied between 2017-2021. The analytical tool used in this research is panel regression analysis, with a model estimation as follows:

$$GR = \beta_0 + \beta_1 LFPR_{it} + \beta_2 LOGMW_{it} + \beta_3 HDI_{it} + \beta_4 LOGGRDP_{it} + \varepsilon_{it}$$

Where the description is :

GR : Gini Ratio / Economic Gap (Index Number)

$LFPR$: Labor Force Participation Rate (Percent)

MW : Minimum Wage (Percent)

HDI	: Human Development Index (Index)
GRDP	: Gross Regional Domestic Product (Percent)
ε	: Error Term
β_0	: Constant
$\beta_1 ... \beta_4$	: Independent Variable Coefficient
i	: Region (7 districts/cities in the province of Bali)
t	: Year (2017-2021)

IV. RESULT / FINDING

Table 2. The result of panel estimation using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM)

Table 2. Panel Data Regression Results

Variabel	Koefisien Regresi		
	CEM	FEM	REM
C	1.035182	0.689687	0.815257
LOGGRDP	-0.008830	-0.000609	-0.001280
LFPR	-0.000487	0.003448	0.002919
HDI	0.001650	-0.001542	0.003067
LOGMW	-0.048353	-0.035082	-0.063223
R^2	0.058848	0.810349	0.258404
Adjusted. R^2	-0.066639	0.731328	0.159524
Statistik *F*	0.468958	10.25482	2.613321
Prob. Statistik *F*	0.758022	0.000002	0.055028

A. Test Selection of Estimated Model

Chow and test test Hausman used for choose the estimated model best between CEM, FEM, and REM. If on Test the selected model Chow is FEM and on Test Selected Hausman model also FEM then the model is estimated best is FEM.

Table 3.Results Estimate Chow test
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.905796	4	0.0951

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(PDRB)	-0.000609	-0.001280	0.000007	0.8065
TPAK	0.003448	0.002919	0.000000	0.0781
IPM	-0.001542	0.003067	0.000136	0.6924
LOG(UM)	-0.035082	-0.063223	0.004915	0.6881

Table 4. Results Estimate Test Hausman
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.905796	4	0.0951

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(PDRB)	-0.000609	-0.001280	0.000007	0.8065
TPAK	0.003448	0.002919	0.000000	0.0781
IPM	-0.001542	0.003067	0.000136	0.6924
LOG(UM)	-0.035082	-0.063223	0.004915	0.6881

Periods included: 5
Cross-sections included: 7
Total panel (balanced) observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.689687	0.459075	1.502342	0.1461
LOG(PDRB)	-0.000609	0.007121	-0.085578	0.9325
TPAK	0.003448	0.001058	3.258174	0.0033
IPM	-0.001542	0.011894	-0.129653	0.8979
LOG(UM)	-0.035082	0.076932	-0.456007	0.6525

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.810349	Mean dependent var	0.321289
Adjusted R-squared	0.731328	S.D. dependent var	0.028262
S.E. of regression	0.014649	Akaike info criterion	-5.357550
Sum squared resid	0.005151	Schwarz criterion	-4.868727
Log likelihood	104.7571	Hannan-Quinn criter.	-5.188809
F-statistic	10.25482	Durbin-Watson stat	2.657656
Prob(F-statistic)	0.000002		

Kota/Kabupaten	Effect	Konstanta
Kab. Jembrana	-0,000188	1,034994
Kab. Tabanan	0,006183	1,041365
Kab. Badung	0,039537	1,074719
Kab. Klungkung	0,048409	1,083591
Kab. Bangli	-0,061191	0,973991
Kab. Karangasem	-0,020484	1,014698
Kab. Buleleng	-0,012268	1,022914

V. DISCUSSION

The GDP variable has a regression coefficient of 0.000609 which has no significant effect, with a probability value of t of 0.9325 > (0.1). The GDP variable does not affect the Gini ratio in the province of Bali in 2017-2021. The results of the cross section panel data estimation using the Fixed effect model method shows that the GDP variable has an insignificant effect on the Gini ratio in Bali Province in 2017-2021. This is by previous research conducted by (Kurniati Mansyur1, et al., 2021) "Analysis of the Effect of Economic Growth, Investment and Government Expenditure on Inequality in Regional Development of South Sulawesi Province." The results of this study show that GDP is not significant to inequality. This is under the theory put forward by Todaro (2013) that in the early stages of economic growth, inequality tends to worsen, and in the next step, inequality will improve, but at one time there will be an increase in disparity again and finally down again.

The labor force participation rate variable has a regression coefficient of 0.003448, which has a significant effect, with a probability value of t of 0.0033 < (0.01). The labor force participation rate variable affects the Gini ratio in the province of Bali in 2017-2021. The results of the cross section panel data estimation using the Fixed effect model method show that the GDP variable has a significant influence on the Gini ratio in Province Bali in 2017-2021. This is under previous research conducted by (Riri Hana Salsabila, 2022) "Analysis of the Influence of Mining Activities, Road Length, Landfill, and Minimum Wage on Regional Inequality in Kalimantan Island in 2014-2019" and (Rara Min Arsyillah, 2019) "Analysis of the Role of Education and Employment on the Inequality of Income Distribution in Indonesia (Case Study of 34 Provinces in Indonesia 2013-2017)". The results of this study indicate that the level of labour force participation is positively and significantly related to the inequality of income distribution in 34 provinces in Indonesia. The results of this study are in accordance with research which states that the level of labour force participation has a positive and significant effect on income inequality. As the number of working age population increases, the number of workers in the workforce increases. An increased labour force participation rate is predicted to be able to increase the resulting output with the assumption that an increase in the number of workers is accompanied by an increase in productivity levels. If the output produced increases along with the increase in productivity, it will be able to increase income and reduce income inequality.

The human development index variable has a regression coefficient of -0.001542 which has no significant effect, with a probability value of t of 0.8979 > (0.1) then the percentage reduction variable has no effect on the Gini ratio in the province of Bali in 2017-2021. Based on the results of the cross section panel data estimation using the Fixed effect model method, it shows that the GDP variable has an insignificant effect on the Gini ratio in Province Bali in 2017-2021. This is in accordance with previous research conducted by (Aliyah izza pradipta and Riko setya wijaya, 2022) "Factors Affecting Income Inequality through Economic Growth in the Province of the Special Region of Yogyakarta", and (Maria Agape, et al., 2022) Analysis of Institutional Influence Microfinance and Human Development Index of Income Inequality in Indonesia. The results of the research can be explained that during the years 2007 – 2021, the human development index does not have a significant effect on income inequality. This means that with the increase in the human development index in the Province of Yogyakarta, inequality will decrease.

The minimum wage variable has a regression coefficient of -0.035083 which has no significant effect, with a probability value of t of 0.6525 > (0.1) then, the minimum wage variable has no effect on the Gini ratio in the province of Bali in 2017-2021. The results of the cross section panel data estimation using the Fixed effect model method shows that the GDP variable has an insignificant effect on the Gini ratio in Province Bali in 2017-2021. This is under previous research conducted by (Rosita Juliana, Aris Soelisty, 2019) "Analysis of the Effect of Economic Growth, Population, Pad, IPM, and MSE on Inequality in Banten Province" and (Alifia Nadia Tsamara, Agus Suman, 2021) "Analysis of the Influence of Agglomeration, Infrastructure, Minimum Wage, Number of Working People, and Human Development Index on Inequality of Income Distribution Between Regencies/Cities of East Java". The results of the MSE research have no significant effect on inequality. The structure of the Javanese workforce is dominated by the agricultural, plantation, forestry, hunting and fishing sectors, most of which are casual workers and not under contract, so the impact of the minimum wage policy cannot be felt. Then workers in the non-industrial sector must accept the result of the continued increase in the price of basic needs so that workers cannot meet their basic needs. This phenomenon makes the minimum wage, initially expected as a solution, become one of the causes of inequality in income distribution.

The constant value of each Regency/City in the Province of Bali in 2017-2021 is known. About the influence of the independent variable on the dependent, there is a Regency/City with the Gini ratio with the highest intensity, namely Klungkung Regency with a constant value of 1.083591, which means that when all independent variables are considered missing or zero, the Gini ratio in the Regency/City of Bali of 1.083591. The second is Badung

Regency, with a constant value of 1.074719, which means that when all independent variables are considered missing or zero, the Gini ratio in Badung Regency/City is 1.074719. Finally, the lowest area is Bangli Regency/City, with a constant value of 0.973991, which means that when all independent variables are considered missing or zero, the Gini ratio in Bangli Regency/City is 0.973991.

VI. CONCLUSION AND RECOMMENDATION

From the results of the study, it can be concluded that based on the data processing that has been carried out, it is stated that 3 independent variables do not significantly affect the economic gap in the province of Bali in 2017-2021, namely, Gross Regional Domestic Product (GRDP), Human Development Index (HDI), Minimum Wage, meanwhile there is only one variable that has a significant effect, namely the Labor Force Participation Rate (LFPR).

This research indeed aims to find out how much influence the variables of Gross Regional Domestic Product (GRDP), Human Development Index (HDI), Minimum Wage, and Labor Force Participation Rate (LFPR) have on economic inequality in the province of Bali in 2017-2021. From the results discussed previously, it can certainly be a recommendation, for the Bali provincial government as the authority in making policies to alleviate and overcome the problem of economic inequality. Therefore, the government must focus on increasing the development of variables that have a significant effect on economic inequality without forgetting other variables that do not have a substantial impact in data.

This research is not perfect, and there are still many shortcomings at the same time becomes a recommendation for further researchers to look for other variables to find out how much influence they have on income inequality so that it will add research references to be used as a reference for the government in policy-making.

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Regulation Study of Implementation Digital Trade in Indonesia

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Abstract

The internet is one gateway for the emergence of various technologies that can support human life to be more effective and efficient. One example is digital trade. Digital trade has a very positive impact on Indonesia's economic growth, however there are no integrated regulations or policies between sectors to be able to develop digital trading in Indonesia. Therefore, in this study, a normative juridical analysis will be carried out using primary and secondary legal materials based on a conceptual approach and legislation or other research by formulation of the problem using the latest regulation in Indonesia such as Undang-Undang Cipta Kerja. In addition, this research will also conduct benchmarking on digital trading systems in several other countries. Several points analyzed in this study include the role of the government in digital trade, mapping existing regulations, and the digital trading system. The result from this research is that the institutional arrangement regarding Indonesian digital trading can be carried out using the approach previously carried out in Korea where the Ministry of Trade can collaborate with several organizations to create digital trade in Indonesia, starting from organizations that deal with foreign trade, domestic trade, MSMEs, and economic digitization. However, in its implementation, related institutions must continue to follow the existing regulations that apply in Indonesia in accordance with the mapping regulation.

Keywords— Digital Commerce; e-commerce; law

I. INTRODUCTION

The internet is one example of the results of information and communication technology development. Based on data from the Indonesian Internet Service Provider Association (APJII), in 2019-2020, Indonesia was one of the countries with the most significant growth in the number of internet users globally, with an increase of 8.9% [1]. One example of how many internet users will impact the digitization of the Indonesian people is in the trade sector. Based on data from We are Social, many people use the internet to find items to buy with a percentage of 93%, opening a retail store online at 90%, and online shopping at 88% [2]; this affects the Gross Domestic Product (GDP) and the number of jobs in Indonesia. The Oxford Economics report states that a one percent increase in mobile penetration will add $640 million to Indonesia's GDP and create 10,700 jobs by 2020 [3]. Therefore, the Indonesian government has carried out several activities that support the digital economy in Indonesia, including the Go Digital and Go Global MSME programs. MSMEs themselves contribute 97% of the current total workforce and can collect up to 60.42% of the total investment. However, the lack of utilization of e-commerce in trade transactions in Indonesia resulted in low export capabilities, which only reached 14.37% of total exports [3].

The digitization process will undoubtedly involve various parties, such as technology owners and policymakers. The policies contained in the regulations will always be the main issue, mainly if they apply new technology, but what must be considered is how the Government and related parties can formulate adaptive rules. The government has an essential role in digital trade in Indonesia. Currently, there are no integrated regulations or policies between sectors to be able to develop digital trading in Indonesia. Previously, research was conducted on the urgency of updating digital trade regulations using normative juridical analysis methods. This study explained that the ITE Law had not technically regulated consumer protection [4].

Furthermore, there is a policy brief regarding the development and regulation of e-commerce in Indonesia, which aims to support the growth of e-commerce in Indonesia in line with technological innovation [5]. Therefore, this analysis will discuss the scope of government authority in digital trade based on the current law. This research will use a normative juridical method. Thus, the government is expected to be able to formulate and develop policies that are effective, adaptive, and responsive in managing digital trade.

II. Literature Review

A. Definition of Trade

Trade is exchanging goods or services through market mechanisms that involve consumers and producers [6]. In act Number 7 of 2014, the definition of trade is the arrangement of activities related to transactions of goods or services within the country and beyond national borders to transfer rights to goods or services to obtain compensation or compensation [7]. Based on the scope, trade has two, namely foreign trade and domestic trade. Trade has nine business models [8]. They are Business to Business (B2B), Business to Consumer (B2C), Consumer to Consumer (C2C), Consumer to Business (C2B), Business to Government (B2G) or known as Business to Administration (B2A), Government to Consumer (G2C) or Government to Citizen, Consumer to Government (G2C), Government to Business (G2B), and Government to Government (G2G) [8].

B. Digitization

Digitization is converting from the physical form into bits, where the bits contain information units. Digitization can also represent changing the physical structure of printed documents into digital documents [9]. Advances in technology today lead to rampant digital transformation. Digital transformation can be influenced by several factors, for example, the current COVID-19 pandemic. The existence of a pandemic has caused the government to issue regulatory rules related to changing face-to-face activities to online. Other factors are changes in the competitive landscape, changes in consumer behavior and expectations, and changes to the digital form of the industry, where the use of digital platforms and the internet is a must if the industry is to survive [10]. The following are the positive and negative impacts of digitization. The positive impact from digitazion are increase distribution channels, ease and convience for digital platform users, increase productivity and efficiency for more innovative and lower cost, and the creation of data integration. The negative impact from digization are reducing HR dependency, increase inequality and creating new marginalization, job opportunities are getting smaller, The service sector will be more developed than the manufacturing sector, and Digitization that is not properly prepared can potentially increase forests which can lead to an economic crisis [10].

C. Digital Trading

Based on sources from the Organization for Economic Co-Operation and Development (OECD), digital trade means trade sent digitally, both internationally and nationally. Meanwhile, according to the World Trade Organization (WTO), digital trading has become inherent in society because it makes it easy to access tricky markets daily. There are five business models in digital commerce. Such as Marketplace connects sellers and buyers in one digital place, Advertising connects advertisers with digital media owners, Infomediary connects consumers with curated information that is specific and valuable, Utility/On-Demand is a business model where the cost is adjusted to the service used, and Subscription is a business model that charges consumers a specific fee for using the services offered. Trading done conventionally is undoubtedly different from that done digitally. The characteristics of digital trading include:

Table 1. Digital trading characteristics

Characteristics	Value
High Connectivity	The use of digital technology to connect several parties in digital commerce will lead to higher connectivity, this will make interactions between partners and customers easier.
No geographic limitations	With digital trade, physical boundaries do not become a barrier to trade, so digital trade can support global trade.
Low switching costs	Customers can switch businesses at lower costs due to low disbursement costs through accessible and comparable information.
Transparency of customer behavior	Digital commerce can help merchants to know their consumer behavior through the data they have. The amount of data obtained can affect the accuracy of the analysis.
Low transaction fees	In digital commerce the costs for customer transactions are low because there are reductions in certain things such as coordination costs and geographic barriers

Vulnerable to price discrimination	Price discrimination in digital trade will arise if digital businesses charge different prices based on the wishes of their consumers. In this case, the company can collect more and better information about the characteristics of consumers.

Source: Smart Enterpreneurship Peluang Bisnis Kreatif dan Inovatif di Era Digital.

D. Trade-related Regulations

The following are some of the laws that regulate digital trade, including The Act No. 19 of 2016 concerning Information and Electronic Transactions, The Government Regulation No. 80 of 2019 concerning Trading Through Electronic Systems, The Ministry of Trade Regulation No. 50 of 2020 regarding Provisions for Business Licensing, Advertising, Guidance, and Supervision of Business Actors in Trading Through Electronic Systems, The Act No. 11 of 1965 concerning the Stipulation of Government Regulation in Lieu of Act No. 5 of 1952 concerning Amendments to Act No. 2 PRP of 1960 concerning Warehousing (State Gazette of the Republic of Indonesia of 1962 No. 31) became Act No. 2 of 1981 concerning Legal Metrology, The Act No. 3 of 1982 concerning Mandatory Company Registration, The Act No. 7 of 1994 concerning Ratification of the Agreement Establishing The World Trade Organization, The Act No. 32 of 1997 concerning Commodity Futures Trading, The Act No. 8 of 1999 concerning Consumer Protection, The Act No. 9 of 2011 concerning the Warehouse Receipt System, The Act No. 7 of 2014 concerning Trade, The Government Regulation No. 7 of 2021 concerning Empowerment of Cooperatives and Micro, Small and Medium Enterprises, The Government Regulation No. 29 of 2021 concerning the Implementation of the Trade Sector, The Act No. 20 of 2008 concerning Micro, Small and Medium Enterprises, The Act No. 8 of 1999 concerning Consumer Protection.

III. Research Methodology

In this study, an analysis of the scope of government authority in digital trade will be carried out based on current regulations using normative juridical research methods. The normative juridical research method is research conducted using primary and secondary legal materials normative based on a conceptual approach and legislation or other research by the problem formulation. The first stage will be a literature study. Materials or data used in literature studies came from primary and secondary legal materials. Primary legal materials consist of the 1945 Constitution of the Republic of Indonesia, Government Regulations, and Ministerial Regulations. Secondary legal materials came from studies of research results, books, scientific journals, jurisprudence, and other library materials that discuss electronic-based government systems. To analyze primary and secondary legal materials using qualitative methods with the triangulation method. The triangulation method is comparing existing data or information in different ways. The author interviewed one of the resource persons who worked in the government agency of the ministry of trade to discuss digital trade. A comparative study of secondary data related to digital trade regulation in several countries was also conducted to understand the forms of law and institutions. Thus, the Government is expected to be able to formulate and develop policies that are effective, adaptive, and responsive in managing digital trade.

IV. Result/Finding

A. Terms of Digital Commerce and Digital Economy

There are other forms of trade development, namely digital trading or trading in the state or through electronic systems. In practice, every business actor who trades goods or services using an electronic system is required to provide complete and correct data or information. Selling through electronic systems is included in the category of electronic system operations. Certain conditions must follow in its implementation, including electronic system operations required to register both in public PSE and private PSE. The process of the electronic system must meet the reliability certification standards in meeting the technology standards used. The operation of the electronic system must meet regulatory standards regarding data and personal data protection standards.

In the regulation, no regulation defines digital trade. Still, there is already a similar approach in existing laws, namely trading through electronic systems as regulated in Act Number 7 of 2014 concerning trade and Presidential Regulation Number 80 of 2019 concerning Trading Through Electronic Systems (PMSE). In PMSE, they traded through a new world order, namely cyber, using the internet network. This new world order will certainly have an impact on related regulations. With trade carried out by the parties involved, the object of trade and other arrangements will impact the applicable law. The law applies to the place, and mechanism of trade carried out in a cyber world that is not visible to the naked eye.

B. Digital Trading Benchmark Analysis

Digital trade has been made before in several countries with various policies that apply in their respective countries. Digital commerce in Indonesia has yet to find a bright spot regarding the procedures and institutional forms. While learning material about digital trade in several countries that have implemented digital commerce first, benchmarking can be done to obtain input information regarding the systematic implementation of digital commerce in their country. The benchmarking shows whether the systematic development of digital trade in several countries had previously been implemented in Indonesia or not. Australia, South Korea, Malaysia, and Singapore choose to benchmark countries in this study. The reason for selecting these countries is the similarity of the system of government or systematic regulation adopted in Indonesia.

1. Australia

Digital trade is under the supervision of the Department of Foreign Affairs and Trade (DFAT) precisely at the Ministry for Trade, Tourism, and Investment. Australian Trade and Investment (Austrade) is a unique agency under DFAT that has duties in conventional trade and digital trade and reports directly to the Ministry for Trade, Tourism, and Investment. DFAT has the task of working with international partners and other countries to address global challenges, increase trade and investment opportunities, protect international rules, maintain regional stability and assist Australian Citizens overseas. Australia has several e-commerce negotiation agreements and discussions regarding trade. One of the agreements, the World Trade Organization (WTO), contains commitments relevant to e-commerce, namely the Trade Facilitation Agreement (TFA).

2. South Korea

Korea has promoted establishing a digital technology-based paperless trading system by 2020. In this context, Korea uses a mix of definitions from "trade automation," "electronic trade," and "digital trade" to "electronic commerce," which refers to all types of online transactions. The Ministry of Trade, Industry, and Energy (MOTIE) is committed to providing a foundation for economic growth by combining efforts to fulfill various responsibilities in trade, investment, industry, and energy. Small business actors in Korea are under the supervision of the Ministry of SME and Startups (MSS). Both MOTIE and MSS have affiliations with several organizations to promote trade in Korea. The Korea Fair Trade Commission also regulates digital trade in Korea. In the regulation, there is a provision that anyone who sells products or services using telecommunication services must comply with the rules of the Fair Trade Commission. In addition, online businesses must also comply with the requirements under the Personal Information Protection Act (PIPA) when collecting, using, or transferring personal data online.

3. Malaysia

The Ministry of International Trade and Industry (MITI) is the Ministry of Malaysia responsible for international trade, industry, investment, productivity, small and medium enterprises, development of financial institutions, halal industry, automotive, steel, and strategic trade. In November 2020, the National Council on Digital Economy and Fourth Industrial Revolution were formed under the management of the prime minister and the highest government to decide policies, implement, and monitor digital strategies and economic initiatives that drive the digital transformation agenda in Malaysia. MITI has several institutions, namely Malaysia External Trade Development Corporation (MATRADE), Malaysian Investment Development Authority (MIDA), Malaysia Productivity Corporation (MPC), Malaysian Industrial Development Finance Berhad (MIDF), Malaysia Automotive Robotics and IoT Institute (MARii), Malaysia Steel Institute (MSI), SIRIM, EXIM Bank (Export-Import Bank of Malaysia Berhad), Position Standard Malaysia, and InvestKL. In terms of trade, MATRADE is responsible for establishing Malaysia as a competitive and globally renowned trading nation. MITI has several institutions and works together in carrying out their respective main tasks to overcome gaps and discrepancies in the problems faced in the industry. In addition, it can also improve the capabilities and competencies of available human resources. Institutions that have the main task in trading, such as MIDA, MATRADE, and InvestK, also continue to promote trade and investment activities through various digital platforms.

4. Singapore

The Ministry of Trade and Industry (MTI) Singapore has cooperation agreements with several countries to build digital trade and increase the country's economic value. Through the Digital Economy Agreement (DEA)

with critical partners, Singapore hopes to develop an international framework to promote interoperability of standards and systems that support businesses, particularly SMEs, through digital commerce and electronic commerce. DEA aims to lower operating costs, increase business efficiency, and create more accessible access to foreign markets. To build opportunities for companies in the digital economy, the government, through MTI, the Ministry of Communication and Information (MCI), and IMDA, collaborated in negotiations with key partners for DEA. IMDA aims to build a competitive and sustainable media Infocom industry, developing Singapore as a core for media content, services, and applications while cultivating the seeds of technological innovation and fostering collaboration between local and multinational companies in the sector.

By doing benchmarking on digital trade, lessons learned will be obtained, which will be discussed for approaches and risk mitigation in preparing the implementation of trade institutions in Indonesia, including:

a. In advancing digital commerce, the Australian government has several agreements and negotiating discussions regarding e-commerce. The government works closely with the ministry to discuss digital trade or digital economy policies. The single window facility in Australia helps make it easier for Australian businesses to enter foreign markets. The Indonesian government can consider using a single-window to cut the bureaucracy for licensing trade administrations abroad.

b. The South Korean government has several organizations ranging from ministries to startups that focus on trade, with this approach that the contribution of startups can support the growth and development of SMEs in Indonesia healthily.

c. MITI Malaysia has several institutions that oversee the management of the prime minister and the highest government to decide policies, implement, and digital monitor strategies and economic initiatives that drive the digital transformation agenda in Malaysia. By taking this approach in the preparation of institutions in Indonesia, there is an increase in cooperation in implementing the export of goods and services to foreign countries through e-commerce to increase the value of the Indonesian economy.

d. Singapore also has DEAs with several countries to promote interoperability of standards and systems and support businesses, particularly SMEs, to engage in digital commerce and electronic commerce. By taking this approach, Indonesia not only focuses on increasing digital trade transactions but also prepares optimal human resources to maximize and accelerate digital trade.

C. The Government's Role in Acceleratting Digital Trade in Indonesia

It is necessary to pay attention to digital trading positions in the regulatory aspect. So that their roles and duties are essential to be discussed, including:

1. Institutions and organizers that regulate digital commerce

The digital trade regulation approach can be through PMSE regulation. In Government Regulation Number 80 of 2019 concerning PMSE, trade can be completed by several parties, namely business actors, consumers, individuals, and state administrative agencies, following laws and regulations. PMSE also has domestic and foreign business actors consisting of PMSE organizers (platform organizers, traders, and intermediary providers). However, it is necessary to pay attention to domestic and foreign business actors in PMSE operators because it is necessary to distinguish between PMSE actors and digital trade. After all, the definition of digital trade is broader than the scope of PMSE. However, digital trade is part of the legal environment and trade ecosystem from a regulatory perspective. There are several parties whose functions in making digital trade regulations. They are The existence of the government as a maker of trade governance and policy, The presence of a regulator who becomes the judge or executive in the digital trading system, The existence of business actors who are the organizers of digital trade, and The existence of consumers as a user or affected by digital commerce.

The four parties in the digital trade ecosystem have their respective duties and functions, referring to several regulations in Indonesia. The Act No. 38 of 2009 concerning State Ministries explains the government. From rules, the Role of the government is the president where the compiler of governance and regulations in digital trade. However, the ministry will help the task, which has responsibilities in the regulatory environment of trade law. For this reason, it is necessary to look at the regulations regarding the Presidential Decree regarding the Ministry of Trade. Let's look at the duties and functions of the Ministry of Trade. The Ministry of Trade has roles and responsibilities in regulating, compiling governance and regulations, and fostering the legal environment of the entire trade process. Although it does not explicitly mention the legal environment of trading through the

electronic system, mutatis mutandis has become the duty and function of the Ministry of Trade because the regulation of the trading system through the electronic system has been stated in Law Number 7 of 2014 concerning trade in articles 65 and 66. The rule says that the minister is the ministry that carries out government functions in the trade sector. Therefore, be born Government Regulation Number 80 of 2019 concerning Trading Through Electronic Systems (PMSE).

2. Regulation about Data

Presidential Regulation Number 39 of 1999 concerning One Indonesian Data (SDI) telling about data. In practice, data on digital commerce is both physical and electronic. Electronic data is data in electronic form, which is not limited to writing, sound, pictures, maps, designs, photographs, Electronic Data Interchange (EDI), and electronic mail. In Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems, the data structure consists of strategic data and non-strategic data. Data regulation in digital trade needs to be regulated, including the definition of data, data types, data retention, interoperability, organizational structure, data as electronic evidence in court, and data centers. Presidential Regulation Number 71 of 2019 manages data types, data structures, data retention, and personal data. Government Regulation Number 80 of 2019 concerning PMSE regulates the retention of financial and non-financial data, how to transfer PMSE data between platforms and between countries, and personal data in PMSE. Data interoperability has not been regulated in Indonesian regulations, even though it is essential to implement digital trade, where data between one service and another, whether private or public, can be cross-connected and shared.

3. Regulations on licensing in Digital Trading System

Government Regulation Number 5 of 2021 concerning Risk-Based Licensing states, "A business license is a legality granted to business actors to start and run their business or activities. A risk-based business license is based on the level of business activity risk". The risk-based business license has stages: an essential permit and a technical permit. If the process is declared complete, the business actor can carry out-licensing through one door, One Single Submission (OSS). The OSS licensing system is the responsibility of BKPM/Ministry of Investment and permits will be issued according to the ministry authorized to publish them. This licensing system makes it very easy for digital trading system operators because the charged ministry issues permit a more accessible mechanism—supervision of the licensing system only from one door through a digital platform. However, implementing this licensing system must be supported by a reliable electronic system and data center by the standard data interoperability mechanism between digital trade actors.

4. Mapping of Existing Regulations on Digital Trade

The mapping of regulations regarding digital trade can be seen in the table below.

Table 2. Regulation mapping.

Regulation	Information
UU No.11 tahun 2008 tentang Informasi dan Transaksi Elektronik (UU ITE) UU No. 19 Tahun 2016 tentang Informasi dan Transaksi Elektronik	An electronic Transaction is a legal action carried out using a computer, computer network, or other electronic media. So broadly speaking, these regulations intersect with the implementation of digital trade because digital trade is a transaction that uses electronic media.
PP No. 71 Tahun 2019 tentang Penyelenggraaan Sistem elektronik	Digital trade includes implementing an electronic system so that it must comply with applicable laws in its implementation.
UU No. 36 Tahun 1999 tentang Telekomunikasi PP No. 52 tahun 2000 tentang Penyelenggaraan Telekomunikasi PP No. 53 tahun 2000 tentang Frekuensi dan Satelit PP No. 46 tahun 2021 tentang Postel siar	Telecommunications operations must have a permit from the central government. Telecommunications operators consist of: operation of telecommunication network consisting of fixed network and mobile network The operation of telecommunications services consists of essential telephony services, value-added telephony services, and multimedia telephony services. In its implementation, transactions in digital trade will use telecommunications networks or services, so there must be permission from the central government regarding telecommunications providers.

PM Kominfo Nomor 5 tahun 2021 tentang Penyelenggaraan Telekomunikasi	
UU No. 7 tahun 2014 tentang Perdagangan	Trading through the electronic system is part of the trading system regulated in the Trade Law.
PP No. 80 tahun 2019 tentang Perdagangan Melalui Sistem Elektronik	The parties, by the provisions of the legislation, can conduct PMSE. In working PMSE, complying with data regulations related to data types, personal data, and data retention is mandatory.
PM Kemendag No. 50 Tahun 2020 tentang Ketentuan Perizinan Usaha, Periklanan, Pembinaan, dan Pengawasan Pelaku Usaha Dalam Perdagangan Melalui Sistem Elektronik	This regulation focuses on the provisions of business licensing, advertising, coaching, and supervision of business actors for business actors involved in digital trade.
UU No. 11 tahun 2020 tentang Cipta Kerja	The derivative regulations of Law No. 11 of 2020 regarding omnibus law related to digital trade include: PP No. 29 tahun 2021 tentang Penyelenggaraan Bidang Perdagangan, PP No. 5 tahun 2021 tentang Penyelenggaraan Perizinan Berbasis Risiko, Peraturan Pemerintah Republik Nomor 6 Tahun 2021 Indonesia Penyelenggaraan Tentang Perizinan Berusaha di Daerah, Peraturan Pemerintah Republik Indonesia Nomor 7 Tahun 2021 Tentang Kemudahan, Perlindungan, Dan Pemberdayaan Koperasi Dan Usaha Mikro, Kecil, Dan Menengah, PP No. 46 tahun 2021 tentang Pos, Telekomunikasi, dan Penyiaran..
UU No. 23 tahun 2014 tentang Pemerintahan Daerah	Digital Trade or PSME is part of the trade, a government affair regulated in UU No. 23 Tahun 2014 pasal 12.
UU No. 8 tahun 1997 tentang Dokumen Perusahaan	Based on the regulation, the retention of company documents is ten years. It has the same meaning as participating companies selling through digital commerce.
UU No. 43 tahun 20 tentang Kearsipan	The parties who join in digital trade must comply with these regulations to ensure civil rights protections.
UU No. 8 tahun 1999 tentang Perlindungan Konsumen	The regulation also applies to consumers who buy products or services through digital commerce.
UU No. 5 tahun 1999 tentang Larangan Praktek Monopoli dan Persaingan Usaha Tidak Sehat	These regulations are needed to avoid monopolistic practices and unfair business competition between players or sellers in digital trade.
UU No. 30 tahun 1999 tentang ADR dan Arbitrase	The resolution of disputes or differences of opinion in digital trade can be through a disputed approach outside the court.
UU No. 28 Tahun 2007 tentang Ketentuan Umum dan Tata Cara Perpajakan	These regulations are needed to know the procedures for digital trade taxation rules.
UU No. 36 Tahun 2008 tentang Perubahan Keempat Atas UU Nomor 7 Tahun 1983 tentang Pajak Penghasilan	The regulation on PPH and who is a taxpayer in digital trade needs to be defined by adjusting the legislation's provisions.
UU No.40 tahun 2007 tentang Perseroan Terbatas	The procedure for establishing a Limited Liability Company includes that more than one person founded the company, and the responsibility of the founders is limited to the shares paid up.
UU No 3 tahun 1982 tentang Wajib Daftar Perusahaan	Mandatory Company Registration explains that the purpose and nature of Mandatory Company Registration are to record correct information materials from a company and constitute an official source of information for all interested parties.
UU Nomor 7 tahun 1994 tentang Pengesahan *Agreement Establishing The World Trade Organization*	Ratify the Agreement Establishing The World Trade Organization, which is the reference in the regulation and governance of trade and digital trade.

UU Republik Indonesia Nomor 17 Tahun 2006 Tentang Perubahan Atas Undang-Undang Nomor 10 Tahun 1995 Tentang Kepabeanan	To support the smooth flow of goods, increase the effectiveness of supervision over the traffic of goods, and optimize the prevention and prosecution of smuggling, clearer regulations are needed to implement digital trade customs.
UU Republik Indonesia Nomor 10 Tahun 1998 Tentang Perubahan Atas UU Nomor 7 Tahun 1992 Tentang Perbankan	The economic sector, including banking, needs policy adjustment, especially with the proliferation of digital wallet systems facilitating the digital trading process.
UU No 21 tahun 2011 tentang Otoritas Jasa Keuangan (OJK)	OJK functions to organize an integrated regulatory and supervisory system for all activities in the financial services sector, including adjustments to the payment system for digital trade.
Perpres No 39 tahun 2019 tentang Satu Data Indonesia	The facilities available on Satu Data Indonesia are used for smooth digital trade.
Perpres 95 tahun 2018 tentang SPBE	Infrastructure The electronic-based government system consists of a national data center, intra-government network, and service liaison facilities.
UU No. 39/2008 tentang Kementerian Negara	A presidential law consists of Regulations regarding the functions and duties of state ministries and ministers as assistants to the president.
PM Kominfo No 5 tahun 2020 tentang Pendaftaran PSE Lingkup Private	Digital trade registration can use regulating procedures for registering the operation of an electronic system of private scope.
PM Kominfo No 20 tahun 2016 tentang Perlindungan Data Pribadi	There are Settings regarding personal data, deletion, and transfer of personal data because consumers of digital commerce need guarantees that personal data is not misused.
PM Kominfo No. 1 Tahun 2021 tentang Perubahan Kedua atas PM Kominfo Nomor 13 Tahun 2019 tentang Penyelenggaraan Jasa Telekomunikasi	Digital trade includes telecommunications services, so there need to be adjustments to regulations.
PM Kominfo No. 5 Tahun 2015 tentang Registrar Nama Domain Instansi Penyelenggara Negara	*Regulations on implementing agencies for domain name registrars in Indonesia.*
PM Kominfo No. 23 Tahun 2013 tentang Pengelola Nama Domain	Settings about the .id domain name registry agency

V. CONCLUSION

This analysis concludes that the institutional arrangement of Indonesia's digital trade can do with the approach that has been done previously in Korea. Judging from the system of government, Korea has the same system of government as Indonesia, namely presidential. The ministry that handles trade in Korea, both digital and conventional, has affiliations with organizations or institutions that focus on helping businesspeople to advance their business so that trade in Korea can also increase. In addition, Korea has made many agreements with various developed and developing countries to expand the market and establish business cooperation. So, Indonesia can take this approach where the Ministry of Trade can collaborate with several organizations to create digital trade in Indonesia, starting from organizations that deal with foreign trade, domestic trade, MSMEs, and economic digitization. However, in its implementation, related institutions must continue to follow the existing regulations that apply in Indonesia in accordance with their respective placements and portions.

VI. RECOMMENDATION

The recommendation for the future is that the division of tasks and responsibilities of the types of digital trade in Indonesia to government stakeholders can be more evident. Ultimately, every element of digital commerce will have a segmented intersection with several government institutions, which will impact the approach to implementing regulations about digital trade in Indonesia.

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Perceived Fear Of COVID-19, Enjoyment, and Subjective Norms Effect Towards Intention to Use Online Grocery Shopping in Indonesia

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Abstract

This paper aims to empirically analyze which factors contribute the most between fear of COVID-19, subjective norms, and enjoyment towards consumers' behavioral intention to use online grocery shopping (OGS) during COVID-19 pandemic in Indonesia, using the Technology Acceptance Model as the framework. COVID-19 pandemic causes restrictions on several activities impacting retail sector, which is believed to increase the growth of OGS services. It's unclear which factors contribute the most towards the growth, while past research showed that both enjoyment and subjective norms have significant and positive towards the behavioral intention to use OGS. This research will enrich the study of OGS by introducing the fear of COVID-19 variable. Fear of COVID-19 was known to have influence towards GoogleMeet and telemedicine acceptance but none on OGS services. 297 valid responses were collected using online questionnaire with instruments based on existing TAM literature. Structural and measurement models are evaluated using the PLS-SEM method with smartPLS software. The findings show that enjoyment contributes the most to the behavioral intention to use OGS analyzed by the path coefficient. Perceived usefulness and subjective norms also have a significant positive relationship towards the behavioral intention, whereas perceived fear of COVID-19 did not. This might be due to the already low number of COVID-19 cases and high vaccination rates. These findings are summarized, and managerial implications for online OGS providers are discussed in which enjoyment need to be enhance for OGS applications.

Keywords – Enjoyment; Fear of COVID-19; Online Grocery Shopping; Subjective Norms; TAM

I. INTRODUCTION

From the first case of COVID-19 in Indonesia in March 2020, the Indonesian government has imposed several policies to restrict society movement such as PSBB and PPKM (CNN, 2021), thus impacting market and retail sectors due to the decrease operational time which causing the difficulty for the society members to gather their daily grocery needs (Simanjuntak, 2021). COVID-19 pandemic is still evolving with the new variant of concerns such as Delta and the newer Omicron variants (Wang & Powell, 2021). One of the strategies used by the Indonesian government to reduce the Omicron variants transmission is by imposing policy for their district head to coordinate with the retailers and to enforce the usage of PeduliLindungi application (Kemendagri, 2021).

The policy imposed by the government is believed to increase the growth of e-commerce sectors mainly on the online grocery shopping (OGS) service which were predicted to have a Gross Merchandise Value growth of 400% in 2020 by Redseer and also an increase of 11% of Indonesian which using OGS to get their daily needs from the research of Facebook and Bain&Company (Eloskari, 2020). OGS is defined as an online platform that sells food and other daily groceries needs (Asti et al., 2021). Research showed that COVID-19 cases trends may impact consumers' preference to directly shop at the supermarkets (Grashuis et al., 2020).

Academic researches to learn about consumer intention and adoption to use OGS have already been done in many countries and models such as TPB (Akar, 2021; Brand et al., 2020; Piroth et al., 2020) and TAM (Chin & Goh, 2017; Driediger & Bhatiasevi, 2019; Shukla & Sharma, 2018). TAM explanatory power could be stronger by modifying and adding other variables to the model (Keen et al., 2004). COVID-19 pandemic increases the fear of individuals to go directly shop at supermarkets due to the anxiety to have close contact with others and the closed air circulation (Sit, 2021). Past research also found that technology users were using technology not only for better performance they got but also the enjoyment they feel when using that technology (To & Trinh, 2021). In COVID-19 context, subjective norms have a strong effect towards behavioral intention and behavior relevant to COVID-19 for individuals compared to previous study before pandemic (Fischer & Karl, 2022). COVID-19 pandemic is a global problem where collective behavior is still a major solution to minimize the number of cases and the severity of COVID-19 (Khanh & Tran, 2021). With the growth of technology there are also risk that might be occurred to the users. There are seven types of risks that might happened during online grocery shopping, with performance risk and financial risk as the top two risks (Guru et al., 2020). Those risks might hinder the usefulness of the technology.

This research should be beneficial to OGS service providers for them to better understand what is the main factor consumers' use their service and to strategize during and after pandemic. Other than that, this study could be the baseline for other researchers on OGS during COVID-19 pandemic. The objective of this research is to

empirically analyze which factors contribute the most between individuals' fear of COVID-19, subjective norms, and enjoyment to the intention to use online grocery shopping during pandemic in Indonesia using TAM framework. The other objective of this study is to confirm the relationship of TAM hypotheses and it's antecedents from previous literature with online grocery shopping as the technology during COVID-19 pandemic in Indonesia. Since the pandemic is still an ongoing global issue and dynamically changes, this study will be done cross-sectionally due to time constraint on author's end.

II. LITERATURE REVIEW

A. Online Grocery Shopping

Online grocery shopping (OGS) or e-grocery is a type of e-commerce that enables their user to buy the food materials and daily groceries online (Asti et al., 2021). Most of the time the process to buy the groceries is in the website or application from the OGS service provider itself (Driediger & Bhatiasevi, 2019). OGS benefit comes from the time and money saving and also the easiness to get and to check the availability of products (Blitstein et al., 2020). While the drawbacks of using OGS is there is not any information we get from directly touching the product that we will buy, thus creating one of the reason someone not using OGS (Kühn et al., 2020). In USA, there are shift in consumer behavior on grocery shopping in which 68% of consumers buy their groceries online since March 2020, 43% of consumers bought groceries online twice or more in a month, and 81% of the consumers said that they will keep on using OGS even after the pandemic ended (Stecyk, 2020).

The 2020 annual report from Research and Markets showed that the global market size of online grocery shopping estimated around US$ 198.5 Billion and will reach to US$ 550.7 Billion on 2027 with 15.7% CAGR (Research and Markets, 2020). Specifically in Indonesia, there was a 30% increase of online grocery shopping users in 2020 and also increase on the service provider due to COVID-19 pandemic (Meirandari, 2021). Indonesian online grocery shopping growth rate was higher than several Asian countries such as Hong Kong, Malaysia, Singapore, Thailand, Philippines, Taiwan and Japan but lowered than Vietnam and India from 2014 until 2019 with 0.3% market penetration (Consultancy.asia, 2021). The examples of online grocery shopping service providers in Indonesia currently are HappyFresh, Sayurbox, KeSupermarket, Hypermart, GoMart, GrabFresh and others (Eka, 2020).

B. Technology Acceptance Model

The Technology Acceptance Model or TAM was first introduced by Davis in 1989 and since then TAM has been tested and developed by other researchers to become a proven theoretical model to understand and explain individual behavior towards the implementation of a technology (Legris et al., 2003). According to Davis (1989), a person's intention to use a technology will be influenced by the attitude of the person and is directly and indirectly influenced by perceived usefulness (PU) and perceived ease of use (PEOU). TAM itself is an adaptation of the theory of reasoned action (TRA) which was introduced by Fishbein & Ajzen in 1975 to explain and predict the behavior of a person in certain situations. While both PU and PEOU are important variables in TAM but some researchers argue that there's the need to add another variables in order to have stronger explanatory power (Legris et al., 2003).

TAM has been used on past researches in order to predict individuals' intention to use technology such as on online grocery shopping (Chin & Goh, 2017; Driediger & Bhatiasevi, 2019; Putri, 2021; Shukla & Sharma, 2018), food delivery services (Song et al., 2021), education sector regarding the Google Meets adoption in COVID-19 pandemic (Al-Maroof et al., 2020, 2021), banking sector regarding Indian mobile payment and e-wallet (Chawla & Joshi, 2019; Flavian et al., 2020) as well as healthcare sector (Elahi et al., 2021; Kamal et al., 2020; Zhang & Zaman, 2020).

C. Perceived Fear of COVID-19

COVID-19 pandemic create an increase on research regarding fear and technology adoption in many perspective and sectors across the world (Al-Maroof et al., 2021). Fear can be in many form such as anxiety and the lack of skill and experience that may impact individuals to use new technology (Al-Maroof et al., 2020). Ahorsu et al. (2020) saw that COVID-19 pandemic gives fear and anxiety to individuals around the world and develop the fear of COVID-19 scale (FCV-19S) that can be used to measure individuals fear of COVID-19. The scale itself has 7 indicators with unidimensional scale which has strong power of measurement (Ahorsu et al., 2020). The FCV-19S has been translated to many languages, with Bahasa Indonesia as one of the examples (Mohd Kassim et al., 2020).

Past studies regarding fear of COVID-19 relation towards technology adoption has been done on healthcare sector that explores the individuals' intention to use Whatsapp and telemedicine. The study showed that WhatsApp

was an easy, secure and practical to use for telemedicine purpose during region lockdown period in India (Elahi et al., 2021; Jakhar et al., 2020).

D. Enjoyment

Enjoyment refer to the extent how is an activity that use computers technology is enjoyable on it's own and not due to any performance consequences that may anticipated (Davis et al., 1992). Enjoyment is an example of intrinsic motivation, namely doing an activity without any other encouragement other than the process of doing the activity itself (Davis et al., 1992). Several past studies have been done regarding enjoyment effect towards individuals' intention to use a technology such as in banking sector (Bashir & Madhavaiah, 2015), retail sector (Chin & Goh, 2017; Driediger & Bhatiasevi, 2019), and telecommunication sector (Dickinger et al., 2008).

E. Subjective Norms

Subjective Norm was a construct that originated from Theory of Reasoned Action (TRA) on how other person's perception is deemed important by an individual that have an impact on how they behave or not (Fishbein & Ajzen, 1975). The TRA theory was further developed by Ajzen into Theory of Planned Behavior (TPB) by adding perceived behavioral control variable together with attitude and subjective norms variables as determinants of individuals intention to behave that will affect individuals actual behavior (Ajzen, 1985).

According to a meta-analysis of 83 samples from 31 countries that looked at the effects of attitude, subjective norm, and perceived behavioral control on a person's intentions to behave and individual behavior in relation to COVID-19, the perceived behavioral control variable had the strongest effect. In the context of COVID-19, the study discovered that subjective norms also give a substantial link to a person's desire to behave, which differs from earlier studies that showed subjective norms to be weak predictors of behavior. This demonstrates that there is a desire to establish strong social standards in order to combat COVID-19 (Fischer & Karl, 2022).

F. Perceived Risk

Perceived risk is defined as a characteristic and measure of uncertainty or consequence which occurred to the consumers when considering a purchase decision (Cox & Rich, 1964). There are seven types of risk that my occurred to users when doing online shopping which are financial risk, performance risk, time-loss risk, social risk, psychological risk, physical risk, and source risk (Guru et al., 2020). Risk can be found by users when using technology in form of site or application in many sectors such as OGS, mobile tourism, mHealth, e-wallet and others (Deng et al., 2018; Driediger & Bhatiasevi, 2019; Meyta Dewi et al., 2021; Park & Tussyadiah, 2017).

Previous study showed various results for perceived risk relationship towards perceived usefulness. Perceived risk has a negative and significant relationship towards perceived usefulness (Li & Huang, 2009; Lu et al., 2005) while non-significant relationship found on OGS study in Indonesia (Putri, 2021).

G. Hypotheses Development

There are 4 important variables in TAM framework, which are PU, PEOU, attitude, and behavioral intention to use technology. PU is defined as how someone believed that using certain technology will increase their performance and PEOU is defined as how someone believed that using certain technology doesn't need huge effort (Driediger & Bhatiasevi, 2019). Previous study showed that PEOU have strong significant positive relationship towards PU in OGS context due to the assumption from the consumer that the easier technology can be used the more benefit that the technology can give (Driediger & Bhatiasevi, 2019; Shukla & Sharma, 2018; Sreeram et al., 2017). Attitude can be defined as positive or negative feeling of an individual about using OGS to buy their groceries (Shukla & Sharma, 2018). In online grocery shopping context, PU and PEOU is known to have a significant positive relation towards attitude and attitude itself also have the same relation towards the intention to use an online grocery shopping. The more useful and easy to use technology will create a positive feeling towards the technology for an individuals' thus it will increase their intention to use that technology (Loketkrawee & Bhatiasevi, 2018; Shukla & Sharma, 2018). Previous research also found that PU directly affecting individuals' intention to use a technology, in which if a technology deemed to be useful by individuals' the higher their intention to adopt that particular technology. It was supported in educational (Al-Maroof et al., 2020, 2021), banking (Chawla & Joshi, 2019; Flavian et al., 2020), and retail sector in online grocery shopping (Shukla & Sharma, 2018; Sreeram et al., 2017).

H1: Perceived Ease of Use (PEOU) is positively related to the Perceived Usefulness (PU) in online grocery shopping usage

H2: Perceived Usefulness (PU) is positively related to the Attitude in online grocery shopping usage

H3: Perceived Ease of Use (PEOU) is positively related to the Attitude in online grocery shopping usage

H4: Perceived Usefulness (PU) in online grocery shopping positively related to the Intention to Use of online grocery shopping

H5: Attitude in online grocery shopping positively related to the Intention to Use of online grocery shopping

People are afraid and anxious of becoming infected with COVID-19 in public places such as public transportation, shops, and restaurants due to the COVID-19 pandemic (Gerhold, 2020). Uncertainty, health anxiety and fear to lose important persons are some forms of fear from COVID-19 (Ahorsu et al., 2020). Previous research showed that perceived fear of COVID-19 significantly related to PEOU and intention to use technology in education sector. The study prove that GoogleMeet technology can overcome the fear of COVID-19 and enabled the students to learn without worry (Al-Maroof et al., 2020, 2021). Another research argued that perceived fear of COVID-19 positively related towards PU and PEOU of a telemedicine technology, a person who have a higher fear of COVID-19 will perceive that the telemedicine is useful and easy to use during the pandemic (Elahi et al., 2021). Some researchers also found that fear of COVID-19 will enhance the subjective norms in using Google Meet as a method of learning and also to get COVID-19 vaccine (Al-Maroof et al., 2020; Yahaghi et al., 2021).

H6: Perceived Fear of COVID-19 (PF) is positively related to the Perceived Usefulness (PU) in online grocery shopping usage

H7: Perceived Fear of COVID-19 (PF) is positively related to the Perceived Ease of Use (PEOU) in online grocery shopping usage

H8: Perceived Fear of COVID-19 (PF) is positively related to the Subjective Norm in online grocery shopping usage

H9: Perceived Fear of COVID-19 (PF) in online grocery shopping is positively related to the Intention to Use of online grocery shopping

Enjoyment in this research is defined as the extent to which a user perceives online grocery shopping to be enjoyable (Driediger & Bhatiasevi, 2019). Enjoyment is found to be positively related towards PU, PEOU and intention to use a technology such as internet banking and mobile wallet (Bashir & Madhavaiah, 2015; To & Trinh, 2021). Enjoyment was also one of the antecedents used in online grocery shopping research in Thailand which proven to have a significant positive relation towards PU and PEOU (Driediger & Bhatiasevi, 2019). Enjoyment will give the user motivation to spend more time on the technology and they can explore more thus gaining more benefit and easiness from the technology (Moon & Kim, 2001).

H10: Enjoyment is positively related to the Perceived Usefulness (PU) in online grocery shopping usage

H11: Enjoyment is positively related to the Perceived Ease of Use (PEOU) in online grocery shopping usage

H12: Enjoyment in online grocery shopping is positively related to the Intention to Use of online grocery shopping

Subjective norm is defined as "individual perception that someone who is important for them think that the individual should or not behave" (Fishbein & Ajzen, 1975). Subjective norm is known to have a positive relation towards PU and the intention to use a technology (Venkatesh & Davis, 2000). A meta-analysis study showed that there is a need of word-of-mouth in order to increase the technology adoption in the society (Schepers & Wetzels, 2007). Individuals will adopt technology when they feel that someone who is important in their environment thinks that the technology is useful (Driediger & Bhatiasevi, 2019).

H13: Subjective Norm (SN) is positively related to the Perceived Usefulness (PU) in online grocery shopping usage

H14: Subjective Norm (SN) in online grocery shopping is positively related to the Intention to Use of online grocery shopping

Perceived risk is defined as "combination of performance risk (getting a bad quality product), time risk (not getting the groceries in a timely manner), and privacy risk (personal information and payment security) when using online grocery shopping" (Driediger & Bhatiasevi, 2019). Previous research showed that perceived risk have a negative relationship towards PU in technology acceptance (Park & Tussyadiah, 2017). The higher risk that might occurred to the users, the lower user will perceive the technology to be useful.

H15: Perceived Risk is negatively related to the Perceived Usefulness (PU) in online grocery shopping usage
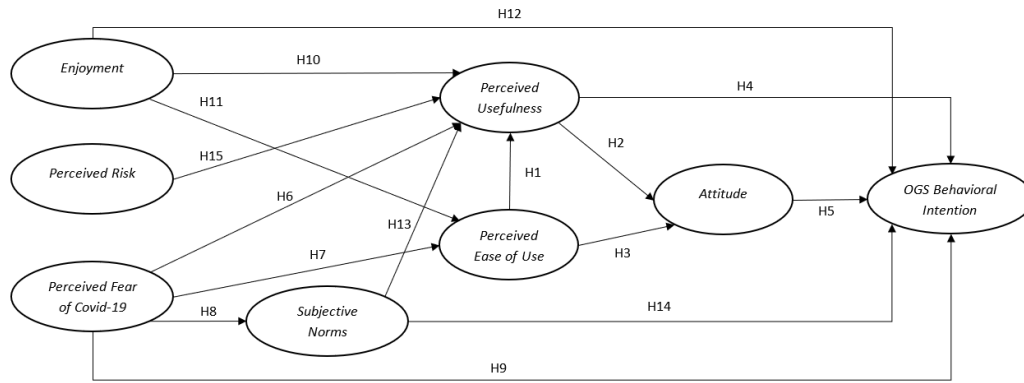
Fig. 1. Research Model Structure (Source: Author's personal modification from Shukla & Sharma (2018), Driediger & Bhatiasevi (2019), and Al-Maroof et al. (2020))

III. RESEARCH METHODOLOGY

This research uses a quantitative research method in order to confirm the hypotheses built previously. The primary data will be taken by an online survey to the individual in Indonesia who used online grocery shopping during COVID-19 pandemic period and over 18 years. The age restriction is due to the majority of e-commerce transaction in Indonesia is done by 18-35 years old users (Muazam, 2020). 35 years old and above is still included on the scope of this study due to their behavior of doing groceries for their family as well as older age was associated to higher COVID-19 mortality risk (Surendra et al., 2021). The measurement items for this study will use from existing literatures, this is done in order to ensure the validity of the measurement items. There are 3 indicators using a reverse scored items typed in italic on Table 1.

Table 1. Instrument Development

Variables	Indicators	Source
Perceived Usefulness	I believe that the use of an OGS will make my grocery shopping more effective	(Pettersson & Frohlke, 2015 in Shukla & Sharma, 2018)
	I believe that the use of an OGS will make my grocery shopping more convenient	
	I think that I would save time by using OGS for grocery shopping	
	I believe that, in general, using OGS for grocery shopping would have been useful	
Perceived Ease of Use	It is easy to purchase grocery through OGS	(Pettersson & Frohlke, 2015 in Shukla & Sharma, 2018)
	It is easy to learn how to purchase through OGS	
	It is easy to use OGS	
	I think it would be easy to use OGS application and site for grocery shopping	
Attitude	I believe it would be advantageous to use OGS in my grocery shopping process	(Fishbein & Ajzen, 1975 in Shukla & Sharma, 2018)
	I think it would be a good idea to use OGS when shopping for groceries	
	I think it would be positive to be able to use OGS when shopping for groceries	
OGS Behavioral Intention	I intend to keep using OGS for buying groceries in the future	(Al-Rahimi et al., 2013 in Shukla & Sharma, 2018)
	I intend to increase the use of OGS in the future	
	I intend to recommend my friends to use OGS for grocery shopping in the future	
Enjoyment	OGS is fun for its own sake	(Childers et al., 2001 in Driediger & Bhatiasevi, 2019)
	OGS is making me feel good	
	OGS is boring	
	OGS is exciting	
	OGS is enjoyable	
	OGS is uncomfortable	
	OGS is interesting	

Variables	Indicators	Source
Perceived Fear of COVID-19	I am most afraid of coronavirus-19	(Mohd Kassim et al., 2020)
	It makes me uncomfortable to think about coronavirus-19	
	My hands become clammy when I think about coronavirus-19	
	I am afraid of losing my life because of coronavirus-19	
	When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	
	I cannot sleep because I'm worrying about getting coronavirus-19	
	My heart races or palpitates when I think about getting coronavirus-19	
Subjective Norm	Members of my family think that it is a good idea to buy the groceries via the internet	(Driediger & Bhatiasevi, 2019)
	Most of my friends and acquaintances think that shopping groceries via the internet is a good idea	
	People who influence my behavior think that I should buy groceries online	
	People who are important to me think that I should buy groceries online	
Perceived Risk	I am concerned with the payment security aspects of OGS	(Driediger & Bhatiasevi, 2019)
	I am concerned with the privacy of my information provided when using OGS	
	I am concerned with the punctuality of the delivery time of OGS	
	I am concerned with the quality of the products delivered when ordering from OGS	
	I am confident over the security aspects of internet banking in Indonesia	

Source: Data processing result

The minimum number of respondents for this research is 185 respondents from the rule of thumb 5-10 respondents for each indicator used for measurement (Jöreskog & Sörbom, 1993). The items will be measured using a six-point Likert scale in order to avoid the error of central tendency (Cooper & Schindler, 2014). The survey will be made in two parts, with the first part consisting of questions about the demographics of the respondents and some descriptive questions related to the behavior of the respondents. Some of the demographic questions that will be asked are gender, age, monthly income, latest education, and domicile. While behavioral questions that will be asked to respondents are related to vaccination, individual behavior during the COVID-19 pandemic and others. The second part is the core part of the survey which contains statements which are indicators of each variable used in the study.

The sampling approach used in this study will be non-probability sampling, which means that the sample population will not be drawn at random. This was done because data from the complete population in this study was not possible to gather. Because there are various conditions that prospective respondents must meet before taking out the survey, the selection element chosen is restricted. Thus, the sampling method used is purposive sampling with the type of judgment sampling, due to the sample members must meet the criteria first to be able to become respondents. The data collection taken on April-May 2022, when most of COVID-19 variant is Omicron variant in Indonesia. This research gathered 315 respondents in which only 297 valid data responses can be used for the data analysis after the data cleaning and preprocessing.

For the main test, the data analysis will be done in 2 parts. The first part will be a descriptive analysis for the first part of survey which include the demographic and behavioral question while the second part will test the measurement model and structural model in order to test the hypotheses using the partial least squared – structural equation modeling (PLS-SEM) method using SmartPLS 3 software. PLS-SEM will be used due to its consideration as the best method to use when the main goals of the research is to explore existing literature, its power to analyze complex model, its ability to analyze the model as whole, and giving concurrent analysis for both the measurement model and structural model (Barclay, D., Thompson, R., dan Higgins, 1995; Goodhue et al., 2012; Hair et al., 2017; Urbach & Ahlemann, 2010). Measurement model will be evaluated by analyzing internal consistency (Cronbach's alpha & composite reliability), convergent validity (indicator reliability & AVE), and discriminant analysis while structural model will be evaluated by analyzing coefficients of determination (R^2), predictive relevance (Q^2), size and significance of path coefficients (Hair et al., 2017).

IV. RESULT / FINDING

Pretest was done as the first step before main test in order to find problems related to content, wording, and questionnaire sequencing (Cooper & Schindler, 2014). Before pretesting begin, wording test was done to 5 respondents in order to make sure the meaning of each indicator is not lost in translation by asking the respondents to translate back the indicators to its original language. The result of the wording test shown that the indicators are not deviate from its original source meaning. The pretest was done to 40 respondents and showed a great reliability and validity results; thus, all the measurement indicators were taken for the main test.

As per the guidance from Hair et al., (2017) the first part to assess PLS-SEM results is to evaluate the measurement models. Since all the indicators used in this research are reflective measurement models, we need to evaluate the Internal Consistency (Cronbach's Alpha, Composite Reliability), Convergent Validity (Average Variance Extracted), and Discriminant Validity using HTMT which is more superior to the other traditional method of fornell-larcker criterion and cross loadings (Hair et al., 2017). The descriptive statistic of the samples and the measurement model evaluation result can be seen on Table 2.

Table 2. Descriptive Statistics of the Samples

Respondent characteristics (n=297)	Frequency	Percentage
Gender		
Male	111	37%
Female	186	63%
Age		
18-25	60	20%
26-33	133	45%
34-41	51	17%
42-49	22	7%
50-57	8	3%
>57	23	8%
Latest Education		
High School	26	9%
Bachelor	205	69%
Master	62	21%
Doctorate	4	1%
Income		
<IDR 500.000	7	2%
IDR 500.000 – IDR 1.000.000	9	3%
IDR 1.000.001 – IDR 5.000.000	35	12%
IDR 5.000.001 – IDR 10.000.000	59	20%
>IDR 10.000.000	145	49%
Housewife	26	9%
Not Working	16	5%
COVID-19 Infection		
Infected	134	45%
Not Yet Infected	163	55%
OGS Usage Frequency		
1-2 times/month	150	51%
3-5 times/month	116	39%
>6 times/month	31	10%

Source: Data processing result

Table 3 and Table 4 showed the result of measurement model evaluation. The Cronbach's Alpha, Composite Reliability and AVE for all variables exceed the minimum cut-off needed which are 0.7, 0.7, and 0.5 respectively. The discriminant validity shown by using HTMT ratio also give a good result in which all the correlations are not exceeding 0.85 which means a discriminant validity has been established between two reflective constructs. The outer loadings results show that PR.5R has a low value of loadings of under 0.4 thus need to be removed from the analysis (Hair et al., 2017).

Table 3. Mean, SD, Internal Consistencies and Item Loadings

Variable	Indicator	Outer Loadings	CA	CR	AVE	Mean	SD
Attitude	ATT.1	0.866	0.859	0.915	0.781	4.85	0.88
	ATT.2	0.922					
	ATT.3	0.862					

Variable	Indicator	Outer Loadings	CA	CR	AVE	Mean	SD
Enjoyment	ENJ.1	0.803	0.905	0.927	0.65	4.50	1.09
	ENJ.2	0.874					
	ENJ.3R	0.64					
	ENJ.4	0.886					
	ENJ.5	0.926					
	ENJ.6R	0.557					
	ENJ.7	0.881					
Behavioral Intention to Use OGS	INT.1	0.875	0.867	0.919	0.79	4.57	1.08
	INT.2	0.905					
	INT.3	0.886					
Perceived Ease of Use	PEOU.1	0.892	0.925	0.946	0.816	5.29	0.79
	PEOU.2	0.892					
	PEOU.3	0.913					
	PEOU.4	0.915					
Perceived Fear of COVID-19	PF.1	0.767	0.905	0.924	0.635	2.98	1.57
	PF.2	0.792					
	PF.3	0.771					
	PF.4	0.774					
	PF.5	0.877					
	PF.6	0.805					
	PF.7	0.789					
Perceived Usefulness	PU.1	0.897	0.858	0.904	0.703	5.04	0.90
	PU.2	0.873					
	PU.3	0.733					
	PU.4	0.841					
Subjective Norms	SN.1	0.848	0.859	0.904	0.702	4.24	1.12
	SN.2	0.801					
	SN.3	0.856					
	SN.4	0.846					
Perceived Risk	PR.1	0,664	0,762	0,824	0,543	3,299	1,377
	PR.2	0,650					
	PR.3	0,890					
	PR.4	0,718					

Source: Data processing result

Table 4. HTMT Ratio of Correlation Matrix

	ATT	ENJ	INT	PEOU	PF	PR	PU	SN
ATT								
ENJ	0,692							
INT	0,827	0,686						
PEOU	0,508	0,396	0,431					

PF	0,249	0,229	0,171	0,128			
PR	0,137	0,256	0,130	0,207	0,133		
PU	0,702	0,569	0,632	0,620	0,145	0,131	
SN	0,665	0,485	0,569	0,234	0,288	0,080	0,509

Source: Data processing result

The second part of PLS-SEM analysis is structural model evaluation. In order to evaluate the structural model, several analyses will be done which are Inner VIF to assess multicollinearity, R^2 measure, Q^2 measure, and the size and significance of path coefficient for the hypothesis testing. The multicollinearity assessed with Inner VIF value between variable which shows value ranging from 1.000 – 2.291. All VIF values is under the maximum threshold of 5 thus collinearity is not an issue on this research.

The next assessment is to assess R^2 and Q^2 value. R^2 value needs to be minimum of 0.20 in order to be considered high due to the consumer behavior context of the research (Hair et al., 2017). Predictive relevance is evaluated using Q^2 value in which any value larger than 0 indicating that the exogenous variable has a predictive relevance for the endogenous variable. Q^2 value can be attained by using blindfolding with 7 as the distance as the default (Hair et al., 2017). Table 5 show the R^2 value result for each endogenous latent variabel

Table 5. Evaluation of Structural Model

Variable	R^2	Adjusted R^2	P-value	Q^2
ATT	0.387	0.383	<0.001	0.295
INT	0.573	0.566	<0.001	0.443
PEOU	0.164	0.159	<0.001	0.13
PU	0.472	0.462	<0.001	0.318
SN	0.068	0.065	<0.01	0.047

Source: Data processing result

Based on Hair et al. (2017), consumer behavior research with R^2 value of 0.2 and above is already considered as high. Thus, Behavioral Intention to Use OGS, Attitude, and PU variables are satisfying and significant by statistics. The Q^2 value also show above 0 value for all the endogenous variables which means all the variables have predictive ability.

The next assessment for the structural model evaluation is by assessing the size and significance of path coefficient. This research used bootstrapping for the hypothesis testing as per Hair Jr et al. (2017) standard which use 5,000 subsamples, BCa Bootstrap as the confidence interval method, 5% significance. 1-tailed test is used on this research since the hypothesis building on this research is directional research hypotheses (Cho & Abe, 2013). The results of the hypothesis testing in this research show that 11 out of 15 hypotheses were tested positive and significant as per previous literature while 4 hypotheses belong to the Perceived Fear of COVID-19 and Perceived Risk were not supported. The full result of the path coefficient and hypothesis testing result can be seen on Figure 2. Black colored arrow indicates supported hypotheses, while red stripe arrow indicates rejected hypotheses.
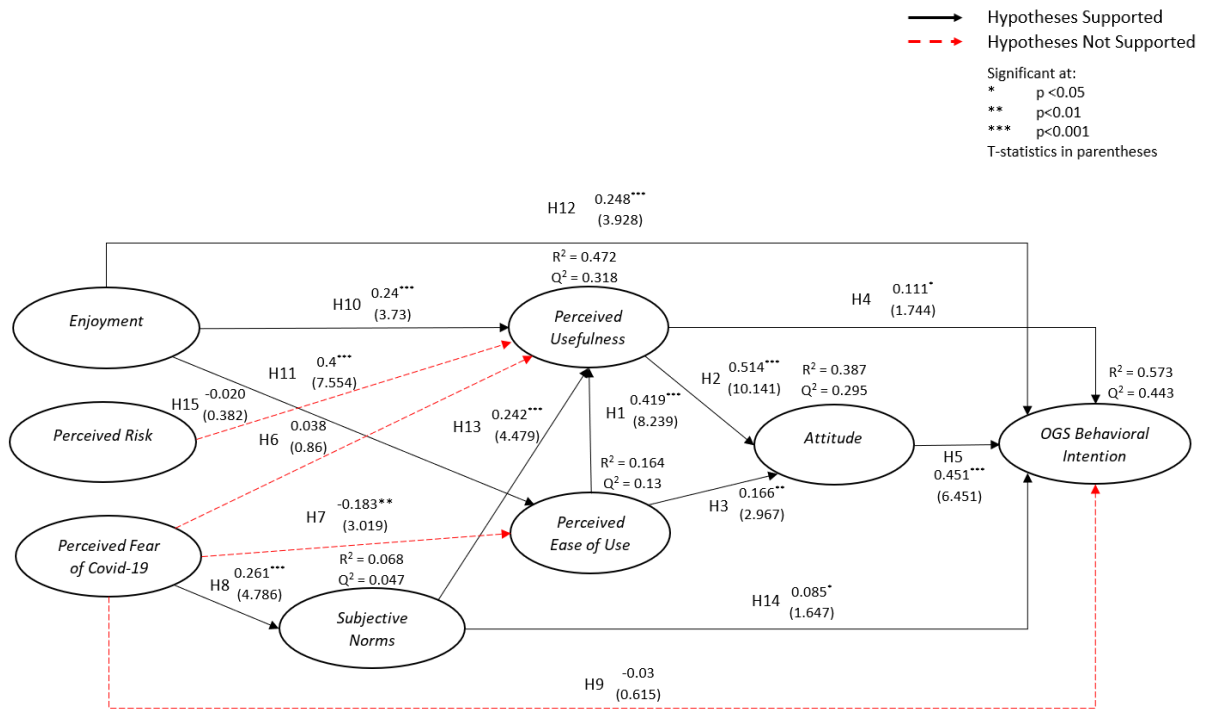
Fig. 2. Path model & hypotheses testing results (Source: Author's Personal Data)

V. Discussion

Based on the hypothesis testing, there are 11 supported hypotheses and 4 not supported hypotheses as shown on Table 6.

Table 6. Summary of hypotheses testing

Hypothesis	Relationship	Supported
H1	PEOU → PU	Yes
H2	PU → ATT	Yes
H3	PEOU → ATT	Yes
H4	PU → INT	Yes
H5	ATT → INT	Yes
H6	PF → PU	No
H7	PF → PEOU	No
H8	PF → SN	Yes
H9	PF → INT	No
H10	ENJ → PU	Yes
H11	ENJ → PEOU	Yes
H12	ENJ → INT	Yes
H13	SN → PU	Yes
H14	SN → INT	Yes
H15	PR → PU	No

Source: Data processing result

Hypothesis 1 showed that PEOU has positive and significant towards PU during COVID-19 pandemic in Indonesia (β = 0.451, p-value <0.001). This result is consistent with previous OGS studies done in India and Thailand (Driediger & Bhatiasevi, 2019; Sreeram et al., 2017). This means when individual perceives using OGS is free from effort, the more they perceived OGS to be useful OGS for them.

PU also has a positive and significant relation towards the Attitude to use OGS (β = 0.514, p-value <0.001) thus Hypothesis 2 was also supported on this research. This result is similar with the current finding on the OGS acceptance study in India and Australia (Chien et al., 2003; Shukla & Sharma, 2018). This result showed that the more OGS is perceived to be useful by an individual, that individual will have a positive attitude towards it. The respondents of this research have high mean-value of 5.043 on the Perceived Usefulness variable which they said that the ability to be able to continue shopping while reducing the risk of infected by COVID-19 makes them have a positive attitude towards OGS.

Attitude to use OGS was also influenced positively and significantly by PEOU (β = 0.166, p-value <0.01) making Hypothesis 3 also supported. The same result also shown by previous OGS study in India and Australian in which the easier OGS is perceived to be used by an individual, they will also have a positive attitude towards it (Chien et al., 2003; Shukla & Sharma, 2018). Most of the respondents on this research shared their key reason to use OGS during COVID-19 pandemic, the practicality to use OGS is the most voted reason for the to use OGS thus supporting H3 hypothesis.

Hypothesis 4 showed that PU has a direct positive and significant relation towards individual behavioral intention to use OGS during COVID-19 pandemic in Indonesia (β = 0.111, p-value <0.05). This result means that when consumers feel that using OGS is beneficial for them, the more likely for them to use OGS for shopping. This result was also found on past OGS literature in Thailand and India (Driediger & Bhatiasevi, 2019; Shukla & Sharma, 2018).

Individual attitude to use OGS also showed a positive and significant relationship towards individual behavioral intention to use OGS thus supporting Hypothesis 5 (β = 0.451, p-value <0.001). Attitude is directly influencing individuals behavioral intention since an individual will only have intention to do some behavior for what they consider as positive (Fishbein & Ajzen, 1975). This result also found on previous OGS study in India (Shukla & Sharma, 2018).

While most of the Perceived Fear of COVID-19 variable were found not significant, there is a positive and significant relationship between individuals fear of COVID-19 and Subjective Norms (β = 0.451, p-value <0.001) thus supporting Hypothesis 8. This result was coincide with previous research that individual fear towards COVID-19 influenced the subjective norms on their behavior or when adopting technology during this COVID-19 pandemic (Al-Maroof et al., 2020; Yahaghi et al., 2021). Collectivism culture in Asia is one of the reason on how fear of COVID-19 influence subjective norms (Kim & Hong, 2021).

Hypothesis 10 was also supported in which there is a positive and significant relationship between Enjoyment and PU when using OGS during COVID-19 pandemic in Indonesia (β = 0.24, p-value <0.001). The same relationship can be found on previous literature regarding OGS acceptance in Thailand and USA (Driediger & Bhatiasevi, 2019; Ha & Stoel, 2009). Enjoyment is influencing individuals' perceived usefulness when using OGS due to the more they enjoy using the technology, the more time they spent thus receiving many benefits from the technology (Moon & Kim, 2001; Venkatesh & Davis, 2000).

Enjoyment was also found to have a positive and significant relation towards PEOU which support Hypothesis 11 (β = 0.4, p-value <0.001). This result coincide with other technology acceptance such as OGS in Thailand and mobile wallet technology (Driediger & Bhatiasevi, 2019; To & Trinh, 2021). Enjoyment can increase consumers time on the technology thus increase their experience and make them feel less effort when using the technology (Venkatesh, 2000).

Individual behavioral intention to use OGS was also found to be influenced positively and significantly by Enjoyment which support Hypothesis 12 (β = 0.248, p-value <0.001). This means the more consumers enjoy using OGS, the more they intent to use OGS. This finding can also be found on other technologies such as mobile games, SVOD, and mobile wallet (Lestari & Soesanto, 2020; Nguyen, 2015; To & Trinh, 2021). This relationship also impacted due to hedonic aspect from OGS application or website when used by individuals.

Hypothesis 13 was supported, Subjective Norms has positive and significant relationship towards PU (β = 0.242, p-value <0.001). This result coincide with previous research in which same relationship was also found in Google Meet technology during COVID-19 pandemic (Al-Maroof et al., 2020). This relationship could be driven by internalization effect which is representing individual tendency to interpret information from someone who is important as an evidence of reality (Schepers & Wetzels, 2007).

Subjective Norms also have a positive and significant relationship towards individuals' behavioral intention to use OGS thus supporting Hypothesis 14 (β = 0.242, p-value <0.001). Same result can be found on Google Meet and OGS adoption during COVID-19 (Al-Maroof et al., 2020; Al Amin et al., 2021). The relationship was also supported due to compliance effect (Schepers & Wetzels, 2007).

The positive and significant effect of Perceived Fear of COVID-19 was not found towards PU (β = 0.038, p-value = 0,195), PEOU (β = -9.183, p-value <0.01) and individuals' intention to use OGS (β = -0.03, p-value = 0.269). These results are not in line with previous researches where those relationship was found to be positive and significant on e-

health, Google Meet, and food delivery mobile application (Al-Maroof et al., 2020; Elahi et al., 2021; Puriwat & Tripopsakul, 2021). There can be several reasons on why different results is found. The fear of COVID-19 in Indonesia might be already low for individuals since 99% of the respondents has been vaccinated twice or more, previous research showed that vaccination can reduce fear and anxiety caused by COVID-19 (Babicki et al., 2021; Karayürek et al., 2021). Meta-analysis research also found that consumers used OGS services during COVID-19 pandemic is not because they think OGS is beneficial for them, but it is more likely because the COVID-19 pandemic situation that forced them to adopt the services. The difference on the technology itself might be the cause of this result, in which using OGS is more difficult than using Google Meet. The last reason might be due to there are still another option beside on using OGS to shop, which in Indonesia traditional market and retail store is still open during the restriction period.

Perceived Risk was shown to have a negative and non-significant relationship towards PU (β = -0.020, p-value = 0,382). This result coincides with previous literatures regarding OGS usage in Thailand and Indonesia (Driediger & Bhatiasevi, 2019; Putri, 2021). Meta-analysis research in context of OGS usage during COVID-19 pandemic also shown the non-significant relationship between Perceived Risk and Perceived Usefulness. This relationship might happen due to OGS users already familiar and trust towards OGS technology proven from the increase of online transaction generally (Frank & Peschel, 2020). The non-significant result might also due to the different risks are held more important by OGS users during COVID-19 pandemic which are psychological risk and physical risk (Iriani & Andjarwati, 2020).

VI. CONCLUSION AND RECOMMENDATION

This research objectives are to analyze on which factor which factors contribute the most between fear of COVID-19, subjective norms, and enjoyment to the behavioral intention to use OGS during pandemic in Indonesia using the TAM framework and also to confirm the relationship of TAM variables on the same context. The results show that enjoyment has the highest size of path coefficient towards behavioral intention to use OGS, more than subjective norms and the non-significant relationship with perceived fear of COVID-19. All the TAM variables and hypotheses were accepted on this research, confirming the robust framework of TAM from the previous literatures and also expanding the theoretical contributions of TAM used in OGS technology and during COVID-19 pandemic in Indonesia.

The findings of the study show that there is non-significant relationship between perceived fear of COVID-19 towards perceived usefulness and behavioral intention to use OGS. This result might shift the attention of OGS service provider to focuses on the others significant variables towards the behavioral intention to keep using OGS before and after COVID-19 pandemic.

The increase on perceived usefulness and perceived ease of use were believed to also increase the positive attitude of users' which will lead to the increase of behavioral intention to use OGS. Thus, it's important for OGS provider to search on how to increase both usefulness and ease of use. Service provider should make sure their OGS application and site were user friendly to be used by all ages to increase the ease of use. Usefulness of OGS can be further improved by giving the additional information of the products sold such as country of origin, nutrition, and ingredients list.

Subjective norms were also found to have a positive and significant relationship towards perceived usefulness and behavioral intention to use OGS. This finding means that it's important for OGS provider to sustain a positive image of OGS and their brand which will be shared through positive words of mouth from one person to another person. Referral program can also give benefit to OGS users' and help them spread positive WOM towards OGS.

Enjoyment was found to have the highest effect towards behavioral intention to use OGS more than subjective norms and perceived fear of COVID-19, thus OGS service provider must learn on how to increase the enjoyment of OGS. One way to increase the enjoyment of online shopping was by creating a promotion in a form of flash sale in which was already found to increase the enjoyment when online shopping (Vannisa et al., 2020).

There are some limitations found on this research. First, this research is cross-sectional research which means the data was only taken in single point of time. Meanwhile, COVID-19 pandemic is changing dynamically overtime due to its uncertain factor. The results of the research will be more comprehensive when it's done using longitudinal data collection in order to found the effect of COVID-19 fear overtime. This research also has a concentrated samples mainly on Greater Jakarta area. This research tries to capture the phenomenon country-wide, but only 20% of the respondents came from outside Greater Jakarta. Future research should try to gain more representative areas outside of Java Island and it will be better if all of the areas in Indonesia has even distribution in order to gain a country-wide results. Last, this research tries to understand the impact of COVID-19 fear as the antecedents of TAM variables. Future research could explore the possibility of COVID-19 fear as moderating variables.

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Predicting Employee Burnout Rate Using Neural Network

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Abstract

Burnout refers to a psychological reaction to chronic work stress. The phenomenon of burnout is undoubtedly a phenomenon that companies must overcome because it may adversely affect productivity and employees' desire to resign from their job. This study aims to predict employees with high burn rates and analyze all the possible factors influencing employee burnout amid the COVID-19 pandemic. Several factors were analyzed, including the type of company, job positions, work-from-home (WFH) schemes, mental fatigue score, and working hours per day. Based on the application of the neural network method, 92.2% of the burnout variance can be explained by the input variable, with the level of mental fatigue and working hours per day variables significantly influencing burnout. The neural network is re-applied with these two variables and can still explain 91.9% of the burnout variance. Employers can use this research to predict the burnout rate faced by employees and enrich previous studies regarding burnout prediction.

Keywords—Burnout prediction; neural network; COVID-19

I. INTRODUCTION

Burnout refers to a psychological reaction to chronic work stress. What is noteworthy is that the importance of burnout as a social problem was identified by practitioners and social commentators long before the focus of systematic studies by researchers (Maslach et al., 2001). According to Maslach and Susan E. Jackson (1986), burnout that occurs in workers can be defined in three main aspects, including emotional exhaustion where workers feel that the psychological level is no longer able to contribute, the growth of a cynical attitude towards clients, and the tendency of workers to judge themselves negatively.

According to Garton (2017), the psychological and physical problems of employees caused by burnout cost an estimated $125 billion to $190 billion annually in United States. The burnout phenomenon is certainly a phenomenon that must be overcome by the company because it has a negative influence on productivity and the desire of employees to resign (Rashad & Rosari, 2020). A model developed by Ganster and Rosen (2013) designed through multidisciplinary and employee health concerns the identification of psychological intervention processes that link stress exposure to health. This model identifies the process faced when someone experiences stress. Primary AL processes are symptoms that have a psychological impact such as fear to physiological anxiety such as cortisol and psychosomatic symptoms such as sleep disturbances and fatigue. Secondary AL processes are changes in body systems including the immune system such as immunoglobulin to reactive proteins, the cardiovascular system such as blood pressure and metabolic systems such as the effect on body mass index (BMI) to insulin levels. Finally, the Tertiary AL Process is an impact on health that affects the end point of the disease, for example diabetes to heart disease, psychological disorders such as depression to bipolar disorder, to extreme level, death.

Analysis through a big data approach can be carried out to assist in understanding the conditions correctly so that it can help make business decisions more measurably. Data-driven terminology is a terminology that is already rooted in every decision taken today. With data, phenomena can be described clearly. Modern companies are widely aware of this, not only for commercial purposes but also for non-commercial purposes. For this reason, data mining needs to be carried out in order to gain insight into the processes needed and can have an overview of phenomena that occur in the future. Quoted from The Wall Street Journal article by Julia Angwin, it is said that 'Storing and studying people's daily activities, even those that seem mundane, have become commonplace without exception'. Some of the points described are what motivated the authors to conduct research to predict burnout in the COVID-19 pandemic era with a big data analysis approach.

Several studies have been conducted regarding the prediction of burnout with a big data approach and the incidence of burnout during the COVID-19 pandemic. Arokkiya Mary and Jabasheela (2018) conducted a comparison using several machine learning techniques to predict the incidence of depression, anxiety and stress in students in Saudi Arabia in relation to the activity of playing video games with neural networks that have the best accuracy. Lee (2020) made a prediction for the incidence of burnout by 1,000 health workers using the neural network classification method. Zhernova et al. (2020) using the Maslach Burnout Inventory (MBI) as the basis for early detection of burnout, then modeling is made so that it can predict 70% of burnout events. This final project is expected to enrich previous studies by broadening the research perspective by analyzing working conditions in the pandemic era to predict burnout levels that occur in employees and analyze the dominant factors that influence burnout levels with a big data analytics approach using the neural network method. It is expected that employers can predict the potential for burnout that will occur to their employees and have a good picture of what factors have a high influence on burnout.

II. LITERATURE REVIEW

A. Burnout

The term burnout was first introduced by Freudenberger (1974). Burnout is a condition where workers feel failed, exhausted, or feel very tired caused by spending excessive energy, strength, and self-resources on themselves. Symptoms of burnout itself can vary and have a different level of severity in each person who experiences it. Physical signs that occur in someone who is burnout include feeling tired, prolonged flu, headaches, indigestion, and difficulty sleeping. Meanwhile, behavioral signs that usually occur are difficulty controlling emotions, looking easily frustrated, crying, and screaming.

Based on a study conducted by Wigert and Agrawal (2018) on 7,500 full-time employees, 23% of them experience burnout quite often at work with 44% of them also experiencing it at a lower frequency. Employees who burnout are 63% more likely to take sick leave and 2.3 times more active to look for a new job. Although there are also employees who choose to stay, in general they usually have 13% lower self-confidence. Broadly speaking, burnout has a major impact on company performance.

B. Stress Management Theory

Job Demand-Control Theory (JDC) states that work related can result from the interaction between several psychological job demands related to workload such as cognitive and emotional demands, interpersonal conflict, and job control related to decision authority and skills (Robert A., 1979). Cooper and Palmer (2003) developed a model based on the response to the HSE Executive's (2001) call for dealing with work-related stress and stress risk assessment. This model explores the impact related to stress or sources of stress faced by employees at work. Symptoms of acute stress also appear, where these symptoms are related to organizations as well as individuals. Negative outcomes are described for the physical and mental health of individuals, but beyond this, results are presented as financial losses for individuals and organizations.

The Yerkes-Dodson law (Yerkes & Dodson, 1908) explains the empirical relationship between pressure and performance. This law states that performance can be increased by physiological or mental stimulation, but only up to a point. When the arousal level becomes too high, performance will decline. Follow-up studies by (Gwyer, 2017) relating to nervous system excitability levels also provide us with a framework within which we can increase or decrease unhelpful excitability levels through therapeutic interventions. This application helps to determine which intensity is optimal to achieve the best performance (Fig. 1).
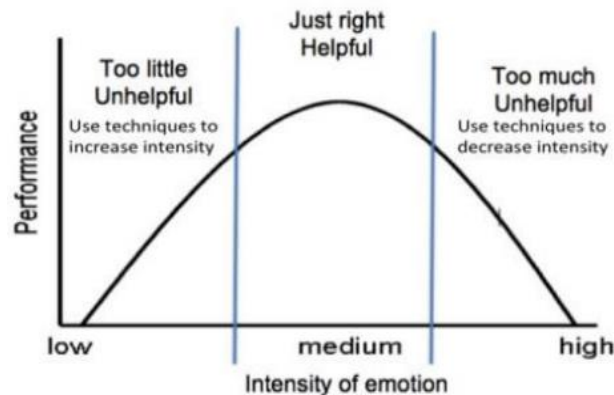
Fig. 1 Yorkes and Dodson law application (Gwyer, 2017)

C. The Use of Data in Decision Making

Many success stories come from choosing the right decisions using data. The use of the data itself can be used on all functional elements of the company, ranging from human resource analysis, decision making related to finance, production operations, and marketing. The use of the data itself is not only used in the commercial sector, but also exists in the non-commercial sector such as government and open communities.

Decision making with data analysis is known as data-driven decision making (DDD). The results of a study by Erik Brynjolfsson, Lorin Hitt, and Heekyung Hellen Kim (2011) show that companies that adopt DDD have higher productivity and output, at 5-6%. Currently, DDD has been implemented in an automated form, where at certain functions and scales in the company, decisions are made from logic that has been built by data science. The finance and telecommunications industries were early adopters of DDD in the 1990s. In that year, many companies in the finance and telecommunications sector implemented a fraud control decision system. This has had a significant impact on the industry. Today, it can be seen that the implementation of automated DDD has been carried out on a larger scale, such as in automatic recommendations from Amazon and movies from Netflix (Provost & Fawcett, 2013).

D. Knowledge Database Discovery (KDD)

Knowledge discovery in database (KDD) data mining is a process where an analysis will be carried out on existing data sources to gain an in-depth understanding of a phenomenon that occurs. KDD data mining itself begins with data selection, then data cleaning is carried out to clean the data before proceeding to the transformation stage so that the data mining process can be carried out to find out patterns or predict phenomena that may occur and then become input for managers to take a strategic approach to deal with phenomena. which exists.
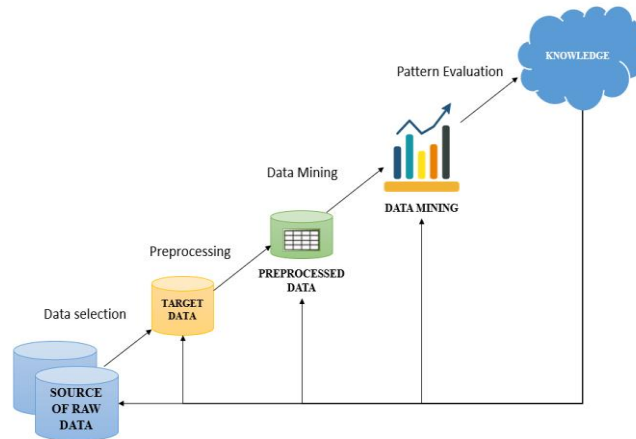
Fig. 2 Knowledge Database Discovery Process (Evans, 2015)

III. RESEARCH METHODOLOGY

This study aims to predict employee burnout levels in the COVID-19 pandemic era and formulate which variables have a major influence on employee burnout levels. The analysis is done by using the neural network method, namely by applying it to the training data. The results of this study can be used by the company's Human Resources (HR) function as one of the considerations for strategic approaches in dealing with job stress. Furthermore, the results of the study can predict which employees have a tendency to have high levels of stress. In addition, with the help of Olden's algorithm, it can be explained which variables have a high influence on employee burnout levels.

The analysis was carried out using the R application, which is one of the most popular statistical calculation tools. R is a software environment for statistical computing as well as graphing. R has the ability to process and run on various UNIX, Windows, and MacOS platforms. R's ability to perform statistical and graphic computations is supported by various types of packages, ranging from packages that provide R's ability to visualize data to data modeling. These packages were developed by various practitioners and the R user community.

A. Data Selection

Data collection is the initial stage of analysis through a big data approach. Data can be obtained from various sources and selected based on the 5V element to get the desired results. The data used is published by HackerEarth. The data contains information regarding burnout levels for employees in the COVID-19 pandemic era along with other information including the type of company industry, gender, position held, amount of working time per day, and the level of mental fatigue of employees (Table 1).

Table 1. Variable on dataset

No	Variable	Definition	Feature	Value	Variable type
Predictors					
1	Gender	Employee' gender	Gender	Male or Female	Character
2	Company type	Type of company where the employee is working	Company_Type	Product or Service	Character
3	Whether the companies applying WFH	Information regarding whether the companies applying WFH	WFH_Setup_Available	Yes or No	Character
4	Designation	Level of employment	Designation	1-5	Numeric (discrete)

5	Working hour per day	Working hour spent daily	Resource_Allocation	1-10	Numeric (discrete)
6	Mental fatigue score	Mental fatigue score provided by employee	Mental_Fatigue_Score	1-10	Numeric (continuous)
Target					
7	Level of burn rate	Level of burnout experienced by employee	Burn_Rate	0-1	Numeric (continuous)

B. Data Preprocessing

Data in the context of real-world data usually cannot be directly used for analysis. Often, the available datasets are messy, uneven, overly complex, and inaccurate. The process of cleaning and tidying the data so that the data can be used for algorithm analysis is called data pre-processing. Some of the main activities in the data pre-processing process as described by Evans (2015).

C. Data Mining

Generating knowledge in the context of data mining can translate into discovering new and valuable patterns, relationships, and trends in data that is useful to users. Data mining as a process involves, in essence, data collection and selection, data pre-processing, data analysis itself including visualization of results, interpretation of findings, and application of knowledge. Findings from the data mining process can be distinguished descriptively, where knowledge is represented in the form of models that describe patterns and relationships in the data, while predictive where knowledge is represented in predictions of future conditions, trends and relationships (Schuh et al., 2019).

- Descriptive Analytics

Data is usually tabular and often has a large amount so that an analysis is needed to describe it in the form of comprehensive information. The term descriptive analysis refers to the use of data to understand past and current business performance to assist in decision making (Evans, 2015). This process usually involves visualization techniques so that the information contained in the data can be conveyed to the audience to describe any phenomena or events that can be described by the data held. It is the process of presenting data, usually in large quantities, to provide insight to serve as a basis for better decision making. Data visualization improves the quality of decision making, provides managers with better analytical skills, and improves collaboration and information exchange. Data visualization also provides an effective way of communicating data at all levels of the business and also reveals patterns and correlations in the various variables presented

- Neural Network

Neural network is a machine learning algorithm which is the most important part of deep learning. Neural network is a powerful algorithm in the world of computer science and artificial intelligence (AI). The application of neural networks is quite popular as in speech recognition or in image recognition. This algorithm works as the structure of the human brain works by having neurons connected to one another. The basic idea of the neuron model is that the input, x, together with the bias, b, weighted by, w, is a vector of values, that is, $x \in \mathbb{R}^n$ and $w \in \mathbb{R}^n$ with $n \in \mathbb{N}$ corresponding to the dimensions of the input. The sum of these terms, i.e., $z = w^T x + b$ forms the argument of the activation function, ϕ, which gives the output of the neuron model (Emmert-Streib et al., 2020). Neural network works through neurons that are interconnected and work independently. Each neuron consists of input value, weight, bias (threshold) and output

$$y = \phi(z) = \phi(w^T x + b) \qquad (3.3)$$

Where:

w = weight

x = input

b = bias

In building a neural network architecture, neurons must be connected to each other. Feedforward architecture is the simplest architecture where all neurons between layers are connected to each other. In general, the depth of the FFNN indicates the number of non-linear transformations between the separator layers, while the dimension of the hidden layer, i.e. the number of hidden neurons, is referred to as the network width. The amount of depth of the FFNN architecture is debatable, but architectures with more than two hidden layers are generally categorized as deep feedforward neural networks (Bengio, 2009).

Once the input layer is defined, further weights can be assigned. These weights help determine the importance of a particular variable, with the larger variable contributing more significantly to the output compared to the other

inputs. All inputs are then multiplied by their respective weights and then added up. After that, the output is passed through an activation function that determines the output. If the output exceeds the given threshold value, the neuron will be activated and forward the data to the next layer. This results in the output of one neuron being the input of the next neuron. The application of the neural network in this study was carried out with a combination of the number of layers and neurons without referring to the rule of thumb the number of layers and neurons in the application of the neural network.

Neural network is an algorithm that is able to learn complex patterns. Neural network applications can continue to grow along with the increasing number of adequate training data. Neural network is very suitable to be used as a method if you have a large amount of data and can continue to grow over time. According to a study conducted by Pu et al. (2019), when compared to other traditional machine learning methods, neural networks can achieve a higher learning rate even though the performance obtained is not as fast as traditional machine learning

- Olden Method

The weight value that connects the variables in the neural network algorithm describes the relationship between variables. The weights determine the relative effect of the information processed by the neural network. Certain input variables that have a low correlation to the response variable will have their contribution suppressed by weights. On the other hand, input variables that have a large positive or negative influence will be regulated by weight.

A method proposed by Garson (1991) and also Goh (1995) identifies the relative importance (high association) of input variables in a single response variable in the supervised neural network by constructing weights on the neural network. Furthermore, a similar method was developed by Olden et al. (2004) which consistently produces better performance. Olden method calculates the variable contribution as the product of the raw hidden input and hidden-output connection weights between each input and output neuron and adds up the products in all hidden neurons. The advantage of this approach is that the relative contribution of each connection weight is maintained, both in terms of magnitude and sign, which is different from Garson's algorithm which only considers absolute quantities. The relative importance of the input variables can be determined by identifying all the weights connected to each neuron. All existing weights are calculated for each input neuron and scaled relative to other inputs so that the value of each input variable describes the relationship with the response variable.

D. Neural Network Evaluation

- Performance Evaluation

In assessing performance on predictions with regression, there are three commonly used metrics, namely the coefficient of determination, Root Mean Square Error (RMSE) and Mean Absolute Error (MAE). Basically, this metric calculates how much the resulting prediction differs from the actual value. Chicco et al (2021) summarize the equations of several regression metrics including:

I. Coefficient of Determination

Measuring how much variability of the dependent variable can be explained by the predictor variable:

$$R^2 = \frac{RSS}{TSS} = 1 - \frac{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2}{\sum_{i=1}^{n}(y_i - \bar{y})^2} \qquad (3.4)$$

II. Root Mean Square Error

RMSE is calculated by the sum of the squares of the prediction errors which is the real output minus the predicted output and then divided by the number of data points. This provides an absolute number of how far the predicted result deviates from the true value.

$$RMSE = \sqrt{\sum_{i=1}^{n} \frac{(\hat{y}_i - y_i)^2}{n}} \qquad (3.5)$$

III. Mean Absolute Error

MAE is similar to MSE, but MAE takes the absolute value of the prediction error. Formula 6 shows how the MAE value is determined.

$$MAE = \sum_{i=1}^{n} \frac{|y_i - \hat{y}_i|}{n} \qquad (3.6)$$

- Variable Relative Importance

The weight value that connects the variables in the neural network algorithm describes the relationship between variables. The weights determine the relative effect of the information processed by the neural network. Certain input variables that have a low correlation to the response variable will have their contribution suppressed by weights. On the other hand, input variables that have a large positive or negative influence will be regulated by weight. A method proposed by Garson (1991) and also Goh (1995) identifies the relative importance (high association) of input variables in a single response variable in the supervised neural network by constructing weights on the neural network. Furthermore, a similar method was developed by Olden et al. (2004) which consistently produces better performance. Olden's method calculates the variable contribution as the product of the raw hidden input and hidden-output connection weights between each input and output neuron and adds up the products in all hidden neurons. The advantage of this approach is that the relative contribution of each connection weight is maintained, both in terms of magnitude and sign, which is different from Garson's algorithm which only considers absolute quantities. The relative importance of the input variables can be determined by identifying all the weights connected to each neuron. All existing weights are calculated for each input neuron and scaled relative to other inputs so that the value of each input variable describes the relationship with the response variable

IV. RESULT / FINDING

A. Data Selection

The study begins with the selection of data to be used in the study for further analysis of each variable. The dataset contains employee surveys to employee burnout levels. In this research, information is extracted by finding what factors or variables can affect the level of burnout experienced by employees, so it will be useful for the company to define which employees have a tendency to have a high level of burnout.

B. Data Preprocessing

- Data Cleaning

The initial stage before data processing is the analysis of abnormalities in the dataset. Data that is an outlier, error, coding error, corrupt, missing, or abnormal can be discarded because it is considered not to have useful information. After the dataset is imported into the R environment, the dataset can be read perfectly without any row errors. Furthermore, the missing values were analyzed whether they provide significant information or can be discarded. From the results of checking for missingness on the dataset, there are a total of 3% of variables that have null/not available (missing values) values, due to its small proportion, all missing values will be discarded from dataset.

- Data Transformation

After analyzing the dataset, the next process carried out is the data pre-processing process. In accordance with the information displayed during the introduction of the dataset, the data type of each variable is not uniform so that a transformation stage is needed on the dataset which is a subset of the pre-processed data. The transformation steps are carried out on the variables Gender, Company_Type, and WFH_Setup_Available which are variables with character types. Furthermore, this variable is transformed into a numeric variable through coding until all variables have the same data type.

C. Data Mining

Correlation is a statistical measure of the strength of the relationship between the relative movement of two variables. The values range between -1.0 and 1.0. A negative correlation value means that two variables have an opposite relationship where if one variable decreases the value of the other variable increases, while if it is positive, the two variables tend to move in the same direction. Table 2 shows that Mental_Fatigue_Score has the largest correlation coefficient of 0.944 and followed by Resource_Allocation of 0.855, Designation of 0.736, and WFH_Setup of 0.307, Company_Type and Gender have a negative and low correlation with values of -0.043 and -0.144 respectively.

Table 2. Predictor variable correlation to target variable

No	Feature	Correlation	P-Value
1	Gender	-0.1565766	0.0000
2	Company_Type	-0.005903766	0.4209
3	WFH_Setup_Available	0.3071684	0.0000
4	Designation	0.7364116	0.0000
5	Resource_Allocation	0.8550048	0.0000
6	Mental_Fatigue_Score	0.9443886	0.0000

D. Evaluation

The data that has passed the pre-processing process is then ready to be processed for learning. Training data will be used as learning by the FFNN algorithm. The implementation of the neural network is done with the NeuralNet package available on R. The target variable is Burn_Rate and the rest is assigned as an input variable. FFNN will study the existing patterns in the data and weight each neuron. FFNN consists of hidden layers, where each hidden layer has a number of neurons. Variations in the number of layers and neurons will be considered as the basis for choosing which combination of the number of layers and neurons has the best accuracy. The combination is done with 1 hidden layer tested with 1 to 4 neurons and 2 hidden layers with a combination of 2 neurons in the first layer and 1 neuron in the second layer, 3 neurons in the first layer and 2 neurons in the second layer, and finally 4 neurons in the first layer. and 3 neurons in the second layer. After the learning process is complete, then the performance is validated by test data. The application of the neural network is carried out repeatedly with a combination of the composition of the training and test data before finally evaluating and analyzing whether it has consistency in the resulting accuracy.

Table 4. Result of Neural Network

Number of hidden layer	Neuron	Neuron	Splitting:Test 70:30				Processing time
			R²	MAE	MSE	RMSE	
1	1		0.919	0.0457	0.00314	0.05605	00:01:02
1	2		0.919	0.04558	0.00313	0.05596	00:00:55
1	3		0.92	0.04555	0.00312	0.05588	00:03:59
1	4		0.92	0.04554	0.00312	0.05586	00:07:16
2	2	1	0.92	0.04557	0.00312	0.05585	00:02:12
2	3	2	0.919	0.04569	0.00315	0.05614	00:09:10
2	4	3	0.922	0.0448	0.00297	0.05451	00:10:44

The addition of the number of hidden layers and neurons proves that both parameters have a positive impact on the performance of the neural network. Of the several learning schemes carried out, 2 hidden layers with variations of 4 neurons in the first hidden layer and 3 neurons in the second hidden layer gave the best performance with a coefficient of determination of 0.922 with MAE, MSE, and RMSE values respectively 0.4448, 0.00297 and 0.05451. The application time of the neural network also increases with the increasing number of neurons in the FFNN architecture.

Error: 24.639508 Steps: 63017
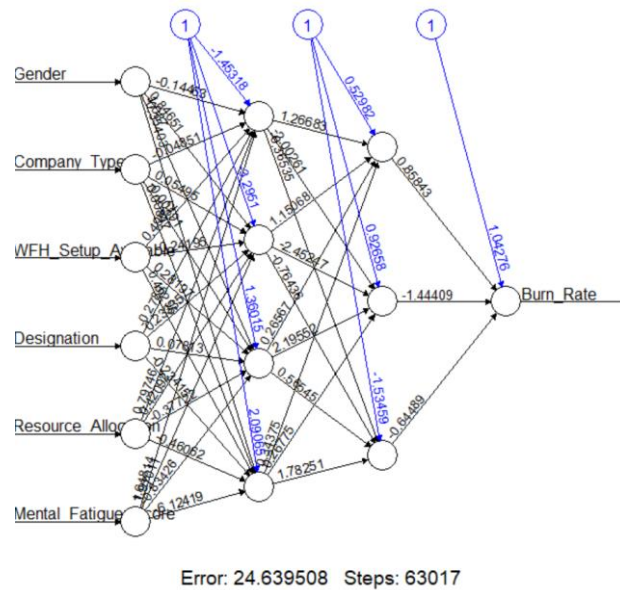
Fig. 3 Burnout rate prediction FFNN architecture

Several parameters are used in assessing the performance of neural network regression, including R², mean absolute error (MAE), mean square error (MSE), and root mean square error (RMSE). These parameters assess the extent to which the input variables can describe the output variables and the extent to which predictions deviate from the actual data. With the composition of splitting data of 80:20, the result of R² shows a value of 0.92, which means that the input variable can explain 92% of the target variable. Furthermore, MAE, MSE, and RMSE are respectively 0.045692, 0.003008844 and 0.054852932. Variations in data splitting also show that the neural network has a good level of consistency, although the composition of the values of the evaluation parameters has very small changes.

Table 5. Revalidate neural network performance

Skema *splitting*		*Neural network*		
Training	*Test*	R²	MAE	RMSE

60	40	0.926	0.044781	0.05462
70	30	0.922	0.0448	0.05451
80	20	0.92	0.045692	0.054853

Making perfect predictions is almost impossible to do. In addition to the limitations of the algorithm's capabilities, often the available data does not really have the desired consistency so that the occurrence of errors or prediction errors is still very likely to occur. Fig. 4 shows the comparison of the predicted value of the neural network with the actual value carried out using testing data, where the diagonal line shows the actual value of the Burn_Rate value, while the red dots represent the predicted value of Burn_Rate. The distance between the red dot and the diagonal line is an error encountered when making predictions. The farther the distance between the predicted value generated by the neural network and the actual value, the worse the quality. On the other hand, the closer to the actual value and the more similar the pattern to the actual value, the better the performance. Neural network has a distance that tends to be close to the data point regression line.

Real vs Predicted
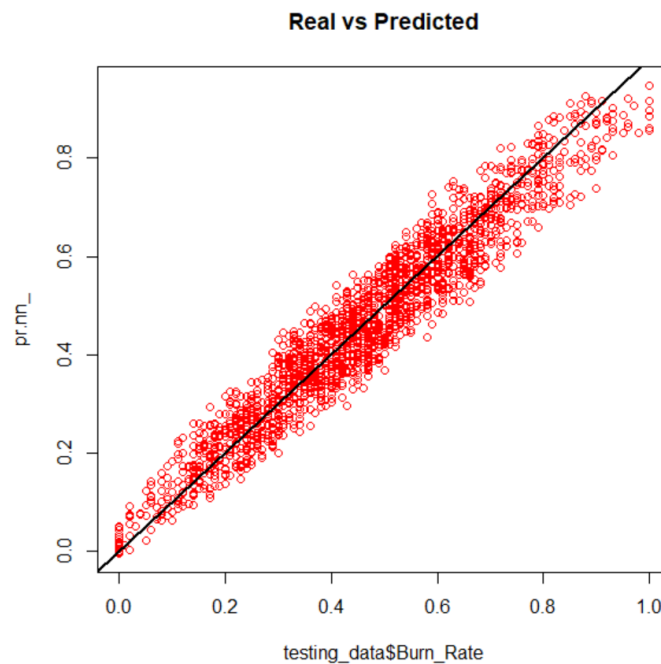
Fig. 4 Predicted and actual y value

V. DISCUSSION

To see the contribution of each input variable to the predicted value generated by the natural network, it is necessary to analyze the contribution of each variable using the method developed by Olden (2004). This analysis can be done using the NeuralNetTools package available in the R software. This package able to provide insight into the relative importance of each input variable. From the results of the analysis conducted, the mental fatigue score is a variable that has a dominant influence with a relative importance value of 25, then the resource allocation variable is 12, while other variables have a minor contribution compared to the previous two variables.
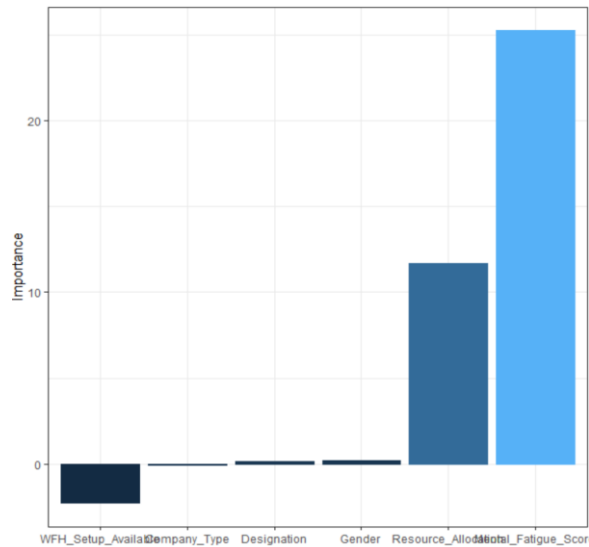
Fig. 5 Variable relative importance

From the application of the neural network that has been done, two variables, namely Mental Fatigue Score and Resource Allocation, contribute more dominantly than other variables. Furthermore, a comparison will be made by using the two most dominant input variables to see if the two variables are predictors that can produce performance that is not much different. Comparisons were made by sampling 5,000 rows of data and using the FFNN method with the same number of hidden layers and neurons. The scenarios carried out include:

- Scenario I: Gender, Company Type, Designation, WFH Setup Available, Resource Allocation, and Mental Fatigue Score
- Scenario II: Allocation and Mental Fatigue Score

The results in Table 6 show that scenario I produces the highest coefficient of determination at 0.922 with MAE, MSE, and RMSE values which are respectively 0.04478, 0.00298, and 0.05462. Scenario II which uses two variables produces a coefficient of determination of 0.919 with the lowest MAE, MSE, and RMSE values with values of 0.04525, 0.00306, and 0.05537, respectively.

Table 6. Comparison between different input variable scenarios

Burnout formula	Neuron combination 4:3				
	Splitting		Evaluation		
	Train	Test	R²	MAE	RMSE
Skenario I: Gender + Company_Type + WFH_Setup_Available + Designation + Resource_Allocation + Mental_Fatigue_Score	60	40	0.926	0.044781	0.05462
	70	30	0.922	0.04480	0.05451
	80	20	0.92	0.04569	0.05485
	90	10	0.919	0.04523	0.05526
Skenario II: Resource_Allocation + Mental_Fatigue_Score	60	40	0.919	0.04525	0.05537
	70	30	0.918	0.046	0.05636
	80	20	0.917	0.0463	0.05659
	90	10	0.919	0.04536	0.05541

Scenario I with six input variables showed better results than scenario II. However, scenario II, with the input variables of mental fatigue score and resource allocation, can still produce a coefficient of determination of up to 0.919 and is quite close to what is produced in scenario I also with RMSE and MAE values that are not closely monitored.

VI. CONCLUSION AND RECOMMENDATION

The phenomenon of burnout often occurs in many companies, but it is undetected and difficult to predict, resulting in material losses that result in health and mental and non-material conditions such as losing the company's best talents. This can actually be done by studying the patterns that exist in employees who experience high burn rates and applying a neural network to predict which employees have the potential to experience burnout. Based on the results of the research that has been done, several conclusions can be drawn including:

1. FFNN architecture gives the best results in predicting burn rate with R², RMSE, and MAE values of 0.922, 0.05462, and 0.04478 respectively.

2. The architecture with the best performance results from a combination of two hidden layers with a 4:3 neuron combination. In its application, the performance of the neural network has increased with the increase in the number of neurons, but along with that, the implementation time has also increased.

3. The level of mental fatigue and daily working hours are variables that have a dominant influence on the neural network, while the other variables tested have a low contribution.

4. Mental fatigue and daily working hours are two predictor variables that can be used to measure the burnout rate experienced by employees.

Employees who experience burnout have a bad impact not only on the physical and mental health of the employee, but also for the company. Burnout can have an impact ranging from reduced employee productivity to the emergence of various health problems that can be suffered due to negative emotions that affect the body's work system. For this reason, it is necessary to make adjustments or various strategic approaches by the company to overcome the bad possibility of burnout. Having an overview of the level of burnout experienced by employees is something that employers should have or related functions that regulate it, in this case the function of human resources (HR) in the company, by knowing the level of burnout experienced, the company can take a strategic approach and more measurable to those who may experience burnout. This study illustrates that measuring the level of burnout is possible and can be used as a basis for overcoming burnout.

From a series of analyzes that have been carried out, various factors are analyzed in relation to the occurrence of burnout and then the application of a neural network is carried out so that companies can predict the burnout rate that employees have the potential to experience. Should, with the ability to predict the burn rate of employees, companies can manage the workload so that the burn rate experienced does not have a negative impact on employees and ensure that their employees can have optimal performance as the application of the Yorkes-Dodson law. Those who have a burn rate in the range of 0 – 0.33 can be given an additional load so that the potential performance is more optimal, while those who have a burn rate of 0.34 – 0.66 can be said to have a normal load and those who have a burn rate above 0.66 are already alarm for certain approaches to avoid burnout.

Based on the application of the neural network, the level of employee fatigue and working hours are the factors that have the greatest influence on the burnout rate. Both of these factors should be a concern for the company, especially the human resources (HR) function to prevent the adverse effects that may occur if it causes burnout. Companies must of course consider the possibility of excessive fatigue on all employees so that employees avoid the negative effects of negative emotions. The sources of excessive thought burden should be handled and analyzed so that employees can work with good and healthy performance. The working hours per day spent by employees also have a significant influence, where the more hours spent per day, the higher the burn rate experienced. Based on the data presentation, employees who work more than seven hours tend to have experienced a negative level of burn rate.

This study also shows that mental fatigue and working hours are good predictors in measuring the burn rate experienced by employees. In this case the input that can be given to the company is to pay more attention to the workload that is owned by each employee, all employee work should be quantified in the form of time that must be spent per day so that it can be adjusted whether the workload given is appropriate for each employee. The big data analysis approach can be used by employers in mapping the level of stress that employees may experience. The level of prediction accuracy can also be continuously improved along with continuous learning on the neural network.

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Analysis of the Effect of Inflation, Money Supply, and Interest Rates on E-Money Circulating in Indonesia in 2013-2021

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Abstract

Electronic money or e-money is a new means of payment that is following the current developments. Many people have been proven to have used e-money for their daily activities. This is supported by the very practical nature of e-money and better public security. In connection with the rapid use of e-money, this will lead to various impacts, one of which is inflation, while the amount of e-money in circulation will be more than the amount circulating in the community. This study aims to determine the effect of inflation, money supply, and interest rates on the development of e-money circulating in Indonesia from 2013-2021. The study was conducted using quantitative methods and using secondary data to be taken from available official websites. The variables used in this study are e-money, inflation, the money supply, and interest rates. The analytical method used in this research is multiple linear regression analysis. Based on the results of data analysis and discussions that have been carried out in this study regarding the effect of inflation, the amount of money in circulation, and interest rates on electronic money circulating in Indonesia in 2013-2021 it can be said that the independent variables affect the related variables, namely inflation, the amount in circulation and interest rate.

Keywords— e-money, inflation, interest rates, money supply

I. INTRODUCTION

The role of the financial sector has a major influence in developing Indonesia's economic growth facilities. Along with the times, the financial sector, especially banking, will experience rapid progress. This is evidenced by the emergence of innovation in the field of technology. The easier the technological innovation that can be achieved by the community, the faster the changes in the financial sector will be.

Money in Indonesia only has currency and demand deposits, but now electronic money (e-money) is starting to develop. Electronic money is said to be a relatively new payment compared to APMK (Card-Based Payment Instruments), which are debit cards, credit cards, and ATM cards. The emergence of electronic money which is relatively new in Indonesia basically, started with APMK. In 2009, electronic money (e-money) was separated from the APMK and regulated in a Bank Indonesia Regulation.

The regulation of electronic money is relatively less selective than the APMK because it follows the nature of electronic money in which the deposit system is compared to the amount and transactions. Currently, the development of e-money is higher than other APMK (Card-Based Payment Instruments). This may be related to public practices and security in terms of payments, such as the addition of an e-money application in collaboration with Bank Indonesia.

The growth of electronic money will not have many obstacles, one of which can trigger inflation in the community. This is because the amount of electronic money circulating in the community is greater than cash flow, so it can increase or decrease an item. In addition, electronic money can affect the amount of money in circulation but can be controlled by the government with regulations.

II. LITERATURE REVIEW

Researchers who are used as references in the form of previous research related to the influence of inflation, the amount of money in circulation, and interest rates on e-money circulating in the research that has been done the

previous. The effect of e-money on inflation has no significant effect on the relationship between e-money and inflation. (Zunaitin et al, 2017)

According to (Permatasari Khairunisa, 2020) E-money hurts harms the velocity of money, this is because e-money transactions carried out by the public cause ceteris paribus. E-money does not affect interest rates. This is because e-money transactions carried out by the public are direct payment transactions, so they do not use interest rates in the payment process.

The function of the bank as an intermediary for financial intermediaries that channel funds to the public and the function of returning these funds to support national economic development. In this regard, banking significantly affects technology. Technological developments such as card-based payment instruments and electronic banking can reduce transaction costs and increase service speed substantially (Aprianto & Khairunisa, 2013).

E-money and debit transactions have a significant effect on the money supply, e-money transactions hurt and harm interest rates where the BI Rate and BI 7days repo are used as desires that affect the transmission of savings interest rates and interest rates. (Lintangsari, et al, 2018)

According to (Rahmayuni, Siti 2019) e-money and e-commerce affect inflation so this can be used as a policy for Bank Indonesia to anticipate rising inflation rates. According to (Nur et al., 2019) non-cash transactions are increasingly being used in terms of transactions because they are more practical, easy, and fast. Non-cash transactions affect the amount of money circulating in the community and can lead to inflation so it can be concluded that non-cash transactions have a positive and significant effect on the money supply and inflation can strengthen the relationship of non-cash transactions to the money supply.

III. Research Methodology

This research data uses secondary data in the form of inflation, money supply, interest rates, and the amount of electronic money circulating in Indonesia from 2013-2021. Secondary data has been carried out or processed through surveys conducted by certain agencies. The data sources that support this research are the Central Statistics Agency and Bank Indonesia. The data analysis technique used is quantitative with multiple linear regression analysis. The multiple linear regression model can be expressed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \qquad (1)$$

Where the description is :

Y $\qquad$ = E-Money

β_0 $\qquad$ = Constant

$\beta_1 \dots \beta_3$ = Independent Variable Regression Coefficient

X_1 $\qquad$ = Inflation

X_2 $\qquad$ = Money Supply

X_3 $\qquad$ = Interest Rate

ε $\qquad$ = Error

IV. RESULT / FINDING

The Result of multiple linear regression using Ordinary Least Square (OLS) method.

Table.1 Ordinary Least Square Result

Dependent Variable: LOG(EM)
Method: Least Squares
Date: 04/19/22 Time: 20:06
Sample: 2013 2021
Included observations: 9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-184.7808	43.99477	-4.200062	0.0085
INF	0.255284	0.164451	1.552339	0.1813
LOG(JUB)	10.85076	2.365564	4.586966	0.0059
SB	0.017830	0.021781	0.818612	0.4502

R-squared	0.950770	Mean dependent var		11.88227
Adjusted R-squared	0.921232	S.D. dependent var		1.872844
S.E. of regression	0.525625	Akaike info criterion		1.852644
Sum squared resid	1.381407	Schwarz criterion		1.940299
Log likelihood	-4.336896	Hannan-Quinn criter.		1.663484
F-statistic	32.18815	Durbin-Watson stat		1.785970
Prob(F-statistic)	0.001076			

Table.2 Result Multicolonierity Test

Variance Inflation Factors

Date: 04/19/22 Time: 20:33

Sample: 2013 2021

Included observations: 9

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1935.540	63051.16	NA
INF	0.027044	18.32035	4.675235
LOG(JUB)	5.595895	58552.35	9.322760

SB	0.000474	74.39250	3.921178

8.   Graphs.1 Result Normality Test

Series: Residuals	
Sample 2013 2021	
Observations 9	
Mean	-3.86e-14
Median	-0.064938
Maximum	0.652111
Minimum	-0.499864
Std. Dev.	0.415543
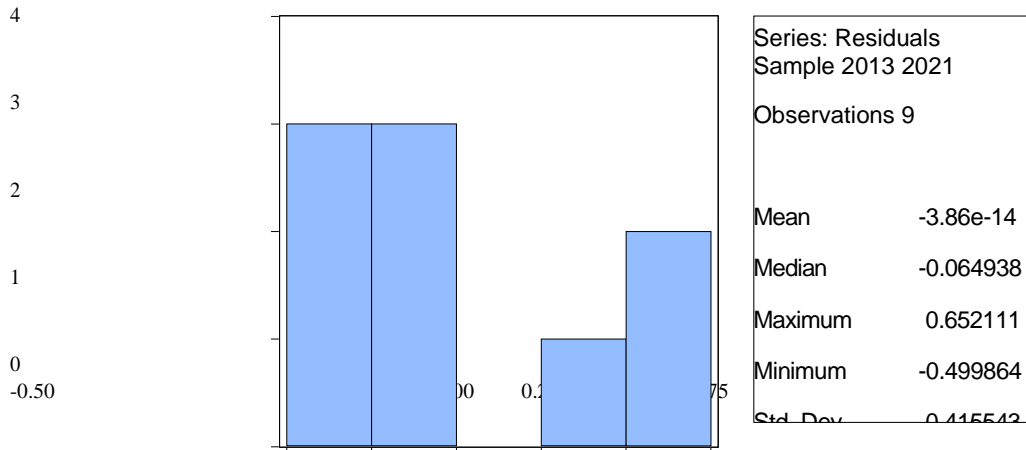
Table.3 Result Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.117444	Prob. F(2,3)	0.8931
Obs*R-squared	0.653500	Prob. Chi-Square(2)	0.7213

Test Equation:

Dependent Variable: RESID
Method: Least Squares
Date: 04/19/22 Time: 20:35
Sample: 2013 2021
Included observations: 9
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.08061	68.37518	-0.162056	0.8816
INF	0.041608	0.275442	0.151059	0.8895
LOG(JUB)	0.600498	3.690279	0.162724	0.8811
SB	0.002360	0.027745	0.085075	0.9376
RESID(-1)	-0.128602	0.779323	-0.165018	0.8794
RESID(-2)	-0.283546	0.601174	-0.471654	0.6694
R-squared	0.072611	Mean dependent var		-3.86E-14
Adjusted R-squared	-1.473037	S.D. dependent var		0.415543
S.E. of regresion	0.653478	Akaike info criterion		2.221706

Sum squared resid	1.281101	Schwarz criterion	2.353189
Log likelihood	-3.997676	Hannan-Quinn criter.	1.937966
F-statistic	0.046978	Durbin-Watson stat	1.920042
Prob(F-statistic)	0.997182		

Table.4 Result Heteroskedasticity Test

Heteroskedasticity Test: White

F-statistic	0.796685	Prob. F(3,5)	0.5463
Obs*R-squared	2.910736	Prob. Chi-Square(3)	0.4056
Scaled explained SS	0.401096	Prob. Chi-Square(3)	0.9400

Test Equation:

Dependent Variable: RESID^2
Method: Least Squares
Date: 04/19/22 Time: 20:35
Sample: 2013 2021
Included observations: 9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.226659	5.575336	-0.399377	0.7061
INF^2	0.005046	0.003954	1.276247	0.2579
LOG(JUB)^2	0.007071	0.016686	0.423746	0.6894
SB^2	8.54E-07	4.48E-05	0.019037	0.9855

R-squared	0.323415	Mean dependent var	0.153490
Adjusted R-squared	-0.082536	S.D. dependent var	0.153839
S.E. of regression	0.160061	Akaike info criterion	-0.525416
Sum squared resid	0.128098	Schwarz criterion	-0.437761
Log likelihood	6.364374	Hannan-Quinn criter.	-0.714576
F-statistic	0.796685	Durbin-Watson stat	2.722317
Prob(F-statistic)	0.546300		

Table.5 Result Linear Test

Ramsey RESET Test
Equation: UNTITLED
Specification: LOG(EM) C INF LOG(JUB) SB
Omitted Variables: Squares of fitted values

	Value	Df	Probability	
t-statistic	0.856775	4	0.4399	

F-statistic	0.734063	(1, 4)	0.4399
Likelihood ratio	1.516405	1	0.2182

F-test summary:

	Sum of Sq.	Df	Mean Squares
Test SSR	0.214201	1	0.214201
Restricted SSR	1.381407	5	0.276281
Unrestricted SSR	1.167206	4	0.291802

LR test summary:

	Value	Df
Restricted LogL	-4.336896	5
Unrestricted LogL	-3.578694	4

Unrestricted Test Equation:

Dependent Variable: LOG(EM)
Method: Least Squares
Date: 04/19/22 Time: 20:35
Sample: 2013 2021
Included observations: 9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	107.7807	344.4488	0.312908	0.7700
INF	-0.196506	0.553736	-0.354872	0.7406
LOG(JUB)	-5.804919	19.59141	-0.296299	0.7817
SB	-0.003702	0.033655	-0.110003	0.9177
FITTED^2	0.063500	0.074115	0.856775	0.4399

R-squared	0.958404	Mean dependent var	11.88227
Adjusted R-squared	0.916807	S.D. dependent var	1.872844
S.E. of regression	0.540187	Akaike info criterion	1.906376
Sum squared resid	1.167206	Schwarz criterion	2.015946
Log likelihood	-3.578694	Hannan-Quinn criter.	1.669926
F-statistic	23.04062	Durbin-Watson stat	1.460415
Prob(F-statistic)	0.005047		

V. DISCUSSION

The inflation variable has a regression coefficient of 0.255284 which has no significant effect, with a probability value of t of 0.1813 > (0.1), then the inflation variable does not affect e-money in Indonesia in 2013-2021. Based on the results of the research on data estimation using the OLS (Ordinary Least Square) method, it shows that the inflation variable has no significant effect on E-Money circulating in Indonesia from 2013-2020. Inflation is a general and continuous increase in prices over a certain period of time. The results of this study are in accordance with previous research conducted by (Mifta Qoirun Nisa Arifin1, Shanty Oktavilia, 2020) "Analysis of the Use of Electronic Money in Indonesia". shows that inflation has no significant relationship with e-money. Inflation has a positive and insignificant impact on electronic money transactions, both in the short and long term. That's because of the demands of the community to continue to supply the necessities of life even though prices have

increased, in this case, the condition of the community still assumes that the increase in the price of goods or services is still affordable by their income.

The money supply variable has a regression coefficient of 10.85076 which has a significant effect, with a probability value of t of 0.0059 < (0.01), the money supply variable has an effect on e-money in Indonesia in 2013-2021. Based on the results of research on data estimation using the OLS (Ordinary Least Square) method, it shows that the money supply variable has a significant influence on E-Money circulating in Indonesia in 2013- 2021. The definition of the money supply in a narrow sense (M1) that money supply is purchasing power that can be used directly for payments, can be expanded to include payment instruments that are "closer" to money, for example time deposits and saving deposits.) at the banks. The results of this study are in accordance with previous research conducted by (Chintia Ariani Putri P. Eko. Prasetyo,) "The Effect of Money Supply, Counterfeit Money, and Economic Growth on E-Money Transactions" and (Mifta Qoirun Nisa Arifin1, Shanty Oktavilia, 2020) "Analysis of the Use of Electronic Money in Indonesia", The results show that the money supply has a significant positive effect on electronic money transactions in Indonesia. The increase in electronic money transactions is also accompanied by an increase in the amount of money circulating in the community. This is because there are still many people who use cash, which is then transferred to electronic money.

The interest rate variable has a regression coefficient of 0.017830 which has no significant effect, with a probability value of t of 0.4501 > (0.1), then the interest rate variable does not affect e-money in Indonesia in 2013-2021. Based on the results of research on data estimation using the OLS (Ordinary Least Square) method, it shows that the interest rate variable has no significant effect on E-Money circulating in Indonesia from 2013- 2020. Interest rates are monetary indicators that have an impact on several economic activities, which will influence investment decisions which in turn affect economic growth and will affect the value of money circulating in the community. The results of this study are by following previous research conducted by (Maratus Zahro, Rika Rahayu, 2021) "The Value of E-Money Transactions in Indonesia Using the Markov Switching Method" and (Mifta Qoirun Nisa Arifin1, Shanty Oktavilia, 2020) "Analysis of the Use of Electronic Money in Indonesia". The results show that interest ratesdo not affect E-Money. Short-term yields and long-term interest rates have an insignificant negative effect on electronic money. Interest rates affect cash handling, but because the application of electronic money payments is limited, people still tend to allocate their funds to the money market without reducing consumption in the goods market.

VI. Conclusion and Recommendation

Based on the results of data analysis and discussions that have been carried out in this research regarding the effect of inflation, the amount of money in circulation, and interest rates on e-money circulating in Indonesia from 2013-2021, it can be concluded that the independent variables can influence the related variables, namely inflation, the money supply, and interest rates. In this study, two independent variables have no significant effect on e- money circulating in 2013-2021, it is inflation and interest rates. Meanwhile, there is only one variable that has a significant effect, namely the money supply of e-money circulating in Indonesia from 2013-2021. From the results discussed earlier, of course, it can be a recommendation, including Bank Indonesia has the task of socializing the use of e-money to the public. The use of e-money is expected to create a tendency for people to use non-cash transactions in the future. The importance of money for a country's economy causes the government to maintain a stable inflation rate in the future.

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Cluster Prioritization in Advanced Metering Infrastructure Strategic Implementation Planning

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Abstract

Adopting new technology in the organization's business process requires a strategy that considers both technical and non-technical aspects. As the biggest electricity provider in Indonesia, PLN continuously adapted to technology in facing business challenges by implementing the Advanced Metering Infrastructure (AMI). Due to the AMI complex system, a large number of customers in Indonesia, and the need for a massive investment, it is impossible for PLN to roll out the system to all customers at the same time, so PLN needs a strategy to prioritize the location that becomes a target of this system implementation it can lead to an optimal project result.study aims to analyze and propose a cluster prioritization in implementing Advanced Metering Infrastructure using Fuzzy Analytical Network Process (FANP). This method has been widely used in decision-making, but the study in a massive investment with this scope of the project remains limited. The analysis will consider factors that influence the migration process so the strategy can lead to an effective and efficient process. This was accomplished by literature review, followed by in-depth interviews with experts involved in the AMI implementation plan in Indonesia and analyzed using FANP to get the cluster prioritization. From the early result, a location with high use of power is preferred for implementation, followed by locations with the highest potential use of product beyond kWh. The result aligns with the goal of this technology adoption to create an added value for company goods and services which leads to a lean, efficient electric power management business process and improves the company's revenue.

Keywords— Advanced Metering Infrastructure; Planning; Prioritization

I. INTRODUCTION

Technology plays a major role and is closely linked to business operations. The use of technology in a process is related to how the technology enhances value in the process of creating or providing goods or services (Slack & Lewis, 2020). Current technology developments have triggered the fourth industrial revolution, which has occurred in new business models. This technology's advancement has an impact on organizations that seek to adapt and utilize new technological advancements (Singh, Rathore, & Park, 2019). Several examples of digital innovation exist, including the use of an integrated IT system for business operations, digital payment mechanisms, or the use of smart devices to improve company business processes. Digital innovation has an impact on an organization's strategic and operational levels (Abdulkader, Magni, Cillo, & Micera, 2020). This enhances a variety of areas, including the electric power system. The use of the smart grid in power systems is an example of these technological advancements. A smart grid is a power grid that is designed to improve the efficiency and reliability of electricity production and distribution by leveraging advances in information and communication technology (Guan & Guan, 2020). Sensors should be installed in various parts of the system during smart grid implementation. The meter reading system is a sensor that plays a significant role. A Smart Grid meter reading system should not only be able to measure energy transactions but also include additional features and functions to optimize the smart grid's performance.

AMI is an integrated system consisting of a smart meter, communication network, and data management system that enables two-way communication between utilities and customers (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018). As an electricity provider in Indonesia, PT PLN (Persero) carries out operational activities covering the fields of generation, transmission, and distribution to serve a variety of customer groups. As with other companies, PT PLN (Persero) is also innovating and adapting to technological changes to meet stakeholders' requirements. One of PT PLN's (Persero) initiatives is to adopt Advanced Metering Infrastructure technology in the electricity system in Indonesia. This program aligned with the company's need to be agile and adapt to technological developments (PT PLN (Persero), 2020). The advantages of advanced metering infrastructure provide various potential improvements for utility operational activities in providing electricity services for all customers (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018). Implementation of Advanced Metering Infrastructure (AMI) in the existing system faces several challenges related to a lack of system support equipment, high investment costs,

and system migration (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018). Advanced Metering Infrastructure (AMI) is a new technology with a complex system therefore, integrating this Advanced Metering Infrastructure (AMI) technology into the power system will require a massive investment. With a large number of customers, PLN must prioritize strategy considering many factors both technical and non-technical aspects, as well as the impact on the organization.

This study aims to analyze an impactful set of criteria and sub-criteria in implementing advanced metering infrastructure using FANP which has been widely used in decision-making (Azzat, 2018), (Mirahmadi, Attafar, & Ketabia, 2018), (Shardeo, Patil, & Madaan, 2020), but the study uses Fuzzy Analytical Network Process (FANP) in a massive investment within this project's scope. This Analytical Network Process (ANP) method is a development of the Analytical Hierarchy Process (AHP) method by correcting the Analytical Hierarchy Process (AHP) deficiency in which the Analytical Hierarchy Process (AHP) dependencies between criteria are not taken into account even though a criteria with other criteria often has a relationship with one another (Saaty, 2004), and fuzzy sets used to overcome the problem of uncertainty and incomplete or non-specific data in helping decision-making (Mirahmadi, Attafar, & Ketabia, 2018). Those criteria are then used to propose a cluster prioritization possibility that becomes the Advanced Metering Infrastructure (AMI) implementation target, ensuring that the migration strategy leads to an effective and efficient process.

II. LITERATURE REWIEW

A. Operation Strategy

Operations activities play a vital role in the business processes of a company. The operation is an activity that involves managing the company's resources as well as a series of processes that result in the production of goods or services (Slack & Lewis, 2020). According to Slack & Lewis (2020), Strategic decisions which affect the achievement of company objectives and include long-term planning of the company's business processes are involved in carrying out these operational activities. Operations strategy can also be defined as a broad decision that determines the company's long-term capabilities from each operation activity, and it is developed while taking market conditions and operating resources into account (Slack & Lewis, 2020). There are four perspectives in determining operating strategy, a namely top-down perspective where the operation strategy is able to interpret higher-level strategy, the Market Requirement Perspective where choosing strategic decisions the company must be able to meet market needs, and bottom-up perspective which prepares the company's operation strategy based on experience or lessons learned from the daily activities carried out by the company, and the last perspective is operation resources where the operation strategy is able to build or improve the operation capabilities of an organization (Slack & Lewis, 2020).

B. Process Technology Strategy

Technology is critical and cannot be separated from business operations. The application of technology in a process is related to how technology adds value in the process of creating or providing goods or services (Slack & Lewis, 2020). New technology adoption frequently necessitates triggers because it usually requires integration and takes a long time to implement due to the costs and impact of implementing the updating technology into the company or organization. Technical feasibility, improvement of the company's strategic capabilities, operational benefits, labor market dynamics, social and regulatory acceptance, costs, and other non-cost resources are all major considerations when making a decision to implement new technology (Slack & Lewis, 2020) (Wulandari & Ferry, 2021) (Hall & Khan, 2003) Decision-making related to the application of new technology involves a number of factors that are taken into account, including technical aspects, or Human Resources skills such as what is needed, the number of resources needed in this case what is meant by resources (people, facilities, time, and so on), financing for new technology implementation, and the last is related to whether the operation of the new technology can cope with changing resource requirements (Slack & Lewis, 2020). Several other sources mention a number of factors that influence the adoption of new technologies, and the factors are listed in Table I below based on some of the existing literature.

Table 1. Impactful Factors in Adopting New Technology

No	Factors	References
1	Knowledge	(Slack & Lewis, 2020) (Wulandari & Ferry, 2021) (Hall & Khan, 2003)
2	Skill	(Slack & Lewis, 2020) (Wulandari & Ferry, 2021) (Hall & Khan, 2003)

3	Technology (Access, Technical feasibility, rapid change)	(Slack & Lewis, 2020)
		(Hall & Khan, 2003)
4	Capital (Investment, access to capital, ROI)	(Slack & Lewis, 2020)
		(Wulandari & Ferry, 2021)
		(Hall & Khan, 2003)
5	Organizational (Institutional Investment)	(Slack & Lewis, 2020)
6	Resources	(Slack & Lewis, 2020)
		(Wulandari & Ferry, 2021)
7	Benefit	(Wulandari & Ferry, 2021)
		(Hall & Khan, 2003)
8	Customer Relation	(Wulandari & Ferry, 2021)
9	Supply behavior	(Wulandari & Ferry, 2021)
10	Market Structure	(Wulandari & Ferry, 2021)
		(Hall & Khan, 2003)
11	Firm Size	(Wulandari & Ferry, 2021)
12	Governance and Regulation	(Wulandari & Ferry, 2021)
		(Hall & Khan, 2003)

Source: author's data processing result

C. Electricity Transaction In Indonesia

PT PLN (Persero) manages the operation of generation, transmission, and distribution as an electricity provider in Indonesia. The Indonesian electricity system serves various groups of customers who are divided into tariff groups depending on the power limit installed in accordance with the rules guiding electricity tariffs in Indonesia, which are regulated in the Regulation of the Ministry of Energy and Mineral Resources (MEMR) (Kementrian Energi dan Sumber Daya Mineral, 2016). Energy transactions between PLN and customers require the use of a Meter, which records electricity consumption over a set period of time and is sufficient in both prepaid and post-paid types. For post-paid meter customers, the result of the meter's reading of electricity consumption is then used to continue the billing process. The amount of electrical energy that prepaid customers can use is determined by the transaction's nominal amount paid in advance. Meter readings on electricity consumption are also used as a basis for load planning, both in daily operations and long-term system planning, as well as to measure network shrinkage caused by increased load on the electric power system and non-technical losses caused by electricity theft (PT PLN (Persero), 2020).

D. Advanced Metering Infrastructure

An example of digital transformation in electricity utility is the use of the smart grid, an electricity network that uses advances in information and communication technology to improve the efficiency and reliability of electricity production and distribution (Guan & Guan, 2020). Smart grid is a big concept with the use of Advanced Metering Infrastructure as a part of it. Advanced Metering Infrastructure (AMI) is an integrated system that enables two-way communication between utilities and customers, with meters, Head End Systems (HES), communication infrastructure, and Meter Data Management System (MDMS) as the minimum infrastructure requirements for the system (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018).

Smart meters are the most important component of the Advanced Metering Infrastructure (AMI) system with the functions to measure electrical energy consumption, display notifications and many other additional features that help utility to manage the energy transaction. The Advanced Metering Infrastructure (AMI) system employs a Data Concentrator Unit (DCU), which serves as a gateway between the smart meter and the Head End System (HES). HES is a 2-way communication metering system component that collects and stores all meter recording data, alarms, and some other information from other devices below for further transmission to the MDMS that will collect and stores meter measurement data and processes it into information that utilities can use in accordance with business processes (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018). In this integrated system, communication networks play a major role in the successful deployment and operation of data transmission (Teng, Chao, Liu, & Huang, 2018). Utilities, in general, use a variety of communication technologies that are chosen and implemented based on location, customer density, network configuration, and geography (Mangunkusumo, Surya, Jintaka, & Tambunan, 2021).

E. Fuzzy Analytical Network Process

The Analytical Network Process (ANP) is one of multi-criteria measurement methods that generate the relative priority scale from absolute numbers that are individual ratings or from actual measurements that are normalized to relative forms that are also included in the fundamental scale of absolute numbers (Saaty, 2004). ANP is the

development of the Analytical Hierarchy Process (AHP) method in correcting the deficiency in the AHP due to uncalculated dependencies between criteria, despite the fact that one criterion often has a relationship with other criteria (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017). The Fuzzy Analytical Network Process is a development of the ANP method that uses a triangular fuzzy scale to overcome decision-making that is considered non-objective by ANP, as shown in Table 2 (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015).

Table 2. Fuzzy Linguistic Scale

ANP Scale		TABLE I. Linguistic Scale	TABLE II. Fuzzy Scale		TABLE III. Fuzzy Reciprocal Scale	
TABLE IV.	1	TABLE V. Equally Important	TABLE VI.	(1,1,1)	TABLE VII.	(1,1,1)
TABLE VIII.	3	TABLE IX. Slightly More Important	TABLE X.	(1,3,5)	TABLE XI.	(1/5,1/3,1)
TABLE XII.	5	TABLE XIII. More important	TABLE XIV.	(3,5,7)	TABLE XV.	(1/7,1/5,1/3)
TABLE XVI.	7	TABLE XVII. Very Important	TABLE XVIII.	(5,7,9)	TABLE XIX.	(1/9,1/7,1/5)
TABLE XX.	9	TABLE XXI. Absolute More Important	TABLE XXII.	(7,9,9)	TABLE XXIII.	(1/9,1/9,1/7)

Source: (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015)

III. RESEARCH METHODOLOGY

A qualitative method with a descriptive research design is applied in this research to obtain information about the system implementation plan then the result will become inputs to formulate decision making in prioritizing clustering alternative strategies with the following steps as shown in Figure 1. This research stage begins with the formulation of problems related to identifying the factors that give an impact and must be considered in deciding cluster prioritization alternatives for implementing Advanced Metering Infrastructure in Indonesia. This was achieved through a literature review, followed by in-depth interviews with experts involved in AMI implementation planning in Indonesia. Requirements for Experts chosen in the Advanced Metering Infrastructure implementation planning were experts who have very good knowledge in electricity business process, have knowledge in smart grid, have a very well informed about advanced metering infrastructure and are directly involved in AMI Implementation planning. In-depth interviews not only to make sure about the set of factors that influences AMI implementation in Indonesia but also the alternative strategy that will be conducted in the system migration.

The information that was obtained from the previous step will be processed in Analytical Network Process modelling using the Super Decision application. This software is commonly used as a support in decision making that implement Analytical Hierarchy Process and Analytical Network Process. The next step of this study is determining the level of importance of each criterion related to other criteria and alternatives by using a pairwise comparison questionnaire that becomes one of the Super Decision features, this questionnaire is then distributed to experts who qualified with the requirements who were directly or indirectly involved in the implementation plan of Advanced Metering Infrastructure in Indonesia, who have an understanding of electrical energy transactions business process and having enough knowledge in smart grid and regulation related to this implementation process.
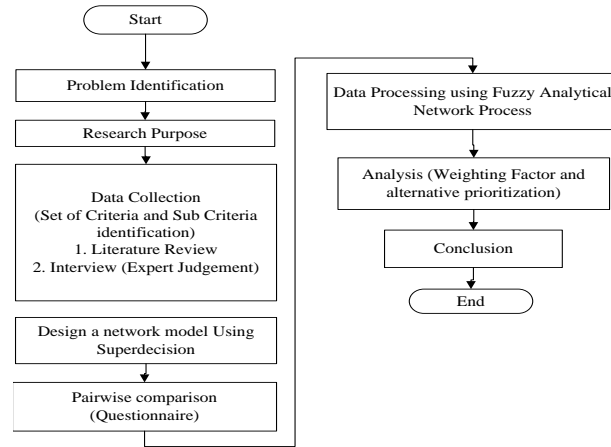
Fig.1. Research Methodology

The expert judgments need to pass the consistency test with the conditions for CR 0.1, where the CR value is calculated using the following equation: (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015).

$$CI = (\lambda max - n)/(n-1) \qquad (1)$$
$$CR = CI/IR \qquad (2)$$

With
CI   = Consistency Index
λmax   = Maximum Eigen Value
n   = number of elements
CR   = Consistency Ratio
IR   = Index Ratio

The linguistic numbers from expert judgment are then converted into fuzzy numbers according to Table 2. After transform the questionnaire result to fuzzy linguistic scale, then it will continue with fuzzy aggregate value and geomean calculation that carried out with the following equation: (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015).

$$\tilde{A}^* = [\tilde{a}^*ij] \qquad (3)$$

with

$$\tilde{a}^*ij = \tilde{a}1ij \text{ x } \tilde{a}2ij \text{ x } \tilde{a}3ij \dots \tilde{a}kij)1/k \qquad (4)$$

From the results of the geomean calculation, the fuzzy synthesis calculation is then carried out with the following equation: (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015).

$$Si = \sum_{j=1}^{m} M_{gi}^{j} \, x \, \left(\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^{j}\right)^{-1} \qquad (5)$$
$$\sum_{i=1}^{n} \sum_{j=1}^{m} M_{gi}^{j} = \left(\sum_{i-1}^{n} l_i, \sum_{i-1}^{n} m_i, \sum_{i-1}^{n} u_i\right) \qquad (6)$$

Calculation of the fuzzy synthesis value, the vector value and the defuzzification ordinate (d'), as well as the normalization of the vector weights, are carried out using the following equation: (Esen, Hatipoğlu, Cihan, & Fiğlali, 2017) (Nouri, Esbouei, & Antucheviciene, 2015).

$$V(M2 \geq M1) = \begin{cases} 1, \text{ if } m2 \geq m1 \\ 0, \text{ if } l1 \geq u2 \\ \frac{li-u2}{(m2-u2)-(m1-l1)}, \text{ others} \end{cases} \qquad (7)$$

$$d'(Ai) = \min V \, (Si \geq Sk) \qquad (8)$$

$$d(An) = d'(An)/\sum_{i=1}^{n} d'(An) \qquad (9)$$

IV. RESULT

Based on the literature review, adopting new technology especially Advanced Metering Infrastructure needs to consider the following factors such as: Knowledge, Skill, Meter technology readiness, DCU and HES Technology Readiness, MDMS Technology Readiness, Application Software Readiness, Testing, Existing Meter Technology, Communication Media, Security and Privacy, Investment Cost, Installation Cost, Return on Investment, Institutional Investment, Access to Capital, Schedule, Labor Management, Governance and Regulation, Features and System Capability, Customer Group, Location, Customer Acceptance, Vendor Availability, Vendor Delivery Capability, Vendor involved, Price, Supplier Customer service, and Product (World Bank Group Energy and Extractives Global Practice Group South Asia Region (SAR), 2018), (McHenry, 2013), (Abdulla, 2015), (Jenkins, 2020), (Khalid & Khan, 2014).

The list of identified criteria was then confirmed through in-depth interviews with the expert and found 3 criteria were said to be irrelevant. In addition, there are additional 7 criteria that are considered have significant impact in the Advanced Metering Infrastructure implementation planning. Related to the governance and regulation were suggested to made in detail which includes regulations related to Domestic Content Level, Metrology and Communication Frequency. The identified criteria from literature review and in-depth interview are then grouped and simplified as shown in Table 3.

Table 3. Set of Identified Criteria and Sub-Criteria

Criteria	Sub Criteria	Code
Human Resource	Knowledge	A11
	Skill	A12
	Existing Labor Acceptance	A13
Technology	Meter technology readiness	A21
	DCU and HES Technology Readiness	A22
	MDMS Technology Readiness	A23
	Application Software Readiness	A24
	Testing	A25
	Communication Media	A26
	Security and Privacy	A27
Cost	Investment Cost	A31
	Installation Cost	A32
	Operation and Maintenance Cost	A33
	Access to Capital	A34
	Institutional Investment	A35
Customer	Location	A41
	Customer Acceptance	A42
Supply Chain	Vendor Availability	A51
	Vendor Delivery Capability	A52
	Vendor involved	A53
	Price	A54
	Supplier Customer service	A55
	Product	A56
	Procurement	A57
Project Management	Appropriate time, cost and scope	A61
	Labor Management	A62
	Stakeholder Management	A63
	Planning	A64
Business Process	Operation and Maintenance	A71
	Customer Service	A72
Governance and Regulation	Domestic Content Level	A81
	Metrology	A82
	Communication Frequency	A83
Benefit	Features	A91
	System Capability	A92

Source: author's data processing result

By in-depth interviews with experts, revealed alternative strategy that is used in implementing AMI is using a cluster approach because Advanced Metering Infrastructure is an integrated system and relies on communication as a media to transfer data, so in order to get an optimum result, it must be migrated per cluster. With the large number of customers in Indonesia, a prioritization needs to be carried out with the clustering condition alternatives as follows:

1. Clustering based on the number of customers at a certain location

    This option is accomplished by examining the number of customers in a given location. Because Advanced Metering Infrastructure is an integrated system, locations with a larger number of customers will be more optimal than locations with a small number of customers.

2. Clustering based on high losses that occur at certain locations.

    The objective of implementing the Advanced Metering Infrastructure system is to reduce the cost of managing electricity bills while increasing the reliability of electricity supply. The use of this system is that there is no need for resources to be issued for the detection of tampering that occurs in the meter, and the detection of abnormal conditions can be done more quickly, which will also have an impact on system losses. So, an option for clustering is to look at the location with the highest level of losses and then fixing it with the Advanced Metering Infrastructure system.

3. Clustering based on System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) at certain locations

    In addition to reducing losses, one effort to improve electricity supply reliability is to reduce the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI). As a result, clustering is expected to perform by prioritizing locations with high SAIDI and SAIFI, because the benefits of the Advanced Metering Infrastructure system include allowing for accelerated detection of abnormal conditions, increasing the accuracy of forecasting electricity consumption, and accelerating fault recovery actions with accurate and real-time detection, leading to a reduction in SAIDI and SAIFI.

4. Clustering based on the number of meters that must be replaced (related to the service life) at certain locations

    One of the focuses in prioritizing the implementation of the Advanced Metering Infrastructure system in Indonesia is related to the need to replace the kWh meter. The priority for replacing the kWh meter is based on three things, including related to the recalculation rules for kWh meters that have been used for 10 years for electronic kWh and 15 years for electromechanical kWh, replacement of first-generation prepaid meters which expire in 2024 and are based on kWh meters which must be replaced due to age or damage. This is the basis for the clustering strategy carried out in the implementation of the Advanced Metering Infrastructure system.

5. Clustering based on electrical energy consumption at certain locations

    The aim of adopting new technology, in this case the Advanced Metering Infrastructure system in the Indonesian electricity system, is to accommodate the need for more efficient business processes and to increase company revenue. As a result, one alternative to prioritization is to consider the amount of electrical energy consumed in a particular location.

6. Clustering based on the potential use of services beyond kWh at certain locations

    To encounter the challenges of technological advancement and increase company revenue, PT PLN (Persero) seeks to expand its business by offering products/services other than electrical energy while remaining focused on its core business of supplying and managing electricity in Indonesia. Beyond kWh products include internet services for electricity customers and electrical installation repair services. Other than kWh products may also be developed (PT PLN (Persero), 2022). One of the strategies for optimizing the sophistication of Advanced Metering Infrastructure technology is to implement the AMI system for locations with the potential to use products other than kWh.

The network model shown in Fig.2. represents the interdependence of each criterion and the strategic options that have already been identified through a literature review and in-depth interviews process. This model constructed using Super Decision Software.
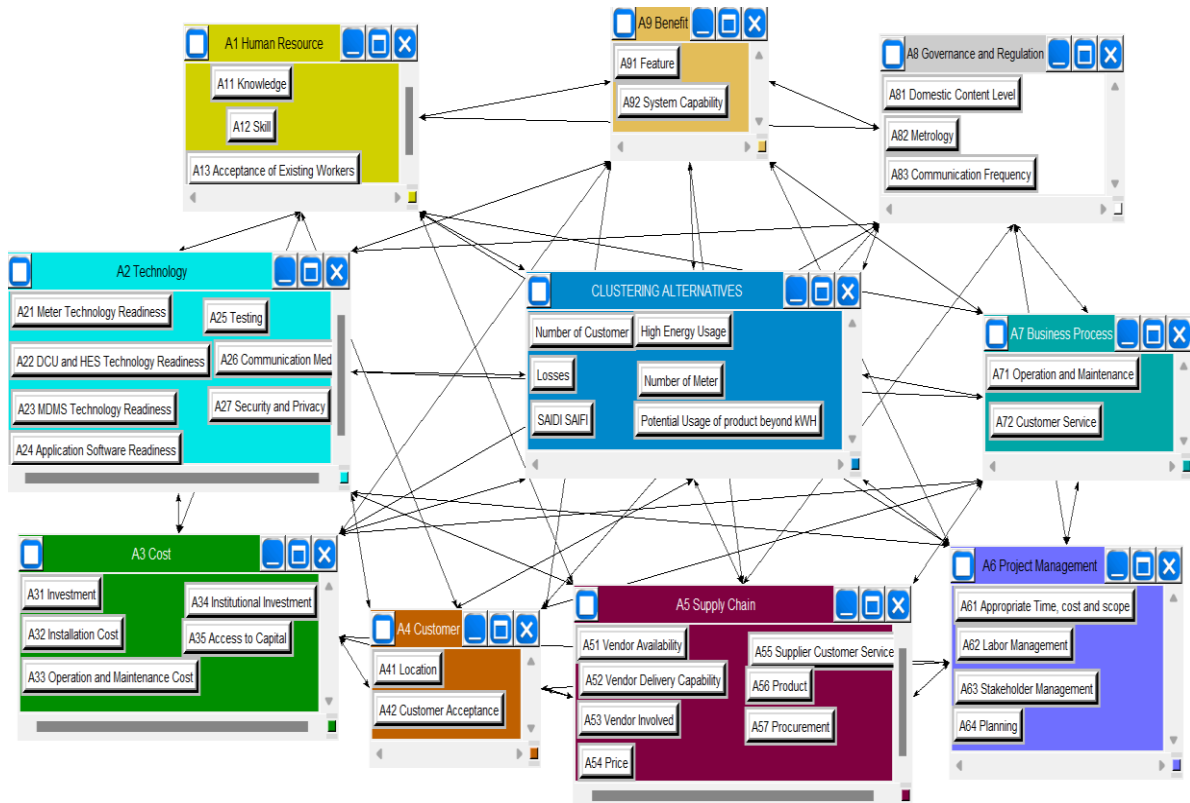
Fig. 2. Advanced Metering Infrastructure Network Model
Source: Author Modeling Design using Super Decision

By the following steps as mentioned in research methodology, the weights factor for each criterion and sub-criteria are revealed as shown in Fig.3 and Table.4. Based on Fig.3, it can be seen that the most influential criteria in the implementation of the Advanced Metering Infrastructure system are the Regulations and Regulations Criteria (0.1679), then followed by the Cost Criteria (0.1364), Benefit Criteria (0.1294), Technology Criteria (0.1062), Business Process Criteria (0.1027), Supply Chain Criteria (0.0990), Customer Criteria (0.0956), Human Resource Criteria (0.0929) and the last one is Project Management criteria (0, 0689).
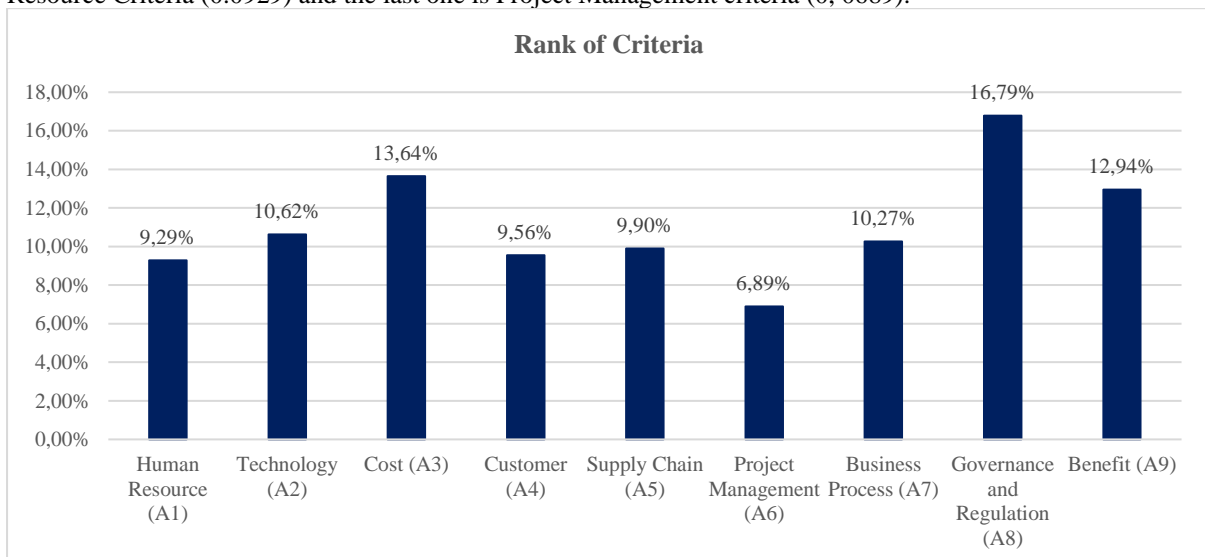
Fig 3. Final Weight of Impactful Criteria in Implementing Advanced Metering Infrastructure
Source: author's data processing result

According to Table 4, sub criteria knowledge (A11), meter technology readiness (A21), investment cost (A31), Location (A41), Vendor availability (A51), Appropriate time, cost and scope (A61), Operation and maintenance (A71), Domestic Content Level (A81), and Features (A91) are the most important sub-criteria compared to other sub-criteria.

Table 4. Final Weight of Sub-Criteria

Code	Weight	Code	Weight
A11	0.048	A51	0.024
A12	0.045	A52	0.020
A13	0.000	A53	0.019
A21	0.023	A54	0.016
A22	0.021	A55	0.010
A23	0.018	A56	0.009
A24	0.017	A57	0.001
A25	0.014	A61	0.026
A26	0.010	A62	0.022
A27	0.003	A63	0.015
A31	0.051	A64	0.006
A32	0.039	A71	0.103
A33	0.031	A72	0.000
A34	0.016	A81	0.116
A35	0.000	A82	0.052
A41	0.096	A83	0.000
A42	0.000	A91	0.129
		A92	0.000

Source: author's data processing result

Regarding criteria and sub-criteria as well as the alternatives with the relation as shown in Fig.2, clustering prioritization it is highly recommended to consider the location with the highest power usage with the percentage of weighting factor 17.07%, continue with the location with high potential use of beyond kWh product with the percentage of weighting factor 16.89% and location with the highest losses 16.84%. Cluster with the highest number of customer and highest ratio of SAIDI and SAIFI become the next priority with the percentage of weighting factor for each alternative is 16.46% and the last priority is cluster with the highest number of meters that must be replaced with the weighting factor 16.29%. This rank of cluster prioritization is shown in Fig. 4.
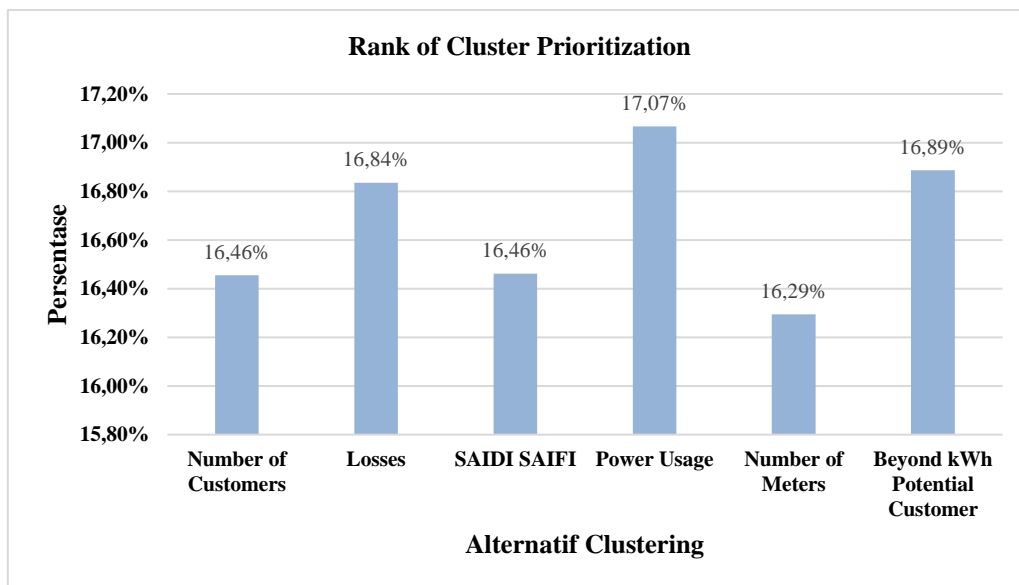
Fig 4. Rank of Cluster Prioritization
Source: author's data processing result

The next analysis performed in this study is a sensitivity analysis for the cost criteria. This is done to determine the extent of the change in the choice of alternative strategies if the weight of the cost criteria changes, or in this case, whether the weight of the cost criteria decreases or increases. This sensitivity test is performed by adjusting

each weight from 0.1 to 0.5. When one of the nine criteria weights is changed, the weights of the remaining eight criteria change as well, as shown in Table 5 below

Table 5. Simulation of Changes in Criteria Weights refer to Changes in Cost Criteria

Criteria	Weighting Factor					
	Analysis Result	A3=0.1	A3=0.2	A3=0.3	A3=0.4	A3=0.5
A1	0,09	0,10	0,08	0,07	0,06	0,05
A2	0,11	0,11	0,10	0,09	0,07	0,06
A3	0,14	0,10	0,20	0,30	0,40	0,50
A4	0,10	0,10	0,09	0,08	0,06	0,05
A5	0,10	0,10	0,09	0,08	0,07	0,05
A6	0,07	0,07	0,06	0,05	0,04	0,02
A7	0,10	0,11	0,09	0,08	0,07	0,06
A8	0,17	0,17	0,16	0,15	0,13	0,12
A9	0,13	0,13	0,12	0,11	0,10	0,08
	1,00	1,00	1,00	1,00	1,00	1,00

Source: author's data processing result

Data processing based on the simulation results of changes in the weight of the criteria in Table 6 affects changes in the alternative choices of clustering prioritization strategies with results as shown in Table 6 below.

Table 6. Alternative Weight Changes Due to Changes in Cost Criteria

A3 Weight Simulation	Number of Customer	Losses	SAIDI SAIFI	Power Usage	Number of Meter	Beyond kWh Potential Customer
A3=0.136	0,165	0,168	0,165	0,171	0,163	0,169
A3=0.100	0,165	0,168	0,165	0,171	0,163	0,169
A3=0.200	0,165	0,168	0,164	0,170	0,164	0,169
A3=0.300	0,165	0,168	0,164	0,170	0,165	0,169
A3=0.400	0,165	0,168	0,163	0,169	0,166	0,170
A3=0.500	0,165	0,167	0,162	0,168	0,167	0,170

Source: author's data processing result

Based on Table 6, reducing the cost weight to 0.1 or 10% does not cause any change in the alternative clustering options for the implementation of Advanced Metering Infrastructure. The priority of clustering has changed in increasing the cost weight to 0.4 or an increase of up to 40%, from initially focusing on the clustering approach with locations that have high electricity consumption as the first priority. Then it turns to the second alternative, with the first alternative being a location with a high potential for using products beyond kWh. More clearly the change in prioritization can be seen in Figure 5.
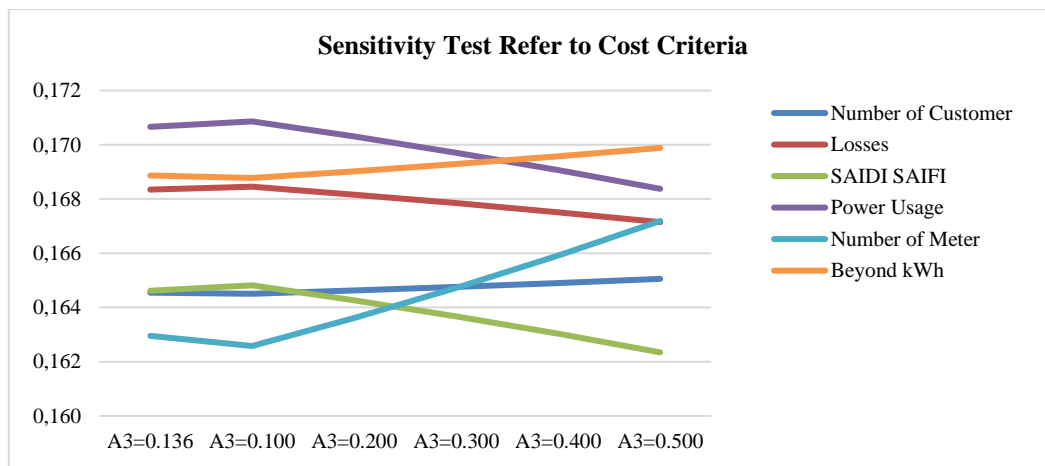
Figure 5. Graph of Change Sensitivity Test on Cost Criteria Weight
Source: author's data processing result

With the high costs of implementing Advanced Metering Infrastructure, businesses understandably want a faster and larger return. This is difficult to achieve by simply focusing on or running business as usual without making full use of existing technology to innovate and add value to the products/services offered to customers. Products beyond kWh, as previously stated, are services provided by PLN that are not related to its core business

of providing electricity. These services include telecommunications, installation, and innovation opportunities in the provision of other products and services. Changes to the criteria, according to the considered criteria, will affect the alternative choices made for prioritizing clusters, which are the main targets in the implementation of Advanced Metering Infrastructure. Significant changes in the criteria will also affect the weights on other criteria.

V. Discussion

In adopting new technology in the company's operations, it is necessary to consider in various ways including the costs required for implementing the technology, whether the expenses incurred are worth it with the benefits and value-added provided by the technology to the supply process. goods and services. The adoption of this new technology also needs to consider a number of risks that will be faced by the company, especially related to system readiness. For this reason, it is necessary to conduct a feasibility study before the company implements the new system into operations. The strategy set by the company in achieving its objectives also needs to consider the company's external conditions to better meet the stakeholders' expectations and requirements (Slack & Lewis, 2020). With a large number of customers and an area targeted for implementation, absolutely cost become a consideration in deciding a strategic planning for implementing the AMI system throughout Indonesia. In this case, cost refer to the investment costs for a set of AMI systems, the installation or migration costs of existing systems to AMI systems, and the operational and maintenance costs that will be incurred after the AMI system is implemented in Indonesia's electricity system. The most important cost consideration is the investment cost that must be prepared by PLN because the Smart meter price was higher than the conventional ones, and this system required the use of any other device to effectively operate. Additional information that we got in the In-depth interview was that The Meter Data Management System to be used in the plan to implement an advanced metering infrastructure system in Indonesia's electricity system is the result of development carried out by PLN and its subsidiaries so that the features to be used are in accordance with the company's objectives. But it will become an issue at the same time because PLN has to make sure about this system's readiness. From the analysis conducted on the criteria and sub-criteria identified as influencing factors in the implementation of Advanced Metering Infrastructure, it shows that governance and regulations are things that need to be considered in this implementation plan, this is closely related to the position of PT PLN. (Persero) as a State-Owned Enterprise so that every business process carried out must comply with the rules and policies that apply in Indonesia. The next aspect is related to costs that need to be considered in the light of the implementation plan for the Advanced Metering Infrastructure will require large costs which if not managed properly, it is feared will affect the sustainability of the company's business.

The implementation of Advanced Metering Infrastructure is carried out with a geographical clustering approach because this system relies heavily on communication networks and uses IoT in its operations, so this geographical clustering approach provides several benefits in optimization. Customers who are in the same cluster tend to have the same habits and preferences (Kumar & Zaveri, 2018) so that PLN as a service provider can gain insight from the managed data for service optimization in the cluster. Another benefit is that this clustering helps in gathering information that occurs on the communication network efficiently for further distribution or processing (Vuković, Kordić, & Jevtić, 2016). This clustering can be determined by considering several characteristics and based on the analysis carried out, the cluster that becomes a priority in the Advanced Metering Infrastructure implementation plan is a cluster with high electricity consumption. By prioritizing the implementation of Advanced Metering Infrastructure for clusters with high electricity consumption, several things need to be considered, including knowledge of human resources involved in the migration process as well as in their future operations, related to the readiness of the system's technology, investment cost spent to prepare the AMI infrastructure with specifications, quality, quantity and timeliness by the PLN plan, as well as the need to ensure the stages in the migration plan to the implementation of the AMI system are under applicable regulations and governance. Customers with high use of electrical energy tend to have high requirements and expectations for the quality of service they get from service providers, in this case, PLN. The existence of abnormal conditions or disturbances in the system due to an unprepared system will have an impact on the accuracy of energy meter transaction readings which will then pose a risk of complaints and loss in company revenue. To provide excellent service, a reliable system is needed, and this can be obtained through effective and efficient operations and routine maintenance activities so that the risk of disturbance can be early detected and can be immediately mitigated so this will not lead to greater losses. Through operations and maintenance activities carried out, an organization can also detect improvement opportunities for continual improvement.

VI. CONCLUSION AND RECOMMENDATION

Based on the research that has been done, it can be concluded that through analysis using the Fuzzy Analytical Network Process (FANP) the most influential criteria in determining the Advanced Metering Infrastructure implementation strategy in the electricity system in Indonesia are governance and regulation criteria then followed by cost criteria, benefit, technology, business process, supply chain, customer, human resources and the last is project management criteria. The analysis also shows that the most influential sub-criteria of the human resource criteria is knowledge, the most influential sub-criteria of the technology criteria is the readiness of meter technology, the most influential sub-criteria of the investment cost criteria, the sub-criteria that the most influential of the customer criteria is location, the most influential sub-criteria of the supply chain criteria is the availability of vendors. For project management criteria, the most influential is the suitability of time, cost and scope. As for the criteria for business processes and regulations and regulations, the sub-criteria that have an effect are operation and maintenance and regulations related to TKDN. sub-criteria of the most influential benefit criteria in the implementation of the Advanced Metering Infrastructure strategy are the features available from the system.

From the 6 (six) alternatives cluster to prioritize Advanced Metering Infrastructure, clusters with high power usage are the first priority, followed by clusters with high potential use of products beyond kWh, clusters with high losses. Cluster with the highest number of customers and highest number of SAIDI SAIFI are at the same level and the last priority is the cluster with the highest number of meters that must be replaced.

Based on the sensitivity analysis, changes made to the weight of the criteria that affect the implementation of Advanced Metering Infrastructure will affect other criteria and affect the choice of alternative clustering prioritization that will be made for the migration of conventional electrical energy transaction systems with Advanced Metering Infrastructure technology.

The priority alternatives proposed in this work are options that can be initiated during the advanced metering infrastructure system's implementation stage. In its application, determining the clustering priority strategy based on the results of this prioritization must still take into account other conditions or aspects that were not well captured in this research due to limitations in the research's deployment More sources and respondents from different backgrounds, such as academics, practitioners, and other relevant stakeholders, can be obtained in the in-depth interview and survey stages, allowing for more varied insights and perspectives.

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Electronic Word Of Mouth (Ewom) And Consumers Trust To Buy In The Market Place: Shopee Platform Study Case

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Abstract

In today's business, there are many things that can affect the purchase of a product, both caused by internal factors of the company and from the company's external environment, coupled with the development of social media and the use of smartphones, electronic word of mouth (e-WOM) is also developing and it's everywhere. and with the increasingly widespread use of the internet also affects consumer behavior in fulfilling their daily needs. This makes e-commerce companies compete to improve their services, one of which is Shopee. This study aims to determine the effect of E-WOM and consumer risk perceptions on purchasing decisions with consumer trust as a mediating variable from the shopee marketplace. This study uses primary data derived from questionnaires distributed to consumers who have transacted at the shopee market place in the city of Serang. In this study, the structural equation model (SEM) analysis technique was used. The results obtained are that the first E-WOM has a significant effect on Shoppe customer trust with a value of 3.667, while for customer perception it has a significant effect on Shoppe customer trust with a value of 2.654. However, E-WOM does not have a significant effect on consumer purchasing decisions in the Shoppe marketplace, customer perceptions also have no significant effect on consumer purchasing decisions in the Shopee marketplace.

Keywords— Electronic Word of Mouth (E-WOM; Market Place; Consumer Trust; Risk Perception; Purchase Decision

I. Introduction

With the development of social media and the use of smart phones, electronic worf of mouth (e-WOM) is growing and everywhere (King,Racherla &Bush,2014; Okazaki,2009; Zhang, Abound Omran, & Cobanoglu, 2017). Unlike WOM (word of mouth), e-WOM allows customers or consumers to receive real time information. Internet technology has changed many people's lifestyles,be it for learning, work and in terms of online shopping. With the development of technology and more advanced information affect consumer behavior. Quoted from Kanuk and Schiffman's opinion that consumer behavior is the behavior displayed by customers in buying,searching,using, evaluating services and products offered or provided by sellers or manufacturers. This consumer behavior plays a very important role in the decision-making process in purchasing (Haryanto&Yunita,2012). By understanding consumer behavior is something that can influence decision making (Zulfa and Hidayati,2018). Changes in consumer behavior are very evident in today's modern age because consumers want something quick and easy . A person who wants to buy an item does not need to leave the house anymore, but simply with applications,internet and gadgets. This phenomenon occurs because the development of technology called the internet is able to affect everyday life. Especially at the time of the covid 19 pandemic that hit the whole world and Indonesia, making people carry out their activities at home so that the transmission of this virus can be avoided.

As marketing and trade advice has recently been much talked about,this discussion has led to electronic commerce, in particular to commerce through the internet, the vision of electronic commerce or e - commerce. As quoted from ghaisani & Purbawati research, 2020 which takes McLeod's opinion that e-commerce is a user of communication networks and computers and later computers are used in business processes. Marketplace is part of E-Commerce, which is a new concept in buying and selling goods or services through the internet or can also be called online. According to data published by Hootsuite and we are Social, Indonesia is one of the countries with the most e-commerce users in the world.

Fig 1. 10 Countries With The Highest E-Commerce Users 2021

Based on the data above, there are 88.1 percent of internet users aged 16-64 years in Indonesia who use e-commen to transact buying products in recent months. According to data from Bank Indonesia from 2017 to 2020, the value of transactions in eCommerce reached Rp 266.3 trillion. In Indonesia there are several online marketplaces, among others: Lazada, BukaLapak, Tokopedia, Shopee, and others.

Quoted from Republika.co.id Shoppe became the top online shopping platform in Indonesia in the first half of 2021, this is seen from the total number of app downloads and total monthly active users based on the research results of the mobile app market research company App Annie. In research iPrice reported in the second quarter of this year shopee is included in the leading platform in terms of visitors, which is 126.99 million page visitors per month.

Based on a survey that has been conducted that the purchase decision on the marketplace is currently influenced by several factors, including risk perception, E-WOM and consumer confidence. Quoted from research Luthfiyatillah et al (2020) and Eriza (2017) that E-WOM has a significant effect on purchasing decisions. Meanwhile, according to Paramita and Wijaya (2014) in his research stated that E-WOM has no significant effect on purchasing decisions. According to Bobby E (2019) stated the relationship of trust and risk perception contributed to the purchase decision at shopee. Hidayat and Zulfa (2018) argue that trust has a significant influence on purchasing decisions.

Based on the development of previous research and combined with current research, the authors conducted a study to determine the effect of E-WOM, risk perception on consumer purchasing decisions with consumer trust as a mediating variable from the Shopee marketplace, which will be updated later. In the case study, the researchers took research subjects from the people of Serang City who had made transactions at Shopee. This research has theoretical benefits and practical benefits. Theoretically, this research provides empirical evidence regarding consumer behavior, especially the factors of purchase decisions in transactions on the marketplace platform. While the practical benefit is that the research results are expected to be taken into consideration in decision making by the new marketplace management so that they are able to improve the performance of the marketplace in order to achieve company goals.

II. LITERATURE REVIEW

E-WOM or Electronic Word of Mouth was created with the internet, which is a new paradigm in WOM communication. E-WOM communication is a positive, neutral, or negative statement from potential, actual, and former consumers regarding products, services, brands or companies that are available to many people and institutions via the internet. Consumers can provide opinions, reviews and comments about products through weblogs, discussion forums, review websites, e-bulletin bord systems, newsgroups, social networking sites (Kietzmann & Canhoto, 2013).

Perception of risk quoted from research by Zulfa & Hidayati (2018) "perception of risk as an uncertainty faced by consumers when they cannot predict the consequences in the future as a result of purchasing decisions made". In online transactions, the buying process is not direct, so you only see the item through the image without touching it. In the perception of risk can also determine someone in making purchasing decisions. If the perception of high risk will cause someone to be afraid to transact online, and vice versa. The emergence of concerns for transacting through the marketplace include: fear of being deceived, unsatisfactory, confusing ordering systems and sometimes long shipping or delivery.

According to Tjiptono (2011), if consumers trust a company, they will prefer to make repeated purchases and provide valuable personal information to the company.

Meanwhile, online purchasing decisions according to Peter & Olson (2014) are electronic exchanges that help consumers find information, shop and browse sites on the Internet. In carrying out purchasing activities, consumers will carry out stages including choosing a product, choosing a brand, choosing a store or seller, then the amount to be purchased, the time of purchase and the method of payment. When making consumer purchasing decisions, several factors can not be separated, including: convenience, trust, perception of risk that will occur in purchasing decisions.

In this study E-WOM plays an important role in consumer behavior. According to Eriza's research (2017), Word of Mouth can affect several conditions of consumers or customers, including: attitudes, awareness, perceptions, behaviors and intentions. What is meant by behavior in this study is how consumers behave or consumer actions in making decisions to buy a product that begins with consumer interest in goods or products and services.

H1: Electronic Word of mouth (E-WOM) has a significant effect on shopee marketplace purchasing decisions

While the risk perception variable has a significant effect on purchasing decisions, according to research conducted by Nasution et al (2020). So that the hypothesis is formulated:

H2: Risk perception has a significant effect on purchasing decisions of Electronic Word of Mouth in the shopee market place.

Zulfa & Hidayati (2018) state that when consumers trust a company, they will make repeated purchases and will usually share this information with others. In this study, Zulfa & Hidayati stated that trust has a significant influence on consumer purchasing decisions. So that the hypothesis is obtained as follows:

H3: Trust has a significant effect on Shopee marketplace purchasing decisions.

For consumer trust, Kotler and Keller (2016) state that consumer trust depends on several inter-organizational and interpersonal factors, which consist of integrity, honesty, policy and perceived competence by the company. And in research conducted by Aisyah & Engriani (2019), Alfian & Utami (2019) stated that E-WOM has a significant influence on trust.

H4: Electronic Word of Mouth has a significant effect on purchasing decisions with trust as a   mediating variable in the shopee marketplace.

The relationship of trust and risk perception has a fairly strong relationship and risk perception has a greater effect than trust on purchasing decisions according to research conducted by Sari & Hawignyo (2021).

H5: Risk perception has a significant effect on purchasing decisions with trust as a mediation in the Shopee marketplace.

Based on the literature review and the development of the hypothesis, the research model is as follows:
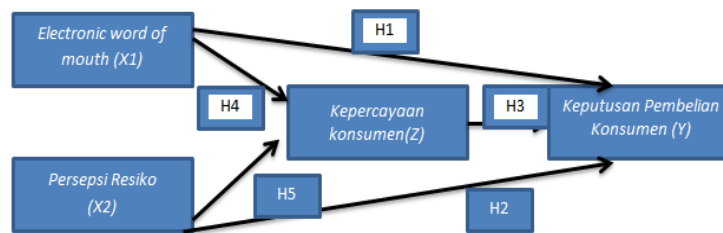
Fig 2. Research Model

III. RESEARCH METHODOLOGY

In this study the primary data collection technique was carried out by distributing questionnaires to community respondents in the city of Serang using google form, and to determine the respondents it was done by purposive sampling technique.

The conditions used include:

1. People of Serang City and aged 17 years and over
2. Have a login account on the shopee marketplace
3. Have made a purchase transaction on the shopee marketplace.

In the framework of thought in Figure 1 is a research according to the level of explanation. Which explains the position of the variables studied and how the relationship between the variables with one another. The variables studied in this study include:

1. Electronic Word of Mouth (E-WOM) which is the main information communication channel. This affects the short-term and long-term decisions of consumers to buy products. The indicators in this research include: economic incentives, social benefits, e-WOM content, valence of opinion, advice seeking, and e-WOM intensity.

2. Perceived risk is the uncertainty that consumers face if they cannot predict the consequences of their purchasing decisions. According to research conducted by Latifah & Retno (2018), the indicators include: consumer anxiety, product delivery risk, financial risk, and product risk.

3.   Consumer trust is the glue that allows companies to trust others in organizing and using resources effectively in creating added value. In the research of Heryenzus & Sulistiowati (2018), quoting from Mowel and Minor, there are four indicators, namely: Consistency, compensation for losses, reputation, security guarantees and user safety.

4. Consumer purchasing decisions are stages of consumer behavior in making decisions whether individuals, groups and organizations in choosing, using, buying goods, services or experiences to satisfy their needs and desires. The indicators include: product selection, brand selection, channel selection, timing of purchase, number of purchases and what method will be used, quoted from the opinion of Kotler & Keller (2016).

In this study, it is a latent variable or construct, meaning a variable that cannot be measured directly. So there are several latent variables that are measured by statement indicators in the form of a Likert scale (Isgiyarta & Yudha, 2015). The measurement instrument for statements using a Liker scale, there are five levels, including: 1. Strongly Disagree, Disagree, 3. Neutral, 4. Agree, 5. Strongly Agree.

Meanwhile, the data processing and analysis technique used in this study is SEM analysis which is a statistical technique of a combination of factor analysis and regression analysis which aims to be able to test the relationships between variables that exist in a research model, both between indicators and indicators. with the construct or the relationship between constructs, according to research by Afsar et al., 2013). Wicaksono et al (2012) argues that

the SEM used is a covariance-based SEM (CB-SEM) that performs intercorrelation or frees indicators to correlate with each other with indicators or latent variables. The process of processing the data using statistical software AMOS and SPSS.

IV. RESULT / FINDING

The questionnaire used in the study was 257 respondents. The respondent's profile consists of gender, age, has a shopee account, and has transacted on the shopee market space. Based on the results of data processing, it was found that 123 respondents were male and 134 respondents were female. Meanwhile, 90 respondents were aged between 17-22 years, 50 respondents were 23-28 years old, 80 respondents were 33-37 years old and 37 respondents were over 38 years old. For account ownership, all respondents have an account at shopee, and they have made online transactions in the shopee marketplace. Descriptions of respondents can be seen in the graphic image below:
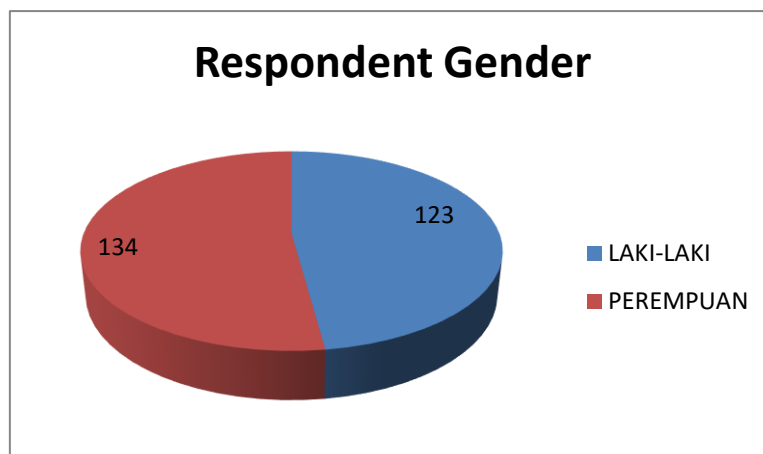
Fig 3. Respondent gender
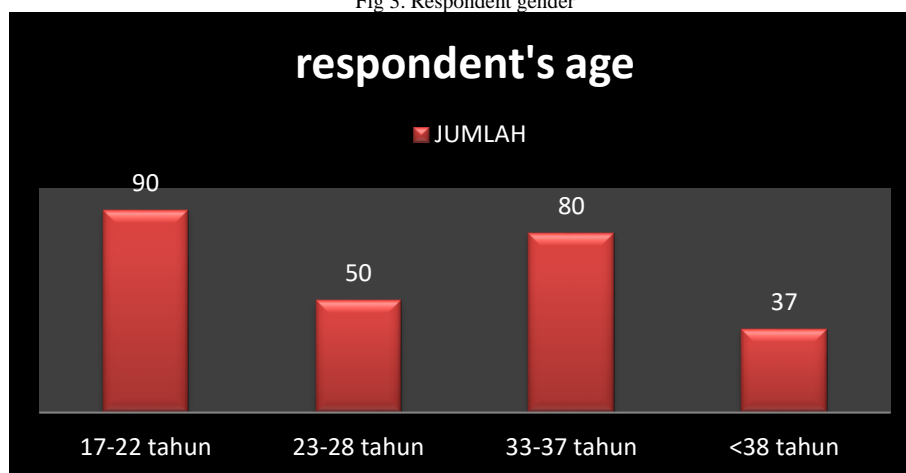
Figure 4. Description of Respondent Age

Normality testing is carried out statistically by calculating the skewness value of the data presented in table 1.

Table 1. Data Normality Test Results

Variabel	min	max	skew	c.r.	Kurtosis	c.r.

Y1	2.000	5.000	-.226	-1.464	-.514	-1.673
Y2	2.000	5.000	-.243	-1.582	-.2.83	-.922
Y3	2.000	5.000	.038	.243	-.756	-2.472
Y4	2.000	5.000	-.162	-1.051	-.722	-2.464
Z5	3.000	5.000	-.432	-2.826	-.319	-2.355
Z4	2.000	5.000	-.331	-2.150	-.702	-1.035
Z3	2.000	5.000	-.019	-119	-.333	-1.087
Z2	2.000	5.000	-.195	-1.273	-.164	-.535
Z1	2.000	5.000	-.223	-1.452	-.543	-1.773
X2.1	2.000	5.000	-.385	-2.511	-.161	-.523
X2.2	1.000	5.000	-.201	-1.309	-.163	-.533
X2.3	2.000	5.000	-.414	-2.702	.188	.614
X2.4	1.000	5.000	-.383	-2.490	-.033	-.109
X2.5	1.000	5.000	-.140	-.910	.595	1.936
X1.1	2.000	5.000	-1.128	-7.347	-.588	-1.921
X1.2	2.000	5.000	-6.24	-4.057	-.264	-.858
X1.3	1.000	5.000	-.213	-1.388	-.512	-1.674
X1.4	2.000	5.000	-.445	-2.901	-.263	-1.672
X1.5	1.000	5.000	-802	-5.25	.930	3.032
Multivariate					160.338	45.319

Source: data processing (2022)

Based on the data in Table 1, it shows that of the 17 research indicators, only five indicators are not normally distributed because the coefficient value in the c.r column is greater than ± 2.58 at 0.01 significance and 12 indicators are normally distributed. This indicates that some data from respondents are not normally distributed. And for the formation of a fit model, it will be carried out in the next stage of analysis with a process of modifying indicators.

One way to detect outlines multivariately is to use the Mahalonobis distance. For the Mahanobis distance each observation can be calculated and will show the distance of an observation from the average value of all variables in a multidimensional space. The multivariate outline test was carried out using the Mahalanobis distance criterion at the p<0.001 level. The Mahalonobis distance is evaluated at degrees of freedom equal to the number of indicators used in the study, which are 17 indicators. So that all data which have Mahalanobis distance more than 2 (17, 0.001) = 40,791 are multivariate outliers.

The calculation of the Mahalanobis distance is found in the output of the analysis using AMOS 24. Based on the print-out farhest from the thr centroid (Mahalanobis Distance), there are several observations that show symptoms of outliers with the Mahanobis d-squared greater than the required Mahalanobis distance. However, in the subsequent analysis, the outline symptoms found in the observations were not eliminated and were analyzed by modifying the indicators to form a fit.

Reliability test is used to determine the level of consistency of respondents in answering questions. The reliability test is seen in the Cronbach's Alpha value with the provision that the value limit is > 0.7 (Taber, 2018). Calculation of Cronbach's Alpha latent variables in this research is seen in the table below.

Table 2. Reliability Test Results

Variabel Laten	Cronnbach's Alpha	Rellabilitas
E-WOM	0,805	Reliabel
Persepsi Resiko	0,815	Reliabel
Kepercayaan	0,848	Reliabel
Keputusan pembelian	0,898	Reliabel

Source: data processing (2022)

The first basic stage in the SEM analysis technique is the measurement model stage. The measurement model is used to measure the dimensions that make up a factor. Due to the relationship with a factor, the research confirms whether the indicator variables used can confirm a factor. Or confirmatory factor analysis reflects a measurement model where the observed variable defines the construct or latent variable. The critical ratio (C.R) 1.96 indicates that the indicator is validly measuring what should be measured in the model presented, according to Sukwadi et al (2013). The next step is testing confirmatory factor analysis on the standardized estimates of the model.

The test is carried out by looking at the results of the standardized regression weight in the AMOS program output table, as shown in the table below. If there is an estimate value of the indicators that have a

significance level of ≤0.40, the indicator cannot describe the construct. The data processing of respondents' answers into a model which is the initial structural model in the figure using the AMOS 24 program, can then be compiled a Regression Weight table (Loading Factor) Measurement Model and Standardized Regression Weights as follows (Badgaiyan & Verma, 2015).

Table 3. Standardized Regression Weights & Regression Weights

			Estimate	C.R.
X1.5	<---	EWOM	.735	
X1.4	<---	EWOM	.624	8.954
X1.3	<---	EWOM	.517	7.476
X1.2	<---	EWOM	.783	10.922
X1.1	<---	EWOM	.748	10.568

Source: data processing (2022)

Table 3 shows the C.R value for all indicators in accordance with the required C.R value, where the value of C.R must be 1.96, which means that the five indicators of the Electronic Word of Mouth (E-WOM) construct are valid for measuring what should be measured in the Electronic Word of Mouth (E-WOM) construct. the model presented. And based on table 3, it is explained that all indicators meet the requirements for an estimate value above 0.4. So it clearly describes a construct.

The next step will be to measure partially the risk perception construct. The measurement of the validation of the risk perception construct indicators is shown in table 4 below.

Table. 4 Standardized Regression Weights & Regression Weights

			Estimate	C.R.
X2.5	<---	Persepsi Resiko	.770	
X2.4	<---	Persepsi Resiko	.765	11.152
X2.3	<---	Persepsi Resiko	.542	7.974
X2.2	<---	Persepsi Resiko	.742	10.857
X2.1	<---	Persepsi Resiko	.577	8.508

Ssource: data processing (2022)

Table 4 above shows that the C.R value for all indicators is in accordance with the predetermined C.R value, where the C.R value must be ≥1.96. This means that the three indicators of the risk perception construct have been able to validly measure what should be measured in the model presented. Based on Table 4, it can be explained that all indicators have met the estimated value requirements above 0.4. So it can describe a construct. Furthermore, researchers measure partially the construct of consumer confidence. For measuring the validity of the indicators of consumer confidence, see the table below:

Table 5. Standardized Regression Weights & Regression Weights

			Estimate	C.R
Y4	<---	Kepercayaan konsumen	.751	
Y3	<---	Kepercayaan konsumen	.674	10.178
Y2	<---	Kepercayaan konsumen	.803	.12.035
Y1	<---	Kepercayaan konsumen	.830	.12.288

Source: data processing (2022)

The table above shows the C.R value for all indicators in accordance with the required C.R value, where the C.R value must be ≥ 1.96. This means that the three indicators of the belief structure are possible valid measures of what should be measured in the presented model. Based on Table 5, it can be explained that all indicators meet the requirements for an estimated value above 0.4. so that it can describe a buying decision construct.

The next step or stage is to partially measure the purchase decision construct. For measuring the validity of the indicators, it can be seen in table 6 below.

Table 6. Standardized Regression Weights & Regression Weights

			Estimate	C.R.
Z1	<---	Keputusan Pembelian	.892	
Z2	<---	Keputusan Pembelian	.892	19.781
Z3	<---	Keputusan Pembelian	.797	16.298
Z4	<---	Keputusan Pembelian	.766	15.163
Z5	<---	Keputusan Pembelian	.628	11.292

Source: data processing (2022)

Table 6 shows the C.R value for all indicators that match the required C.R value, where the C.R value must be the same as the required C.R value ≥ 1.96. This means that the five indicators of the purchasing decision structure are validly measuring what should be measured in the model presented. Based on table 6, it can also be explained that all indicators meet the requirements for an estimate greater than 0.4. So it can describe a construct.

After measuring the indicators for each construct, the next step is to measure the validity of all indicators simultaneously. This can be seen in table 7 below

Table 7. Standardized Regression Weights & Regression Weights

			Estimate	C.R
X1.5	<---	E-WOM	.762	
X1.4	<---	E-WOM	.29	9.513
X1.3	<---	E-WOM	.560	8.463
X1.2	<---	E-WOM	.764	11.597
X1.1	<---	E-WOM	.705	10.699
X2.5	<---	Persepsi_Resiko	.703	
X2.4	<---	Persepsi_Resiko	.719	10.495
X2.3	<---	Persepsi _Resiko	.742	9.199
X2.2	<---	Persepsi_ Resiko	.641	9.891
X2.1	<---	Persepsi _Resiko	.692	9.105
Z1	<---	Keputusan _Pembelian	.633	
Z2	<---	Keputusan _Pembelian	.881	19.655
Z3	<---	Keputusan _Pembelian	.883	16.174
Z4	<---	Keputusan _Pembelian	.794	15.612
Z5	<---	Keputusan _Pembelian	.779	12.190
Y4	<---	Kepercayaan_konsumen	.827	
Y3	<---	Kepercayaan_konsumen	.654	11.080
Y2	<---	Kepercayaan_konsumen	.782	14.009
Y1	<---	Kepercayaan_konsumen	.777	13.882

Source: data processing (2022)

Table 7 shows the C.R value for all indicators that match the required C.R value, where the C.R value should be 1.96. This means that the 17 indicators of the model can validly measure what should be measured in the model presented. And the next step in this research is to test confirmatory factor analysis. Confirmatory factor analysis tests were performed under standard estimation conditions. The test is carried out by looking at the normalized regression weights in the output table using the AMOS program, as shown in table 7. Even though there is an estimated significance index of ≤ 0.40, the indicator does not describe the construct. From the results of the data output, it can be explained, where almost all indicators have passed the estimated value requirements above 0.4

A. Structural Model Test Results

After the model is analyzed using confirmatory factor analysis, where we know that each variable can be used to determine the latent structure, after that the model can be analyzed. SEM model testing is done on the Goodness of Fit index. One of the test tools, namely Chi square is very sensitive to the size of the sample. The chi-square value is a test tool to measure the overall fit. The chi-square results need to be overcome, one of which is the use of the Root Mean Square of Approximation (RMSEA) test lat which is independent of the sample size used.

RMSEA is a close fit test. Therefore, the extra fit test is realistic when compared to the close fit test, because it is more realistic to measure the level of model application to the data. In addition to RMSEA, the Goodness of Fit Index (GFI), Tucker Lewis Index (TLI) is also highly recommended because this index is not sensitive to sample size and is less influenced by the complexity of a model. The results of the structural equation analysis of the model are shown as follows.
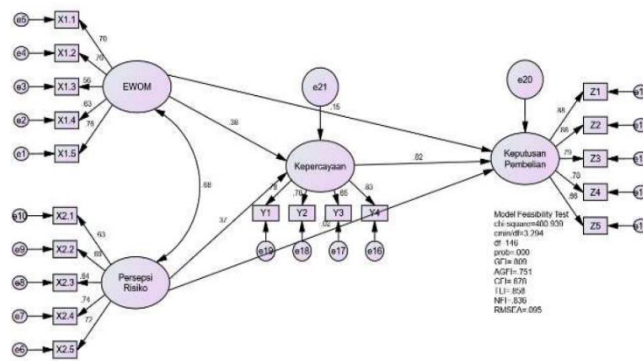
Fig 5. Results of Structural Equation Analysis on model 1

From the results in the figure above, it can be explained that model 1 which is the initial structural model of the research model does not fit because of the insufficient probability is 0.000 and does not meet several other criteria. Therefore, model 1 needs to be modified model. The results of the model modification are shown by the model image below.
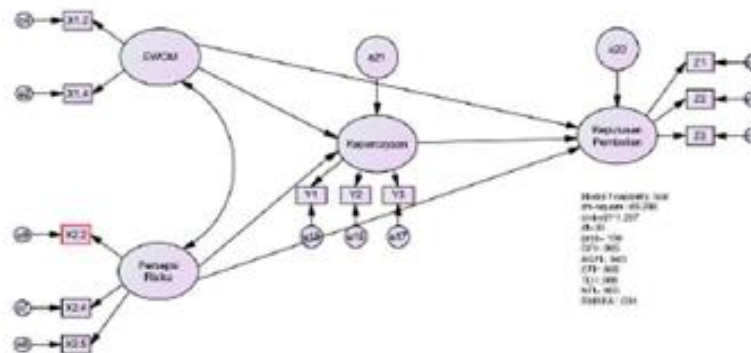
Fig 6. Results of Structural Equation Analysis on Model 2

Table 8. Evaluation of the Goodness of Fit Criteria in the Structural Equation Model

Goodness of Fit Index	Cut-off Value	Model2	Keterangan
X2- Chi- Square	Diharapkan nilai lebih kecil	49,299	Baik
Significance Probability	≥ 0,05	0,104	Baik
CMIN/DF	≤ 2,00	1,298	Baik
GFI	≥ 0,90	0,965	Baik
AGFI	≥ 0,90	0,940	Baik
TLI	≥ 0,95	0,989	Baik
CFI	≥ 0,95	0,993	Baik
RMSEAI	≤ 0,08	0,034	Baik

Based on the data in Table 8, the chi-square value obtained with model 2 is 49.298 and the probability is 0.104. Because the probability value is greater than 0.05, it can be called a fit model. Based on the GFI and AGFI indices, we can see that the model scores are above 0.90, including 0.965 and 0.940, respectively. This score is well received in the category and meets the requirements. The TLI and CFI indexes are also eligible because the values of the two indices in Model 2 are greater than 0.95, namely 0.989 and 0.993, respectively. From the CMIN/DF index, we can see that the index value of model 2 is ≤ 2.00. That is 1298. The RMSEA index of the model is less than 0.08, which is 0.034. According to Putra et al's research(2019), it can be concluded, although both models can be said to be fit.

V. DISCUSSION

Table 9. Regression Weights

	Estimate	S.E	C.R	P
Kepercayaan ←EWOM	.517	.141	3.667	***
Kepercayaan ← risk perception	.232	.088	2.654	.008
Keputusan_Pembelian←EWOM	.184	.109	1.690	.091
Keputusan_Pembelian ← risk perception	.089	.064	1.366	.172
Keputusan_Pembelian ← Kepercayaan	.639	.081	7.868	***

Sumber : pengolahan data (2022)

The value of the standardized regression weight coefficient between the E-WOM variable and the confidence variable is 0.517 and C.R is 3.667 with a probability of 0.000 less than 0.05 or p <0.05. This means that the EWOM variable has a significant effect on the shopee marketplace trust variable. These results are in accordance with research conducted by Alfian & Utami (2019), Aisyah & Engriani (2019), Aprilia et. al. (2019)

The value of the standardized regression weight coefficient between the risk perception variable and the confidence variable is 0.232 and C.R is 2.654 with a probability of 0.008 less than 0.05 or p < 0.05. This means that the risk perception variable has a significant effect on the market place shopee trust variable. These results are in accordance with research conducted by Firdayanti (2012), Jayantari & Seminary (2018).

For the value of the standardized regression weight coefficient between the E-WOM variable and the purchasing decision variable of 0.184 and C.R of 1.690 with a probability of 0.091 > 0.05. This means that the E-WOM variable has no significant effect on the purchasing decision variables in the Shopee Marketplace.

The standardized regression weight coefficient value between the risk perception variable and the purchasing decision variable is 0.089 and the C.R value is 1.366 with a probability of 0.172 > from 0.05. Which states that the risk perception variable has no significant effect on purchasing decisions at Shopee

And for the standardiez regression weight coefficient between the Trust variable and the purchasing decision variable, it is 0.639 and C.R is 7.868 with a probability of 0.000 <0.05. This means that the trust variable has a significant effect.

VI. CONCLUSION AND RECOMMENDATION

Based on the research that has been done, it can be concluded that E-WOM has a significant effect on shopee marketplace trust, risk perception has a significant effect on shopee marketplace trust, EWOM variable does not significantly affect shopee marketplace purchasing decisions, risk perception does not significantly affect Shopee marketplace purchasing decisions and trust have a significant effect on the shopee marketplace trust variable.

For the theoretical implications of the results of this study, namely the E-WOM factor and risk perception have a significant effect on the trust of the shopee marketplace. This can prove empirically about the theory of factors that influence the trustworthiness of a marketplace. For the factors that influence the purchase decision of the shopee marketplace, only the trust factor has a significant effect on purchasing decisions and can provide empirical evidence on the theory of the relationship of trust with marketplace purchasing decisions. Meanwhile, the factors of E-WOM and risk perception still have insignificant influence on marketplace purchasing decisions, so that it becomes the basis for re-doing empirical evidence studies on E-WOM relationship theory and risk perceptions on future marketplace purchasing decisions.

The practical implications of the results of this study are that the marketplace management should pay more attention to the relationship between trust factors and marketplace purchasing decisions relationship of E-WOM factors, risk perception on the trust of a marketplace in managing a marketplace so that it can compete with similar competitors and to achieve company goals, especially during this pandemic and in the era of change/disruption towards the digital economy.

From the results of this study, it is hoped that other researchers in the future in the future to carry out other similar studies to examine other factors that influence purchasing decisions by using other analytical methods and integrating relationship research purchasing decisions with customer loyalty.

Banten. Thank you to all parties involved who cannot be mentioned one by one so that this article can be completed.

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Type of Industry, Company Size, Profitability, Environmental Performance and Environmental Disclosure in Kompas 100 Index Companies

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Abstract

This study aims to explain the influence of industry type, company size, profitability and environmental performance on environmental disclosure. Researcher used GRI Standards to measure environmental disclosure. Based on research phenomenon, there were environmental damage because of company activities, as happened in PT. Semen Indonesia, Tbk. and PT. Aneka Tambang Tbk. Researcher found inconsistent research results over independent variables to dependent variable. The population of this research were Kompas 100 Index Companies listed in 2019-2021. Purposive sampling used in this study as method sampling so that there were thirty companies selected as sample. Researcher used panel regression with SPSS Software to process data. Based on research result, industry type, profitability and environmental performance had positive significant effect on environmental disclosure. In contrast, company size had negative not significant effect on dependent variable used in this research. Suggestion for further researchers to use different independent variables and a longer research period so that significant research results are obtained.

Keywords— disclosure; performance; profitability; size; type.

I. INTRODUCTION

Environment issues had become critical issues nowadays. One of significant issues is increased carbon emissions in 2021. As reported by katadata.com, in 2021 carbon emissions was the highest in history, it can be seen in Fig. 1. This graph was emissions from energy-burning and industry activity from 2001-2021. It described that carbon emissions got decreased because of human activity restrictions during pandemic Covid-19 in 2020. Nevertheless, it climbed in 2021 when human activities restrictions loosened.
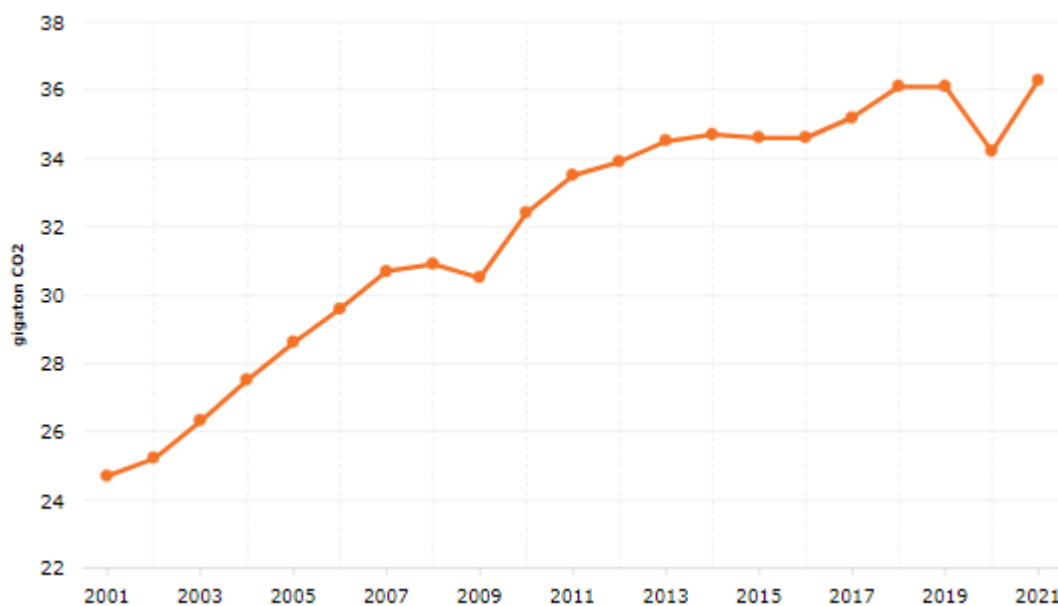
Fig.1 Carbon Emissions from Energy Burning and Industry Activities Globally 2001-2021 (Source: *Emisi Karbon Global Meningkat Pada 2021, Tertinggi Sepanjang Sejarah*, 2022)

Industry activities not only give an impact on carbon emissions but also damage the sea and mangrove ecosystems. It happened on the East Halmahera coast. Based on (*Operasi PT Antam Cemari Pesisir Halmahera Timur*, 2021), PT. Aneka Tambang, Tbk. was one of the companies that pollute the coast of Kota Maba, East Halmahera because of its operational activities. Mining activity has been going for a long time on this coast. Most of society's lands have been converted into mining locations at there. During 25 years this company dredged the

island, several damages occurred. Starting from clean water unreachable, polluted seas, coral reefs, and mangroves have disappeared. The impact of industrial activity also occurred in Tuban, East Java in 2020. PT. Semen Indonesia exploded mines around residential areas. This action gave negative effects on society like air pollution and blasting vibration. As reported (*Keluhkan Aktifitas Tambang Semen Indonesia, Warga Ring Satu Demo Pemkab Tuban*, 2020), society held demonstrations in front of the region government society to convey demands.

Based on the phenomenon that has been narrated, the purpose of this study is to examine the influencing factors of environmental disclosure in Indonesia. Independent variables that were used by researcher were a type of industry, company size, profitability, and environmental performance. Research in environmental disclosure has expanded currently, however, there were inconsistent outcomes on previous research, so that this study still interesting to research with different sample from the other research. Researcher determined companies listed in Kompas 100 index as sample because these companies are preferred company determined by an independent institution which has good volume of trading transaction in the Indonesia Stock Exchange.

Legitimacy theory becomes a grand theory in this study suggested by (Dowling & Pfeffer, 1975). This theory focused on interaction between company and society. A company as a legal entity requires recognition for its existence. A company activity should be in accordance with social values in society where the company is located. As result, a company's objective can involve and give advantages in society. Stakeholder theory is also appropriate in this study. Stakeholders are individuals or organization must be served by company and they can come from internal or external company. There are several company stakeholders that have important concern, including public, government, community, shareholders and others (Freeman & McVea, 1984). Environmental disclosure is one form company efforts to acquire legitimation from society. This is important for company because society is one of external stakeholders which is very powerful as consumer of the company.

Environmental disclosure is a voluntary disclosure for listed companies in Indonesia. Even though it only voluntary, this disclosure gave important impact for companies. This activity can improve good image to companies and contribute to supporting implementation of Sustainability Development Goals (SDGs) indirectly. As it is known, United Nations formulated seventeen development goals which to be achieved in 2030. Some of development goals focused in environment, such as SDG No. 6 for clean water and sanitation, SDG No. 7 for affordable and clean energy, SDG No. 13 for climate change, SDG No. 14 life below water, and SDG No. 15 life on land. By doing research in environmental disclosure, researchers realized the role of accounting in contribute achieving SDGs. Accounting help companies to disclose their non-financial performance so that companies can show how their contribution for environment. This disclosure will be one of consideration for shareholders doing investment.

II. Literature Rewiew

Environmental disclosure offered company to keep and protect stakeholders around company, especially society and its surroundings. However, not all companies notice this behavior. In general, company with significant impact on environment has to disclose substantially beside company with minor impact. This study used GRI Standard as measurement of environmental disclosure, for detail in Table 1. Based on (Dewi & Yasa, 2017) and (B. Maulana & Baroroh, 2020) research, industry type has a positive effect on environmental disclosure. Type industry is classified into high and low profile. Companies with high profile have a significant effect on the environment so that they acquire pressure from stakeholders, like the government and society to do the best performance. Companies classified as high profile are oil mining, chemical, forest, paper, automotive, aviation, agribusiness, tobacco and cigarette, food and beverage, engineering, health, and also transportation. In contrast, low-profile companies don't obtain compulsion as substantial as high-profile companies afterward they don't notice environmental disclosure well. Low profile companies involve several sectors, such as construction, bank and financing, medical equipment suppliers, retailers, textile, personal, and household products (Sembiring, 2005). On the other hand, different outcomes research came from (Putri & Wahyuningrum, 2021). Type of industry showed no effect on environmental disclosure.

Dissimilar research result found in company size as independent variable. (Dewi & Yasa, 2017; B. Maulana & Baroroh, 2020) found that company size had positive significant influence on environmental disclosure. Large company disclose extensive information to reduce conflict. Large companies will have more substantial cost than small companies. This is because large companies tend to have a higher public demand for information than small companies. There was inconsistent result from (Okafor et al., 2022) which used quoted oil and gas firms in Nigeria as sample for a period of thirteen years spanning from 2008 to 2020. There was a significant negative effect between company size and environmental disclosure. Small companies in Nigeria disclose more in their report than larger companies.

Upcoming independent variable used in this study is profitability. Profitability used to estimate company ability to make a profit. (Dewi & Yasa, 2017) inspected profitability as an independent variable and detect that profitability had no influence on environmental disclosure. Study from (Kurniawan, 2019) found similar result because company with high profitability did not used their profit to improve their environmental disclosure. In contrast, study from (G. A. C. N. Sari et al., 2018) and (B. Maulana & Baroroh, 2020) observed different outcome. (G. A. C. N. Sari et al., 2018) used mining and plantation sector companies listed in Indonesia Stock Exchange and PROPER 2013 to 2017 and concluded that profitability gave negative and significant influence on environmental disclosure. On the other hand, (B. Maulana & Baroroh, 2020) found that profitability had positive significant positive influence on environmental disclosure. Environmental performance is the following independent variable. Inconsistent research outcome was from (Dewi & Yasa, 2017; A. Maulana et al., 2021; G. A. C. N. Sari et al., 2018) research. (A. Maulana et al., 2021) explained that if there is an increase or decrease in environmental performance, it will not be followed by a change in environmental disclosure. Nevertheless, this study is not in line with research conducted by (Dewi & Yasa, 2017) and (G. A. C. N. Sari et al., 2018) which observed that the better the environmental performance where the environmental disclosure is also getting better.

To accomplish the objectives in this study, the following hypothesis were formulated and tested in Fig.2 with details:

H_1: There is significant effect between industry type, company size, profitability and environment performance to environmental disclosure of Kompas 100 Index Companies 2019-2021

H_2: There is positive significant effect between industry type and environmental disclosure of Kompas 100 Index Companies 2019-2021

H_3: There is positive significant effect between company size and environmental disclosure of Kompas 100 Index Companies 2019-2021

H_4: There is positive significant effect between profitability and environmental disclosure of Kompas 100 Index Companies 2019-2021

H_5: There is positive significant effect between environmental performance and environmental disclosure of Kompas 100 Index Companies 2019-2021

Table 1. Environmental Disclosure Items

GRI Standard	Disclosure
GRI 301: Materials	301-1 Materials used by weight or volume
	301-2 Recycled input materials used
	301-3 Reclaimed products and their packaging materials
GRI 302: Energy	302-1 Energy consumption within the organization
	302-2 Energy consumption outside of the organization
	302-3 Energy intensity
	302-4 Reduction of energy consumption
	302-5 Reductions in energy requirements of products and services
GRI 303: Water and Effluents	303-1 Interactions with water as a shared resource
	303-2 Management of water discharge-related impacts
	303-3 Water withdrawal
	303-4 Water discharge
	303-5 Water consumption
GRI 304: Biodiversity	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
	304-2 Significant impacts of activities, products and services on biodiversity
	304-3 Habitats protected or restored
	304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations
GRI 305: Emissions	305-1 Direct (Scope 1) GHG emissions
	305-2 Energy indirect (Scope 2) GHG emissions
	305-3 Other indirect (Scope 3) GHG emissions
	305-4 GHG emissions intensity
	305-5 Reduction of GHG emissions
	305-6 Emissions of ozone-depleting substances (ODS)

	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	
GRI 306: Waste	306-1 Waste generation and significant waste-related impacts	
	306-2 Management of significant waste-related impacts	
	306-3 Waste generated	
	306-4 Waste diverted from disposal	
	306-5 Waste directed to disposal	
GRI 307: Environmental Compliance	307-1 Non-compliance with environmental laws and regulations	
GRI 308: Supplier Environmental Assessment	308-1 New suppliers that were screened using environmental criteria	
	308-2 Negative environmental impacts in the supply chain and actions taken	

Source: https://www.globalreporting.org/
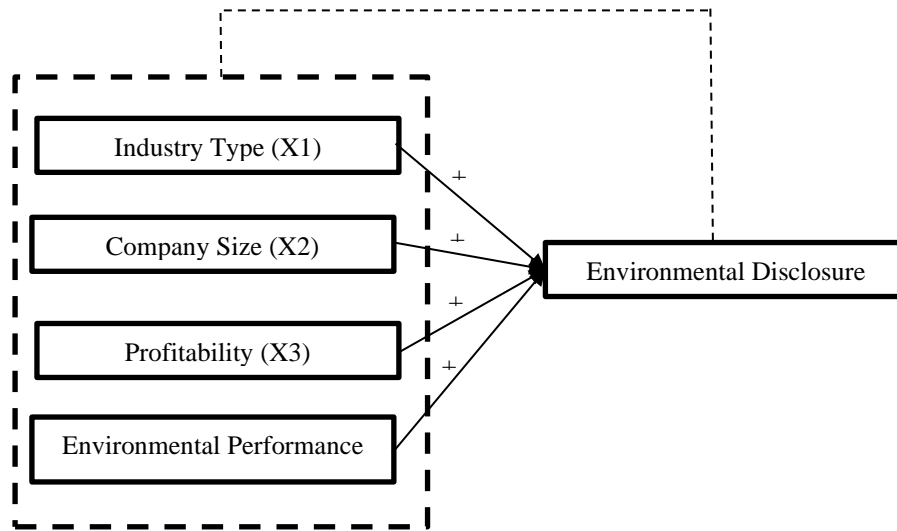
Fig 2. Research Framework

Source: Processed by Researcher (2022)

III. RESEARCH METHODOLOGY

This study used panel regression in this method. Population used in this research are companies listed in Kompas 100 Index in 2019-2021. Sampling used in this method is purposive sampling. Purposive sampling is sampling which researcher determine several criteria, as follows:

1. Company listed in Kompas 100 Index in 2019-2021
2. Company published Sustainability Report in 2019-2021

Sample in this study is 30 companies with 90 observation data, see Table 2. This study implemented content analysis which researcher used Annual and Sustainability Report to recognize and analyze text. There is no direct participation from researcher in this study. Dependent variable used in this study is environmental disclosure. Researcher used disclosure score from Global Reporting Initiative (GRI) Standard. Operational definition variable used in this research can be seen in Table 3.

Table 2. Sample Selection Criteria

No	Criteria	Number of Samples
1	Companies listed in Kompas 100 Index in 2019-2021	68
2	Companies which did not publish Sustainability Report in 2019-2021	(38)
	Research Samples	30
	Research Period (2019-2021)	3
	Observation Data	90

Source: Processed by Researcher (2022)

Table 3. Operational Definition Variable

Variables	Definition	Indicator	Scale
Environmental Disclosure (Y)	Environmental disclosure include performance related to biodiversity, environmental compliance such as waste and impact of product and service (Kurniawan, 2019)	$ED = \dfrac{Items\ Dislosed}{Items\ Environmental\ Disclosure\ GRI\ Standard}$ (Dewi & Yasa, 2017)	Ratio
Type of Industry (X$_1$)	Type of industry classified to high and low profile (Sembiring, 2005)	1 = classified to environmentally sensitive industry 0 = classified to environmentally not sensitive industry	Nominal
Company Size (X$_2$)	Company size can be seen from total assets, total sales, average total sales and average total assets (Dewi & Yasa, 2017)	$CS = \log(total\ asset)$ (Ohidoa et al., 2016)	Ratio
Profitability (X$_3$)	Profitability is a measure of financial performance can be used in making environmental disclosure (A. Maulana et al., 2021)	$P = \dfrac{Earnings\ After\ Tax}{Total\ Asset}$ (B. Maulana & Baroroh, 2020)	Ratio
Environmental Performance (X$_4$)	Environmental performance is performance company in creating a good environmental (G. A. C. N. Sari et al., 2018)	Refers to PROPER rating= 1 = very bad (black) 2 = bad (red) 3 = good (blue) 4 = very good (green) 5 = the best (gold) (Kementerian Lingkungan Hidup, 2016)	Ordinal

Source: Processed by Researcher (2022)

IV. RESULT / FINDING

Researcher used SPSS to process data. Data in this research is data panel which combine time series and cross section data. Before testing the hypothesis, the researcher conducted a classical assumption test. In classic assumption test data panel, researcher used multicollinearity and heteroscedasticity. Multicollinearity used to verify correlation between independent variables used in this study. Based research result in Table 4, VIF value less than 10, so it can be concluded that there were no multicollinearity symptoms. Ideal data should homogen, it means data distribute constant. It can be seen from Fig. 3 that there was no heteroscedasticity data used in this research.

Table 4. Multicollinearity Result

Variables	VIF Result
TYPE (X1)	2,072
SYZE (X2)	1,168
PROF (X3)	1,191
ENV (X4)	2,277

Source: SPSS Output (2022)
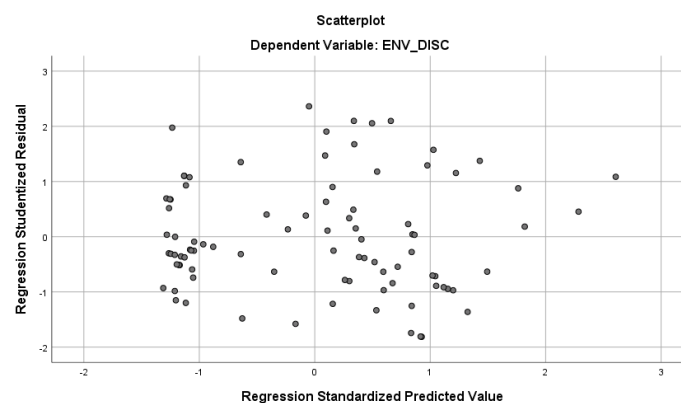
Fig.3 Heteroscedasticity Result (Source: SPSS Output, 2022)

Table 5. F, T and Adjusted Square Test Result

Variables	Unstandardized Coefficients		t	Sig.
	B	Std. Error		
TYPE (X1)	0,149	0,040	3,708	0,000
SYZE (X2)	-0,018	0,010	-1,851	0,067
PROF (X3)	1,191	0,380	3,130	0,002
ENV (X4)	0,037	0,009	4,154	0,000
ANOVA (F Test)	0,000			
R Square	0,224			

Source: SPSS Output (2022)

Table 5 show the result of F, T and adjusted square test. F test used ANOVA in SPSS with result $0,000 < 0,05$, then it can be concluded that there is effect simultaneously between type of industry, company size, profitability and environmental performance on environmental disclosure with companies listed in Kompas 100 index as sample. Researcher used B value and Sig. value to determine the effect of independent variable on dependent variable, as follows:

1. Type of industry (X1) has B value 0,149 and sig. 0,000, so that type of industry has positive significant effect on environmental disclosure
2. Company size (X2) has B value -0,018 and sig. 0,067, it can be concluded that company size has negative not significant effect on environmental disclosure
3. Profitability (X3) has B value 1,191 and sig. 0,002, so that profitability has positive significant effect on environmental disclosure
4. Environmental performance (X4) has B value 0,037 and sig. 0,000, it can be concluded that environmental performance has positive significant effect on environmental disclosure

On the other hand, in measuring the ability of test model in explaining variation of independent variables, researcher used R Square and the result is 0,224. It means that independent variables used in this study can explain dependent variables in 22,4% while the residual (77,6%) explained by other variables out of study.

V. DISCUSSION

In this study, it was found that the type of industry has a significant positive effect on environmental disclosure, this shows that the industries listed in the Kompas 100 index are high-profile companies where these high-profile companies are certainly the center of attention because of the involvement of stakeholders who need tools. effective communication through environmental disclosures. These companies disclose more activities carried out in the interest of environmental disclosure compared to similar companies with a lower profile so that the operating activities carried out are considered to have a positive and significant impact on environmental disclosure. The results of this study support the results of research that has been done previously (Chan et al., 2014; Hasnia & Rofingatun, 2017; Purwanto, 2011; Reverte, 2008; Widiastuti et al., 2018).

Furthermore, for the company size variable, it was found that company size had a negative and insignificant effect on environmental disclosure. In this case, it shows that the larger the size of the company, the fewer items are disclosed in environmental disclosures. Companies that are sampled in this study are high profile companies whose profiles are known to have quite large company sizes. Large companies tend to minimize their environmental reporting by reducing the items presented in environmental disclosures. The results of this study are not in line with previous research (Amalia, 2013; Aslan & Sigalı, 2016; Bangun et al., 2016; Branco & Rodrigues, 2008; Chan et al., 2014; Dewi & Yasa, 2017; B. Maulana & Baroroh, 2020; Purwanto, 2011; Reverte, 2008; R. A. Sari, 2012; Solikhah & Winarsih, 2016; Widiastuti et al., 2018). However, the results of this study are in line with research conducted by Okafor, et.al 2022 which found that company size harms environmental disclosure.

The profitability variable is known to have a significant positive effect on environmental disclosure based on the results of research that has been carried out in this study. The company's profitability shows the company's ability to generate profits in a period that can describe the company's performance. In this study, it can be concluded that the higher the company's profitability, the higher the environmental disclosure it does. This can be seen through the company's good performance, the obligation for environmental disclosure of the company will also increase, on the contrary when the company's performance is reflected through the low profitability of a

company, it will reduce the level of environmental disclosure made. The results of this study are not in line with previous research conducted by (Ardi & Yulianto, 2020; Dewi & Yasa, 2017; Kurniawan, 2019; G. A. C. N. Sari et al., 2018) which found that profitability did not affect environmental disclosure.

In this study, the environmental performance variable is known to have a significant positive effect on environmental disclosure. This explains that the better the company's environmental performance, the higher the level of environmental disclosure it does. High-profile companies are required to build a positive image related to the environment to maintain the sustainability of the company so environmental performance is considered very important to support environmental disclosures that must be carried out by companies. The results of this study are in line with the research conducted by (Putra & Utami, 2017) which found that environmental performance affected environmental disclosure, but this research is not in line with the research conducted by (A. Maulana et al., 2021) which finds that environmental performance does not affect environmental disclosure.

VI. Conclusion and Recommendation

Based on the results of the tests that have been carried out, it can be concluded that the type of industry, company size, profitability and environmental performance simultaneously give effect on environmental disclosure with companies listed on the Index 100 as a sample in 2019 to 2021. In partial, industry type, profitability and Environmental performance has a significant positive effect but firm size has no significant negative impact on environmental disclosure. The research model explains that the independent variable used is able to explain the dependent variable by 22.4% and the remaining 77.6% are outside the study. This study has limitations in the number of samples and the independent variables used. The researcher gives suggestions to further researchers to use different independent variables and a longer research period so that significant research results are obtained.

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Influence of World Oil Prices, Corruption Perception Index, and Foreign Debt on Indonesia's Tax Revenue

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Abstract

Taxes are mandatory contributions to the state owed by a person or entity of a coercive nature under the Act. Taxes are levies that are prerogatives. Increased tax revenues are an indicator of rising economic activity in a country. The study aims to estimate the influence of world oil prices, corruption perception indexes, and foreign debt on tax revenues in Indonesia during 1996-2021 using the Ordinary Least Square (OLS) regression analysis. The results showed that world oil prices and corruption perception indexes had a positive effect on tax revenues. While foreign debt has no effect on tax revenues. The government is expected to maximize loan funds from abroad to carry out infrastructure development to support the national economy, so that in the end the economy can grow and national tax revenues increase. In addition, the government should focus more on eradicating corruption in Indonesia. The process of corruption that harms the community is feared to reduce their enthusiasm in paying taxes. In addition, the use of foreign debt or loans is expected to be maximized in order to stimulate the national economy and increase tax revenues.

Keywords— World Oil Prices, Corruption Perception Index, Foreign Debt, Tax Revenue

I. INTRODUCTION

Economic development is a continuous process in its efforts to create economic growth and prosperity for the people of a country. Economic development itself includes equitable distribution of infrastructure supporting economic activities as well as improving the quality of the population or human capital. In developing countries such as Indonesia, the government will always strive for development to spur the national economy and catch up with other countries. In the development process, , the government will need very large funds to realize it, one of the sources of development funds is taxes, so exploring the potential to increase national tax revenues is very necessary. (Sinambela & Rahmawati, 2019).

Tax is a levy which is a prerogative. According to Law number 28 of 2007 concerning general provisions and taxation procedures, tax is a mandatory contribution to the state owed by an individual or entity that is coercive under the law, with no direct compensation and is used for state purposes for an amount of - the great prosperity of the people. The increase in tax revenue is expected to have a positive impact on economic growth. This is because by increasing taxes on state income, economic activity will be stimulated, so that many new jobs will be created. In addition, state facilities and infrastructure can be fulfilled in the hope of accelerating economic growth to achieve population prosperity (Marita & Saurdana, 2016).

According to the official report of the Indonesian Ministry of Finance in 2022, national tax revenues in 2021 will increase by 4.2 trillion rupiah. This means that this value has increased by 10% compared to the previous year. The increase in national tax revenues was due to the economic recovery after the economic crisis due to the Covid-19 pandemic. Increasing national revenue has become the main focus of the government in order to meet the need for development. Thus, the factors that affect national tax revenues need to be considered and analyzed in depth.

Indonesia is one of the largest crude oil producing countries in the world and is a member of the Organization of the Petroleum Exporting Countries (OPEC). Oil is one of the important factors in life, especially in the industrial sector because it is a strategic energy source to ensure the development of modern industry and distribution in the economy. Oil price fluctuations in international markets are always considered as economic indicators throughout the world, so any changes in oil prices always affect every economic activity in Indonesia. If the price of oil increases, the country will receive more foreign exchange because the payment for export transactions uses foreign currency which increases foreign exchange. Thus, tax revenue will also increase when income by these entrepreneurs also increases (Mawarni & Widiasmara, 2018).

Realization of tax revenue can also be affected by the level of corruption that occurs. Corruption is one of the actions that can hinder development and economic growth because the funds that should be used in carrying out development are deducted in value and go into private pockets, so that the results of development are not as expected, both in terms of function and resilience. In addition, corruption in the direct taxation sector has also

occurred. Corruption in national taxation is also synonymous with bribery cases in various lines of government whose goal is that tax-burdened people can pay taxes that are not in accordance with the provisions of the applicable law. This will affect state tax revenues and make people no longer trust the government and will think twice when they are required to pay taxes (Sartika et al., 2019).

Tax revenue is also closely related to the foreign debt policy imposed by a country. According to Gazali et al. (2019) foreign debt can be used as a source of financing for the government budget and the economic budget. The limited funds owned by the government in carrying out development can also be resolved by borrowing funds from abroad, so that domestic development can continue and economic activities can run more efficiently and the desired economic growth can be achieved. With the increase in the national economy, it is hoped that tax revenues can also be increased (Insanu & Purwanti, 2020).

Based on the background that has been described, the purpose of this study is to estimate the relationship between Indonesia as a world oil exporting country and the problems of corruption and foreign debt policies carried out by the government to analyze its effect on tax revenue in Indonesia.

II. LITERATURE REVIEW

Tax is one of the obligations to surrender part of the wealth to the state treasury due to a situation, event, and act that gives a certain position, but not as a punishment, according to the regulations set by the government and can be forced, but there is no direct state reciprocal service. to maintain general well-being. Taxes have a significant role in the life of the state, especially development. Taxes are a source of state income in financing all required expenditures, including expenditures for development (Cahyani & Noviari, 2019).

Oil is one of the strategic sources of energy to ensure the development of modern industry and the economy. Oil price fluctuations are always considered as a barometer of the economy around the world, so any changes in oil prices are always a hot issue to be discussed in political and economic circles in every country. Fluctuations in oil prices in the international market in principle follow the generally accepted axioms in a market economy, where the prevailing price level is largely determined by the supply and demand mechanism. Indonesia is one of the oil exporting countries, so if there is a spike in oil prices on the international market, it will have an impact on the Indonesian economy (Nova, 2020).

Corruption is still a hot global issue that never ends to be discussed and debated. Corruption is considered a major challenge in fighting poverty and achieving public welfare because of its impact on the economy and economic development of a country. The corruption perception index is used as an indicator to measure the level of corruption using a scale of 0 to 100, where a value of 0 indicates that the country is very corrupt and a value of 100 indicates that the country is very clean (Lutfi et al., 2020).

Foreign debt is debt owned by the government to foreign parties both bilaterally and multilaterally through export credit facilities, commercial, leasing, and state securities as one of the government's efforts to meet development financing. However, the interest expense in payment of this loan also needs to be considered so that in the future it does not hamper the economy and the government can continue to carry out development so that tax revenue can be increased (Santana & Adiyadnya, 2017).

Isnanto et al. (2021) analyzed the relationship between state revenues, especially income taxes in the structure of the state revenue and expenditure budget from several external factors such as inflation, the rupiah exchange rate against the United States dollar, interest rates, and Indonesian crude oil prices in 2005-2019, using Ordinary Least Square regression analysis (OLS). The results in this study state that the exchange rate of the rupiah against the dollar has a positive effect on income tax, while the price of Indonesian crude oil, interest rates, and inflation have no effect on income tax.

Siahaan (2020) in his research stated that the decline in people's income and the impact of the Covid-19 pandemic on the economy greatly affected taxation, one of which was income tax. Income tax is a tax imposed on income received or earned by individual taxpayers or corporate taxpayers in one tax year. Therefore, the Indonesian government has implemented tax incentives for taxpayers affected by Covid-19. The government provides tax incentives with the aim of reducing the economic impact of the Covid-19 pandemic.

Mebratu et al. (2020) analyzes tax revenues in Sub-Saharan African countries using panel data over the period 2000-2018. The results in this study indicate that trade openness, the value of production in the agricultural sector, foreign debt policy, population growth, corruption, and GDP per capita affect tax revenues. Okon (2018) states that the low ratio of income to gross domestic product of Nigeria makes this country's tax revenue less than the maximum and lags far behind developed countries or other developing countries.

III. RESEARCH METHODOLOGY

The type of data used is secondary data, including world oil prices, the corruption perception index, foreign debt, and tax revenues in Indonesia during the years 1996-2021. This variable is expressed in units of Million US\$. The data was obtained through the Indexmundi and World Bank Data sites which have been re-checked against data sourced from the Indonesian Central Statistics Agency to ensure the accuracy of the data used.

The dependent variable in this study is the total tax revenue expressed in units of million US\$. Meanwhile, the independent variables used are the world oil price expressed in units of \$/barrel, the corruption perception index, and Indonesia's foreign debt. This study will examine the effect of world oil prices, corruption perception index, and foreign debt on tax revenue in Indonesia during 1996-2021 using Ordinary Least Square (OLS) regression analysis. The analytical tool used is a modification of the article Okon (2018) with the following equation:

$$TAX_t = \beta_0 + \beta_1 OIL_t + \beta_2 CPI_t + \beta_3 DEBT_t + \varepsilon_t \qquad (1)$$

where:

TAX	= Total tax revenue
OIL	= World oil price
CPI	= Corruption perception index
DEBT	= External debt
ε	= Error term
β_0	= Constant
$\beta_1 \dots \beta_3$	= Regression coefficient of independent variable
t	= Year t

The estimation stages of the econometric model will include: estimation of econometric model parameters: classical assumption testing which will include multicollinearity detection, residual normality detection, heteroscedasticity detection, autocorrelation detection, model specification test, model goodness test, and validity test of the influence of independent variables.

IV. RESULT / FINDING

The estimation results of the econometric model and its complementary tests are summarized in Table 1:

Table 1. Econometric Model Estimation Results

$\widehat{TAX}_t$= 19731,99 + 106,36 OIL_t + 1523,64 CPI_t+ 0,02 $DEBT_t$
(0,0903)***   (0,0080)*   (0,5293)

$R^2 = 0,842$; DW = 1,644; F statistic = 39,088; Prob. $F = 0,000$

Diagnostic Test:
(1) Multikolinieritas (*VIF*)
    $OIL = 1,376$; $CPI = 7,886$; $DEBT = 6,946$
(2) Normalitas Residual (Jarque-Bera)
    JB(2) = 2,222; Prob. JB(2) = 0,329
(3) Autokorelasi (Breusch-Godfrey)
    $\chi^2(3) = 3,318$; Prob. $\chi^2(3) = 0,345$
(4) Heteroskedastisitas (White)
    $\chi^2(9) = 20,122$; Prob. $\chi^2(9) = 0,017$
(5) Linieritas (Ramsey RESET)
    $F(2, 20) = 3,430$; Prob. $F(2, 20) = 0,052$

Source: EViews output, processed. Note: *Significant at α = 0.01; **Significant at α = 0.05; ***Significant at α = 0.10. The number in brackets is the statistical empirical probability t

The results of the classical assumption test show that the probability value in the residual normality test shows that the residual data distribution of the model is estimated to be normal. In the autocorrelation test, the statistical significance value of χ^2 in the BG test, there is no autocorrelation in the model. In the heteroscedasticity test there is no heteroscedasticity in the estimated model. In the model specification test, the model specification is estimated to be precise or linear.

The suitability statistic shows that the model exists, as can be seen from the empirical probability F statistic, which is 0.000 (< 0.01), so that together world oil prices, corruption perception index, and foreign debt affect tax revenues. The R^2 value of 0.842 means that 84.2% of the variation in tax revenue can be explained by variations in world oil, the corruption perception index, and foreign debt.

Separately, the world oil price variable and the corruption perception index have a significant effect on tax revenue with empirical probabilities t of 0.090 (< 0.10) and 0.008 (< 0.01). Meanwhile, the foreign debt variable was found to have no effect on tax revenue, because it has an empirical probability t of 0.529 (> 0.10).

The world oil price variable has a regression coefficient of 106.36. This means that world oil prices have a positive effect on tax revenues. The pattern of the relationship between this variable and tax revenue is linear, so that if the world oil price increases by 1 dollar per barrel, the national tax revenue will also increase by 106.36 million US\$. The corruption perception index variable also has a positive regression coefficient of 1523,637. That is, the corruption perception index has a positive effect on tax revenue. The relationship pattern to realize the corruption perception index and tax revenue is linear, so if the corruption perception index is 1 index, then the national tax revenue will also increase by 1523.637 million US\$.

V. Discussion

Based on the results of the validity of the effect (t test), world oil prices were found to have a positive effect on tax revenue. Payments for transactions in the international market using dollars further increase oil export revenues, the tendency of the strengthening of the United States dollar currency is also considered an advantage for crude oil exporting countries such as Indonesia. Moreover, if the world oil price also increases, it will directly increase the tax revenue obtained because the income of entrepreneurs also increases from the increase in world oil prices. This result is in line with the findings Isnanto et al. (2021) who found that rising world oil prices could increase income taxes.

The regression results in this study state that the corruption perception index has a positive effect on tax revenue. Corruption can indeed hinder the development process. However, this action can also facilitate licensing in various developments and economic activities, so that the time used can be shortened and all activities are carried out immediately. Of course, this is not good for the continuity of the national economy. It is necessary to reform the government structure so that acts of corruption can be reduced or even eliminated. The results of this study are in line with research Sari (2020) which states that perceptions of corruption affect tax revenue in Indonesia.

The results of this study state that foreign debt has no effect on tax revenues. Most of the foreign debt incurred by the government during this research period went directly to major infrastructure development posts in Indonesia, such as the construction of commuter liner lines and the construction of toll roads. This means that the process will take a long time and will not be felt in the near future, so that the size of the government debt does not affect national tax revenues. Similar results found by Bambungan et al. (2021) who found that foreign debt had no effect on economic growth and tax revenue in Indonesia.

VI. Conclusion and Recommendation

Tax is a mandatory contribution to the state owed by an individual or entity that is coercive under the law. Taxation plays an important role in the comparative political economy called globalization and if tax revenues increase, it can be said that the economy in the country is developing and its national income is also increasing. This study aims to estimate the effect of world oil prices, corruption perception index, and foreign debt on tax revenue in Indonesia. Based on the results of the regression using Ordinary Least Square (OLS), the effect validity test shows that world oil prices and the corruption perception index have a positive effect, while foreign debt has no effect on Indonesia's tax revenues in 1996-2021. Based on the research results, the government should focus more on eradicating corruption in Indonesia. The process of corruption that harms the community is feared to reduce their enthusiasm in paying taxes. In addition, the use of foreign debt or loans is expected to be maximized in order to stimulate the national economy and increase tax revenues.

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Influence of World Oil Prices, Corruption Perception Index, and Foreign Debt on Indonesia's Tax Revenue

Muhammad Rafi Muzakki[1], Maulidiyah Indira Hasmarini[2]
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Abstract

Taxes are mandatory contributions to the state owed by a person or entity of a coercive nature under the Act. Taxes are levies that are prerogatives. Increased tax revenues are an indicator of rising economic activity in a country. The study aims to estimate the influence of world oil prices, corruption perception indexes, and foreign debt on tax revenues in Indonesia during 1996-2021 using the Ordinary Least Square (OLS) regression analysis. The results showed that world oil prices and corruption perception indexes had a positive effect on tax revenues. While foreign debt has no effect on tax revenues. The government is expected to maximize loan funds from abroad to carry out infrastructure development to support the national economy, so that in the end the economy can grow and national tax revenues increase. In addition, the government should focus more on eradicating corruption in Indonesia. The process of corruption that harms the community is feared to reduce their enthusiasm in paying taxes. In addition, the use of foreign debt or loans is expected to be maximized in order to stimulate the national economy and increase tax revenues.

Keywords— World Oil Prices, Corruption Perception Index, Foreign Debt, Tax Revenue

I. INTRODUCTION

Economic development is a continuous process in its efforts to create economic growth and prosperity for the people of a country. Economic development itself includes equitable distribution of infrastructure supporting economic activities as well as improving the quality of the population or human capital. In developing countries such as Indonesia, the government will always strive for development to spur the national economy and catch up with other countries. In the development process, , the government will need very large funds to realize it, one of the sources of development funds is taxes, so exploring the potential to increase national tax revenues is very necessary. (Sinambela & Rahmawati, 2019).

Tax is a levy which is a prerogative. According to Law number 28 of 2007 concerning general provisions and taxation procedures, tax is a mandatory contribution to the state owed by an individual or entity that is coercive under the law, with no direct compensation and is used for state purposes for an amount of - the great prosperity of the people. The increase in tax revenue is expected to have a positive impact on economic growth. This is because by increasing taxes on state income, economic activity will be stimulated, so that many new jobs will be created. In addition, state facilities and infrastructure can be fulfilled in the hope of accelerating economic growth to achieve population prosperity (Marita & Saurdana, 2016).

According to the official report of the Indonesian Ministry of Finance in 2022, national tax revenues in 2021 will increase by 4.2 trillion rupiah. This means that this value has increased by 10% compared to the previous year. The increase in national tax revenues was due to the economic recovery after the economic crisis due to the Covid-19 pandemic. Increasing national revenue has become the main focus of the government in order to meet the need for development. Thus, the factors that affect national tax revenues need to be considered and analyzed in depth.

Indonesia is one of the largest crude oil producing countries in the world and is a member of the Organization of the Petroleum Exporting Countries (OPEC). Oil is one of the important factors in life, especially in the industrial sector because it is a strategic energy source to ensure the development of modern industry and distribution in the economy. Oil price fluctuations in international markets are always considered as economic indicators throughout the world, so any changes in oil prices always affect every economic activity in Indonesia. If the price of oil increases, the country will receive more foreign exchange because the payment for export transactions uses foreign currency which increases foreign exchange. Thus, tax revenue will also increase when income by these entrepreneurs also increases (Mawarni & Widiasmara, 2018).

Realization of tax revenue can also be affected by the level of corruption that occurs. Corruption is one of the actions that can hinder development and economic growth because the funds that should be used in carrying out development are deducted in value and go into private pockets, so that the results of development are not as expected, both in terms of function and resilience. In addition, corruption in the direct taxation sector has also occurred. Corruption in national taxation is also synonymous with bribery cases in various lines of government

whose goal is that tax-burdened people can pay taxes that are not in accordance with the provisions of the applicable law. This will affect state tax revenues and make people no longer trust the government and will think twice when they are required to pay taxes (Sartika et al., 2019).

Tax revenue is also closely related to the foreign debt policy imposed by a country. According to Gazali et al. (2019) foreign debt can be used as a source of financing for the government budget and the economic budget. The limited funds owned by the government in carrying out development can also be resolved by borrowing funds from abroad, so that domestic development can continue and economic activities can run more efficiently and the desired economic growth can be achieved. With the increase in the national economy, it is hoped that tax revenues can also be increased (Insanu & Purwanti, 2020).

Based on the background that has been described, the purpose of this study is to estimate the relationship between Indonesia as a world oil exporting country and the problems of corruption and foreign debt policies carried out by the government to analyze its effect on tax revenue in Indonesia.

II. LITERATURE REVIEW

Tax is one of the obligations to surrender part of the wealth to the state treasury due to a situation, event, and act that gives a certain position, but not as a punishment, according to the regulations set by the government and can be forced, but there is no direct state reciprocal service. to maintain general well-being. Taxes have a significant role in the life of the state, especially development. Taxes are a source of state income in financing all required expenditures, including expenditures for development (Cahyani & Noviari, 2019).

Oil is one of the strategic sources of energy to ensure the development of modern industry and the economy. Oil price fluctuations are always considered as a barometer of the economy around the world, so any changes in oil prices are always a hot issue to be discussed in political and economic circles in every country. Fluctuations in oil prices in the international market in principle follow the generally accepted axioms in a market economy, where the prevailing price level is largely determined by the supply and demand mechanism. Indonesia is one of the oil exporting countries, so if there is a spike in oil prices on the international market, it will have an impact on the Indonesian economy (Nova, 2020).

Corruption is still a hot global issue that never ends to be discussed and debated. Corruption is considered a major challenge in fighting poverty and achieving public welfare because of its impact on the economy and economic development of a country. The corruption perception index is used as an indicator to measure the level of corruption using a scale of 0 to 100, where a value of 0 indicates that the country is very corrupt and a value of 100 indicates that the country is very clean (Lutfi et al., 2020).

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Isnanto et al. (2021) analyzed the relationship between state revenues, especially income taxes in the structure of the state revenue and expenditure budget from several external factors such as inflation, the rupiah exchange rate against the United States dollar, interest rates, and Indonesian crude oil prices in 2005-2019, using Ordinary Least Square regression analysis (OLS). The results in this study state that the exchange rate of the rupiah against the dollar has a positive effect on income tax, while the price of Indonesian crude oil, interest rates, and inflation have no effect on income tax.

Siahaan (2020) in his research stated that the decline in people's income and the impact of the Covid-19 pandemic on the economy greatly affected taxation, one of which was income tax. Income tax is a tax imposed on income received or earned by individual taxpayers or corporate taxpayers in one tax year. Therefore, the Indonesian government has implemented tax incentives for taxpayers affected by Covid-19. The government provides tax incentives with the aim of reducing the economic impact of the Covid-19 pandemic.

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III. RESEARCH METHODOLOGY

The type of data used is secondary data, including world oil prices, the corruption perception index, foreign debt, and tax revenues in Indonesia during the years 1996-2021. This variable is expressed in units of Million US$. The data was obtained through the Indexmundi and World Bank Data sites which have been re-checked against data sourced from the Indonesian Central Statistics Agency to ensure the accuracy of the data used.

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where:

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β_0	= Constant
$\beta_1 \dots \beta_3$	= Regression coefficient of independent variable
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The estimation stages of the econometric model will include: estimation of econometric model parameters: classical assumption testing which will include multicollinearity detection, residual normality detection, heteroscedasticity detection, autocorrelation detection, model specification test, model goodness test, and validity test of the influence of independent variables.

IV. RESULT / FINDING

The estimation results of the econometric model and its complementary tests are summarized in Table 1:

Table 1. Econometric Model Estimation Results

$\widehat{TAX}_t$= 19731,99 + 106,36 OIL_t + 1523,64 CPI_t+ 0,02 $DEBT_t$
　　　　　　　　(0,0903)*** 　　(0,0080)* 　　　(0,5293)

$R^2 = 0,842$; DW = 1,644; F statistic = 39,088; Prob. $F = 0,000$

Diagnostic Test:
(6) Multikolinieritas (*VIF*)
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(7) Normalitas Residual (Jarque-Bera)
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V. DISCUSSION

Based on the results of the validity of the effect (t test), world oil prices were found to have a positive effect on tax revenue. Payments for transactions in the international market using dollars further increase oil export revenues, the tendency of the strengthening of the United States dollar currency is also considered an advantage for crude oil exporting countries such as Indonesia. Moreover, if the world oil price also increases, it will directly increase the tax revenue obtained because the income of entrepreneurs also increases from the increase in world oil prices. This result is in line with the findings Isnanto et al. (2021) who found that rising world oil prices could increase income taxes.

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The results of this study state that foreign debt has no effect on tax revenues. Most of the foreign debt incurred by the government during this research period went directly to major infrastructure development posts in Indonesia, such as the construction of commuter liner lines and the construction of toll roads. This means that the process will take a long time and will not be felt in the near future, so that the size of the government debt does not affect national tax revenues. Similar results found by Bambungan et al. (2021) who found that foreign debt had no effect on economic growth and tax revenue in Indonesia.

VI. CONCLUSION AND RECOMMENDATION

Tax is a mandatory contribution to the state owed by an individual or entity that is coercive under the law. Taxation plays an important role in the comparative political economy called globalization and if tax revenues increase, it can be said that the economy in the country is developing and its national income is also increasing. This study aims to estimate the effect of world oil prices, corruption perception index, and foreign debt on tax revenue in Indonesia. Based on the results of the regression using Ordinary Least Square (OLS), the effect validity test shows that world oil prices and the corruption perception index have a positive effect, while foreign debt has no effect on Indonesia's tax revenues in 1996-2021. Based on the research results, the government should focus more on eradicating corruption in Indonesia. The process of corruption that harms the community is feared to reduce their enthusiasm in paying taxes. In addition, the use of foreign debt or loans is expected to be maximized in order to stimulate the national economy and increase tax revenues.

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Prediction of Financial Distress from Transportation Sector Companies in South East Asia using SMOTE Support Vector Machine

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Abstract

The topic of predicting company's financial difficulties has become important topic in detecting the risk of a company's bankruptcy. Some research showed that machine learning such as SVM, Neural Network, and Random Forest provide better performance in predicting financial distress compared to traditional methods such as Altman and Merton. This paper proposes a financial distress prediction using binary variable which is useful for warning creditors or investors of the risk of bankruptcy. Therefore, we applied prediction model for 203 transportation sector companies in Southeast Asia from 2019 to 2020 using a SMOTE Support Vector Machine and Gaussian (RBF) in order to handle imbalanced data. Experimental results show that this method can produce accuracy and evaluation performance above 90% and find that Profitability Ratio as the most affected feature attributes in the classification results. We hope that it can stimulate more research on predicting financial distress by utilizing the application of Artificial Intelligence.

Keywords— Accuracy; Classification; Financial Distress; Financial Ratio; Support Vector Machine

I. INTRODUCTION

Financial distress is a financial condition of companies which is indicated by the company's liquidity and inability to pay its obligations. Forecasting financial distress of companies has been widely studied and applied both in education and practitioners. From a managerial perspective, financial distress prediction beneficial for timely warning and decision making to various stakeholders such as creditors, management, investors, employees, shareholders and other interested parties. Likewise, as the unstable economic environment affected from the covid-19 pandemic situation, enterprises must be alert the increasing risk of falling into financial distress before it reaches the stage of bankruptcy because management tend to become aware of the distressed situation when it is too late to revive the company (Mahtani & Garg, 2018). Local government should be alert of failing company that might affect the banking industry and eventually to the whole financial system. Therefore, efficient prediction of financial distress required for corporate to prevent bankruptcy which categorized from the accuracy and confussion matrix of the method.

Experts have developed several models for financial distress prediction using financial ratios or other variables from financial statement. Initial studies generally use applied statistical methods such as Altman (1968), Merton (1974), and Springate (1978), which were considered as milestones. However, some experts still criticized these methods could not predict symptoms of financial failure accurately. These traditional methods are using statistical method with assumption of linearity, normality, and independence among predictor variables (Hua et al., 2007). In actual, data for prediction contains a more complex and non-linear problem to solve. Characteristic of financial distress prediction variables in real world could contains missing values, imbalance data, and in a large amount. With the rapid development of technology, some research appears to predict financial distress by utilizing artificial intelligence (AI). Several methods using machine learning approach have been proposed and are able to achieve higher accuracy in early detection of financial distress, such as SVM (Shin et al., 2005), Neural Network (Paule-Vianez et al., 2020), and Random Forest (J. Huang et al., 2017). Previous research by Vieira by comparing several machine learning methods for prediction, including Logistics, Artificial Neural Networks, Multilayer Perceptron (MLP), Support Vector Machines (SVM) and AdaBoost M1 which uses predictive data from Diane, a large database containing financial records of small and medium-sized French companies and research results show that Support Vector Machines achieve the best performance, with a total accuracy of 93.17% in predicting the failure of French MSME companies (Vieira et al., 2009).

However, most of the financial distress studies used a balanced data set. On the actual financial data, distressed company finances are only a small part of the total companies in all industries. Although several studies use proportional samples and high overall accuracy, the same model that used on an unbalanced sample will result in overestimation of the financial distress prediction (FDP) model. Study to predict diabetes using the PIMA Indian Diabetes Data Set, showed that the combination of the SMOTE technique and the SVM method formed the best

model in balancing the data set and classification with an accuracy of 83.12% (Mesquita et al., 2021). Nevertheless, both statistical traditional method and artificial intelligence models have their own strength and weakness. Statistical method used fewer variables predictors but incapable in complex and non-linear type of data, meanwhile artificial intelligence able to give better performance but required more variables predictor and running time (Sun et al., 2021).

Prediction of a company's financial distress with financial ratios has been handled by several models, early studies generally used statistical methods such as multiple discriminant analysis (Altman, 1968), logistic regression (Canbas et al., 2005), and multiple regression to predict multiple business failures which used by Banks or Credit Institutions. However, most of the research on prediction of financial distress uses a balanced proportion of class samples. Meanwhile, on the actual data of finance, financially depressed companies only accounted for a small part of the total companies in all industries. Therefore, the contribution of this research is to present the importance of using balanced data through a combination of the SVM method with the SMOTE technique. The author chooses the SMOTE-Support Vector Machine method because there is no research that discusses bankruptcy prediction using transportation sector companies in Southeast Asia. The researcher also analyzes the effectiveness of SVM through the accuracy of the method with input data of companies in Southeast Asia.

This paper proposed financial distress prediction of transportation sector companies listed in the South East Asia using SMOTE Support Vector Machine, as this method successfully applied in complex and non-linear data issue. Implementation of kernel function is considered as the core part of SVM because kernel will also affect the outcome or on the accuracy and confussion matrix (Wu et al., 2016). Thus, in this paper, we will use the Gaussian RBF (radial basis function) kernel function to obtain multidimensional kernel function. Through this research, we hoped that applied SVM can be proven that this method is outperformed compared to other prediction.

II. LITERATURE REVIEW

Financial distress prediction has become a significant research interest due to the COVID-19 pandemic, especially in corporate finance. Financial difficulty is a situation of a company in a state of financial crisis in which companies cannot fulfill their obligations and might have consequences of bankruptcy. The terms that are used to describe financial distress are "failure," "insolvency," "bankruptcy," or "default". Apart from these terms used, this is defined as a situation where the company faces a low cash flow state. Early studies identified that financial distress prediction is related to the values of financial ratios of failing and non-failing firms. These studies found several models using financial ratios analysis in assessing the performance of companies.

Altman specifies that multiple discriminant analysis (MDA) is an applicable statistical technique and has been proven to be used in several actual case studies related to financial distress prediction (Altman, 1968). The Z-Score model using profitability, liquidity, and solvency ratio is considered a milestone to predict financial distress companies because this model must qualify the assumption of normality. Other models have been developed to evaluate financial distress using Ohlson's model, a multi factor financial formula. This model used nine financial ratios and unlike This model used nine financial ratios, and unlike Altman's research using only 66 firms, Ohlson includes more than 2000 firms to achieve better accuracy (Ohlson, 1980). In addition, because the assumption of normality from the multiple discriminant analysis mitigates the employment of dummy independent variables, Ohlson uses two dummy variables to emphasize whether the company has a net loss. Although Ohlson's model used more variables than the prior model, Ohlson stated that achieving significant improvement may require additional predictors.

As the explanation given about the limitation of several traditional research, the author finds that there are no significantly most important predictors in predicting financial distress. Considering several studies that cite different predictors, there is no evidence of which ratio or variable is most efficiently used in all industries and companies. Previous research applying Altman and Ohlson's model to Logistics and Shipping Industries concludes that ROA is the most significant financial ratio as a predictor (Woo et al., 2021). Nevertheless, another finding in this research is that the approach for assessing the state of financial distress in an industry must consider the market's location. The US and EU market has different factors that affect these two markets, similarly in other markets worldwide. Therefore, the objective of this study is to examine significant financial ratios in assessing financial distress from the ASEAN market.

A. Merton Distance to Default (DD) Model

Merton's model is based on the Black-Scholes model of option pricing for assessing the probability of default. This model links the company's probability of default and asset structure (capital) using its equity value, the nominal value of its debt, and equity volatility (Merton, 1974). This model assumes that the company has a zero-coupon bond to be repaid. If the asset value company (A) is less than the debt (D), then the company will be considered default and the value of equity becomes 0. Otherwise, if the value of the company's assets (A) is greater than the debt (D) which must be repaid in period t assuming t is one year, then the company will pay the debt and the value of equity becomes 0. Merton model generates equity value by modifying the Value of the Black-Scholes Call Option using the following equation

$$E_T = A\,N(d_1) - De^{-rT}N(d_2)$$

(1)

where E_T is the market value of the firm's equity and r is the risk-free rate. $N(\cdot)$ is the cumulative normal distribution function for d_1 and d_2, given by,

$$d_1 = \frac{\ln\left(\frac{A}{D}\right) + \left[r + \frac{1}{2}\sigma_A^2\right]T}{\sigma_A\sqrt{T}}, d_2 = d_1 - \sigma_A\sqrt{T}$$

(2)

Under the Merton DD Model assumption, as volatility of equity is categorized as an unobservable value, hence the volatilities of the firm and its equity are related by

$$\sigma_E = \frac{\partial A}{\partial E}N(d_1)\sigma_A$$

(3)

By solving equation (2) and (3), the Distance of Default can be calculated using the following equation

$$DD = \frac{\ln\left(\frac{A}{D}\right) + \left[r - \frac{1}{2}\sigma_A^2\right]T}{\sigma_A\sqrt{T}}$$

(4)

While DD defined as the normalized distance between the firm's asset (A) and the face value of firm's debt (D), Probability of Default (PD) is the π_{merton} and can be re-written as follows (Bharath & Shumway, 2008)

$$PD = N(-DD) = N\left(-\left(\frac{\ln\left(\frac{A}{D}\right) + \left[r - \frac{1}{2}\sigma_A^2\right]T}{\sigma_A\sqrt{T}}\right)\right)$$

(5)

(6)

This study uses Merton DD Model to generate dependent variables for prediction because the model considers volatility, which this determinant becomes important for predicting financial distress in the crisis of the last couple of years due to pandemic.

B. Financial Distress Prediction Developments

Subsequently, with the advanced progress of computer technology, multivariate models using machine learning techniques based on Artificial Intelligence have been prosperously used for financial distress prediction. These methods proved to be more accurate in handling nonlinear data and selecting higher features for predicting financial distress. Several machine learning techniques to solve the problem included Neural Network (NN) (Raghupathi et al., 1991), Decision Tree (Sun & Li, 2008), Random Forest (Yeh et al., 2014), and others. Support Vector Machine is considered one of the machine learning techniques to overcome explanatory nonlinear data and stability problems compared to statistical models, among other models that might solve the problem.

Support Vector Machine performs classification using hyperplane for differentiating nonlinear data. SVM constructs a hyperplane that maximizes the margin between classes, called optimal hyperplane (see figure 1). In real data cases, characteristics of finance financial data are often highly biased, resulting in misclassification errors. Hence, the SVM algorithm plotting each data item from features space to n-dimension (where n is the

number of features of data) using slack variables (ξ_i) and kernel function ($K(x)$) to prevent overfitting. Where w defined as margin or the distance between two points nearby the hyperplane, called support vectors, and C as the parameters. The optimization problem of SVM is summarized as the following equation (Cortes & Vapnik, 1995)

$$\min_{w,b} \frac{1}{2} \|w\|^2 + C \sum_{i=1}^{N} \xi_i \tag{7}$$

with constraint of

$$y_i(w \cdot \phi(x_i) + b) \geq 1 - \xi_i, \qquad i = 1, 2, 3, \ldots, N \tag{8}$$

where $\xi_i > 0$ and $\phi(x_i)$ defined as the feature map for the kernel function. Using the Radial Based Function (RBF) kernel, the kernel function satisfies $K(x_i, x_j) = \langle \phi(x_i), \phi(x_j) \rangle$. Hence solving equation (6) and (7) using Lagrange optimization, the optimal hyperplane decision function is generated to predict a testing data based on the sign of the solution value

$$f(x_t) = \text{sgn} \left(\sum_{i \in N_S} \alpha_i^* y_i \ K(x_i, x_j) + b^* \right) \tag{9}$$

where if $f(x_t) > 0$ or positive then it concludes that the class label of x_t is $y_t = 1$ but if $f(x_t) < 0$ or negative then it concludes that the class label of x_t is $y_t = -1$.

However, Support Vector Machine depend on the "quality" of the data set that used for the development of the classification model resulting a model that is not formed to read unbalanced data patterns (Demidova & Klyueva, 2017). Classification model on an unbalanced data set often considering data from the majority class and ignoring the minority class which can result in type I and type II misclassification. The Synthetic Minority Over-Sampling Technique (SMOTE) is an over-sampling method that was first proposed by Chawla and colleagues in 2002 with an oversampling approach, namely replacing some of the majority data that is close to minority characteristics into minority labels. This method forms synthetic samples by selecting random points along the line segment and linking the k closest neighboring minority classes (Chawla et al., 2002). Where minority sample denoted as x_i, $i = 1, 2, \ldots, N$ and x_j, $j = 1, 2, \ldots, N$ is one of k closest neighbor with x_i. Then, a new minority "synthesis" sample will be generated using the following equation (Sun et al., 2014)

$$x_{new} = x_i + \text{rand}(0,1) \times (x_j - x_i) \tag{9}$$
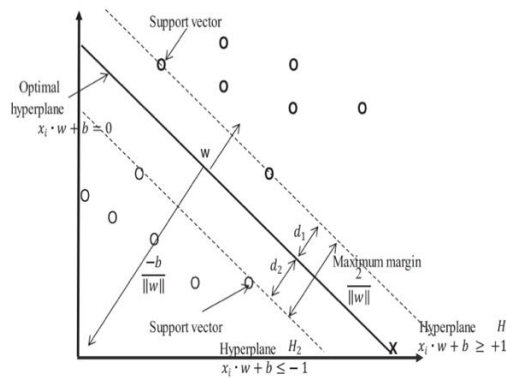
Fig. 1. The Architecture of a Typical Support Vector Machine. (Colff & BrÜMmer, 2019)

For this study, financial ratio from several companies will be provided along with the financial characteristics of each company, categorized as non-distress (healthy) or distress company. This data will be translated into binary, 1 for financially healthy companies and -1 for companies with financial distress that might possibly experience bankruptcy in the future. The prediction data will be compared with the actual class of companies to calculate the model's accuracy. Then, we deploy SMOTTEENN SVM to build a more predictive collaboration.

III. RESEARCH AND METHODOLOGY

A. *Data Collection and Processing Techniques*

The purpose of this research is to predict a company's probability of default based on variables that can affect financial distress using historical financial ratio data. The data set that we employ is provided from secondary data sourced from financial statement data of transportation sector companies in Southeast Asia in 2019 and 2020. The sampling method used is purposive sampling, which is a sampling technique in which researchers select data based on unique characteristics or experiences, attitudes, or perception (Cooper & Schindler, 2014). We select samples that fulfill criteria and then select significant variables for prediction model that are shown in Table 1. Hence this study composed of 203 Companies and 10 financial ratios from 2019 and 2020.

Table 1. Transportation and Logistics Company Sampling Criteria.

Number	Criteria	Non-Criteria Population	Total Population
1	Southeast Asia	-	11 Countries
2	Southeast Asian company listed on Thomson Reuters Eikon	5 Countries	5361 Companies from 6 Countries (Indonesia, Malaysia, Filipina, Singapura, Thailand, Vietnam)
3	Southeast Asian company from the Transport sector listed on Thomson Reuters Eikon	5071 Companies	290 Companies
4	**Number of companies with complete variables for Merton's method calculation**	**87 Companies**	**203 Companies**

(Processed by author, 2022)

After that, we apply pre-processing with the intention of preparing and transforming the raw data into efficient data that can be used for the next stage of data processing. This step consists of data cleaning and data imputation. In order to eliminate noise data and outlier, we apply data cleaning the characteristics of missing values above 10% in every feature. Then, we apply the process of filling missing data by estimating the value of a certain pattern or constraint using the 'Multiple Imputation by Chained Equations' (MICE) method.

B. *Construction of Financial Distress Prediction Model*

In this study, we apply Merton Model in dataset to calculate the Probability of Default that will be represented by 0 for companies with PD of above 10% and 1 for companies with PD of below 10%. This research will classify category of companies with default and non-default probabilities uses the Distance of Default (DD) and Probability of Default (PD) with reference of calculation from Löffler and partner (Löffler & Posch, 2007). The result showed that using 10% threshold PD, there are 30 samples labeled as probability of distress company for 2019 and 26 samples labeled as probability of distress company for 2019 out of the total population.

Finally, we construct 10 different financial ratios and splitting data into two subsets arbitrarily from 10% to 90% data training, respectively (see Table 2). Then we apply Support Vector Machine without SMOTE for comparison and using 10%-90% of data training to build the model. Data balancing techniques will be carried out using SMOTE on the initial unbalanced data. The addition of the number of minority samples will be found through a number of k neighbors from the minority data and the formation of a more balanced dataset. After classifying using SVM using data that has been previously balanced and evaluating the performance of the model to be compared with the model formed from previous machine learning.

Table 2. Definition of financial ratios variables.

Category	Variable	Definition
Profitability	Return On Asset	$\dfrac{\text{Net Income}}{\text{Total Assets}}$
	Return on Equity	$\dfrac{\text{Net Income}}{\text{Total Shareholders'Equity}}$
	Net Profit Margin	$\dfrac{\text{Net Income}}{\text{Revenue}}$
Solvability	Debt Ratio	$\dfrac{\text{Total Debt}}{\text{Total Assets}}$

	Debt to Equity Ratio	$\dfrac{Total\ Debt}{Total\ Equity}$
	Equity Ratio	$\dfrac{Total\ Equity}{Total\ Assets}$
Liquidity	Current Ratio	$\dfrac{Current\ Asset}{Short-term\ liabilities}$
	Quick Asset Ratio	$\dfrac{Current\ Asset-Invetories}{Short-term\ liabilities}$
Activity	Total Asset Turnover	$\dfrac{Sales}{Total\ Assets}$
	Account Receivable turnover	$\dfrac{\textbf{Sales}}{\textbf{Average Receivable}}$

(Processed by author, 2022)

C. Experimental Design

In order to obtain model for financial distress prediction, we proceed calculation of probability of default as the dependent variable using Merton Model. There are 203 sample data including 30 distress companies and 173 healthy companies in 2019, and 26 distress companies and 177 healthy companies in 2020. To enhance the reliability of experimental results, we compare the classification model by dividing the sample data into two types, including training set and testing set, respectively. The partition of the sample data obtaining different accuracies and confussion matrix. In this experiment, we used Gaussian RBF kernel as the kernel function of the prediction model considering its good performance. Classification method in this study is using the e1071 package at RStudio, then we evaluate the performance of the model using confusion matrix. The flowchart depicting the Support Vector Machine algorithm and evaluating the performance of the model is shown in Figure 2.

The next step, we compare and analyze support vector machine model with addition of balancing data model in this paper. By adding SMOTE for balancing dataset, then applying Support Vector Machine method in the balanced data to see the classification model formed using balanced data. The data balancing technique with SMOTE method is using the performanceEstimation packages on RStudio. We prove that SMOTE has become efficient model to build balance dataset by comparing accuracies and confussion matrix.
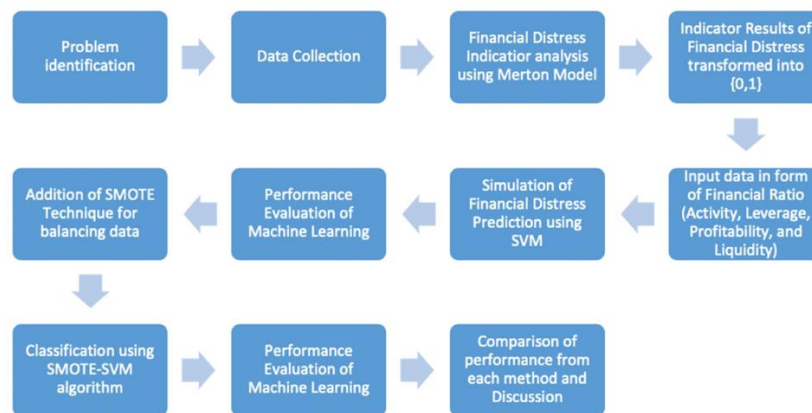
Fig. 2. SVM Financial Distress Prediction Model with Kernel Function. (Author's Result, 2022)

IV. RESULT / FINDING

A. Calculation of Probability of Default

To classify company's probability of default as the dependent variable, we conduct calculation using Merton Model that elaborated in Construction of Financial Distress Prediction Model section. Referred to previous research, there is no PD Merton constraint statement that can be used as a boundary for the classification of default and non-default companies. Based on working paper conducted by Tudela and Young in 2003, this study measures the PD percentage threshold for the company's default classification by comparing the types of classification errors if the PD threshold used is between 5%, 10%, 15%, 20%, and 30%. Research has found that the use of a threshold

of 10% produces the simplest Type I error and Type I error (Tudela & Young, 2003). Therefore, this study used 10% as threshold.

Table 3. Descriptive Statistics Variable Probabilty of Default (PD)

Year	N	Min	Max	Mean	Stand. Deviation	Distress Company	Non-Distress Company	Percentage Distress Company
2019	203	0.00%	61.28%	4.27%	9.30%	30	173	14,78%
2020	203	0.00%	56.79%	3.86%	8.80%	26	177	12,8%

(Processed by author, 2022)

Based on the calculation, the average probability of a company's default is 4.26% in 2019 and has decreased in 2020, which is 3.86% as stated in table 3. Also showed from the total number of distress company show that the data obtained have the characteristics of imbalance data. In 2019, companies categorized as distress (dummy variable – 0) were 30 companies or 14.78% of the total sample of companies, while in 2020, companies categorized as distress (dummy variable – 0) were 36 companies or 12.8% of total sample of companies. Therefore, the proportion of data that is not 1:1 indicates the sample of this study is not balanced. This will have an impact on the evaluation of the Support Vector Machine's performance will not be optimal because the model that is formed tends to be inaccurate in predicting the minority class. Therefore, this study will add the SMOTE technique as a data balancing method and add the Support Vector Machine method which will be discussed in the next section.

B. *Importance of Balancing Data Method*

In this study, the data classification of distress and non-distress companies simulated using Support Vector Machine without using data balancing. This simulation uses the e1071 package available at RStudio by using several parameters, namely the kernel used is RBF (Gaussian), the C parameter used is the C-Classification type and the cost of constraint breaking parameter is 10. The program trial uses a gradual percentage of training data, starting from 10%, 20%, and so on data training up to 90%. Tables below give comparison of accuracy and performance evaluation obtained from 2020 and 2019 using Support Vector Machines with Gaussian functions.

Table 4. Accuracy and Performance Evaluation of Support Vector Machine in 2020

Data Training (%)	Sampel Training	Sampel Testing	Accuration (%)	No Info Rate (%)	Recall (%)	Precision (%)	Specificity (%)	f1-score (%)
10	21	182	87.91	87.36	4.34	100	4.34	8.33
20	42	161	87.58	87.58	5.00	50	50	9.09
30	62	141	85.11	87.23	11.11	28.57	95.93	16.00
40	82	121	84.3	87.6	20.00	30.00	20.00	24.00
50	102	101	84.16	87.13	15.38	28.57	94.31	20.00
60	123	80	82.5	87.5	10.00	16.67	10.00	12.5
70	143	60	85.00	88.3	14.28	25.00	14.28	18.18
80	163	40	85.00	87.5	20.00	33.33	20.00	25.00
90	184	19	89.47	89.47	0.00	NA	0.00	NA

(Processed by author, 2022)

Table 5. Accuracy and Performance Evaluation of Support Vector Machine in 2019

Data Training (%)	Sampel Training	Sampel Testing	Accuration (%)	No Info Rate (%)	Recall (%)	Precision (%)	Specificity (%)	f1-score (%)
10	21	182	80.22	85.16	11.11	20.00	11.11	14.28
20	41	162	80.25	85.19	12.5	21.42	12.50	15.78
30	61	142	80.99	85.21	9.52	20.00	9.52	12.9
40	82	121	80.17	85.12	11.11	20.00	11.11	14.28
50	102	101	79.21	85.15	6.67	12.5	6.67	8.69
60	122	81	76.54	85.19	0.00	0.00	0.00	NA
70	143	60	83.33	85.00	22.22	40.00	22.22	28.57
80	163	40	77.5	85.00	0.00	0.00	0.00	NA
90	184	20	85.00	85.00	33.33	50.00	33.33	40.00

(Processed by author, 2022)

Based on the tables below, the best accuracy obtained in 2020 are 89.47% and in 2019 it is 85.00% by using training data of 90%. This reflects more data training in forming a predictive model will help machine learning to build best model for classification. The main issue from result above is the model fails to predict for data in the False Negative category. The model misclassified financial ratio data which in actual conditions is classified as positive for financial difficulties and the data is classified as negative for financial difficulties. This explained by the No Information Rate that is greater than or equal to the accuracy, meaning that the model formed is not significant. The model fails to classified the False Negative variable because this data characterized as imbalance data. This also showed from the f1-measure evaluation which provides an overview of the model's performance in predicting unbalanced data while the results of this evaluation table give an error result. Therefore, this research will apply the SMOTE technique to balance the data and followed by the SVM classification.

Table 6. Accuracy and Performance Evaluation of Support Vector Machine with addition SMOTE Technique

Tahun	Data Training (%)	Data Training (0)	Data Training (1)	Akurasi (%)	No Info Rate (%)	Recall (%)	Precision (%)	Specificity (%)	f1-score (%)
2020	90	96	144	96.25	0.6	96.87	93.93	96.87	95.38
2019	90	108	162	93.33	0.6	89.18	93.26	89.81	91.15

(Processed by author, 2022)

For a comparison, we apply the SMOTE technique as a method for data balancing. We use of several parameters, namely "perc.over = 3" or commonly used for SMOTE oversampling, "k = 10", and "perc.under = 2" or commonly used for SMOTE undersampling. This method is often called as SMOTTEENN or SMOTE technique which applies the oversampling method (SMOTTE) and undersampling method (SMOTE-ENN). After we obtain the balance data, the Support Vector Machine classification method was applied. Below is the level of accuracy and performance evaluation obtained from data classification of distress and non-distress companies using Support Vector Machines with Gaussian function as a comparison. In 2020 the classification model produces an accuracy of 96.25% while in 2019 the classification model produces an accuracy of 93.33% if we apply the SMOTTEENN technique before the SVM classification method.

In this study, feature prediction is also applied to determine the level of importance and the degree of influence of each variable that used for classification. The purpose of using the variable importance is to be considered for further research to predict financial distress using significant financial ratios. In addition, the use of the variable importance can be considered to be applied before classifying data so that the results of features that have no effect can be dropped first considered with other ratios or variables. The data used to see the importance of each feature uses data that is new or that has been imputed using MICE Random Forest. Furthermore, using the Random Forest Package in R Studio, a summary of the results of the importance of features can be seen in table 4.9
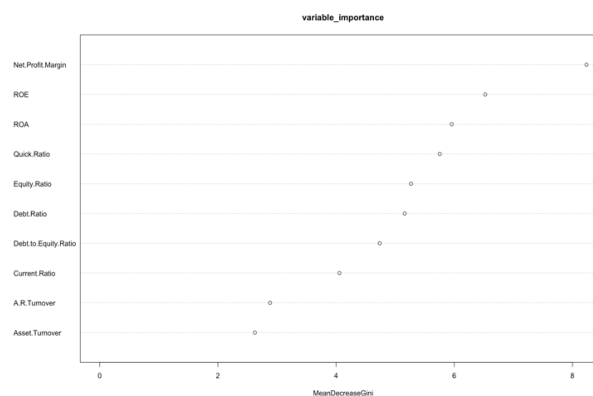
Fig. 3. Variable Importance Results of all financial ratios. (Author's Result, 2022)

V. DISCUSSION

Basically, this study proves that the use of the SVM method and the SMOTE technique is able to predict company bankruptcy in resolving the characteristics of unbalanced data and missing values as seen from the accuracy value and performance evaluation above 90%. This research is different from previous research

because the Support Vector Machine (SVM) is a machine learning method based on optimization, resulting in SVM being able to overcome the characteristics of data with high outliers and the machine's ability to map data to higher n dimensions. Therefore, SVM produces better classification accuracy, different from other classification methods such as discriminant analysis which uses the assumption of multicollinearity as a separator in non-linear subspaces, making it difficult to deal with data with high outliers (Obi, 2017). Previous study that predicts stock price movements proves that the SVM model outperforms compared to linear discriminant analysis through a comparison of the accuracy value and the results of the evaluation of the performance of the model that formed from SVM (W. Huang et al., 2005).

By quantitively comparing the experiment using Support Vector Machine and addition of SMOTE technique for initial samples, we obtained findings that is described as follows:

1. First of all, we apply traditional method using Merton Model to obtain classified samples as distress and non-distress company. In the process of classifying, we found that non-distress company are dominant in 2019 and 2020 with proportion of 14,78% and 12,8%, respectively. We conclude that most company is financially healthy and real-time data tend to has characteristics of imbalance data. This showed the importance of using machine learning in real life data, as this method resolve well the imbalance, non-linear, and other characteristics of data.

2. We also apply different percentage of data training in our SVM to illustrate the most significant use of percentage. The experiment results that 90% of data training produce highest accuracy while other performance evaluation showed insignificant and unstable result seen from Recall, Precision, Specificity, and F1-Score. To some extent, this indicates that the highest percentage usage of data training will produce a better model for financial distress prediction. Although the result gives an acceptable accuracy, the Recall, Precision, Specificity, and F1-Score are not showing a significant result. Meaning that the model is able to recognize the non-distress company but relatively poor to recognize the distress company. Therefore, it is not expected to use traditional Support Vector Machine for imbalance data FDP.

3. We then improve the traditional SVM using additional data balancing methods, SMOTE Technique. The result show that the accuracy and performance evaluation build a significant model and smaller error in classification. This can be seen from the accuracy which is much greater than the No Information Rate. The results of the performance evaluation using Recall, Precision, Specificity, and F1-Score also produce values above 90%. Therefore, SMOTE SVM method is significant for Financial Distress Prediction.

4. There were several predictive variables to be considered, therefore the selection of significant variables is very important in classification. Profitability ratio produces the highest level of importance, which is 8.23 for the Net Profit Margin ratio and the activity ratio produces the lowest level of importance, which is 2.62 for the Asset Turnover ratio. A positive level of importance for each feature means that all features remain positively correlated to the classification variable and are suitable for use. However, for better classification model results and performance evaluation, you can consider changing the activity ratio with other variables that can be used as predictors.

VI. CONCLUSION

This study focused on applying machine learning to classify company with financial distress and non-financial distress. We compared quantitively two methods by using a balancing technique before applying SVM and a traditional SVM. This study uses 203 transportation sector companies in Southeast Asia by evaluating the accuracy, Recall, Precision, Specificity, and F1-Score. Based on the results and discussion in the previous section, it is basically proven that the use of machine learning methods is better in predicting company bankruptcy than classical methods such as Altman, Merton, etc. because it can solve data problems with data characteristics of missing values and unbalanced data.

The simulation generate accuracy above 80% without using data balancing techniques. Although the accuracy shows good performance, other performance evaluations such as Recall, Precision, Specificity, and F1-Score show that model produces errors in the minority class classification. Higher accuracy results were produced

in 2020 compared to 2019, this was due to fewer missing values in 2020 than in 2019. The characteristics of data that used in this simulation also categorized as unbalanced data. The composition of companies with financial difficulties is only below 15% per year when compared to the total company as a whole. This triggers the results of machine learning accuracy and performance that are not optimal in classification and require data balancing techniques. The addition of the SMOTE technique results in higher accuracy, which is above 90% per year. The results of the performance evaluation using Recall, Precision, Specificity, and F1-Score also produce scores above 90%. The use of predictor variables is also important in improvising the model formed by machine learning. Based on the results of the calculation of the variable importance, the profitability ratio is a financial ratio whose function is significant knowing the level of importance of each variable used and the most influential for classification. While the activity ratio produces the lowest level of importance.

Based on this study, there are several limitations in this study. First, the data processing requires the author to use imputed data, while this method tends to affect the accuracy of the model formed. In addition, this also results in a reduction of predictor features that used for classification. However, this has been overcome by the author through the implementation of the data imputation method at the data pre-processing stage. Results showed that compared to 2019 which has more missing values than 2020, the accuracy and performance evaluation of the 2020 model year is better than 2019. Nevertheless, both models are still within acceptable accuracy limits. Second, the input variable for the classification uses only 10 features from several categories of financial ratios, while there are many variables that affect the probability of a company's bankruptcy to be considered.

This research is expected to contribute with topic of prediction of financial distress, especially in the use of data that is very closely related to the character of the data in the real financial world, namely unbalanced data and missing values. Therefore for the development of further research can be conducted through considering to improve the performance of the SVM and SMOTE by selecting more predictor features or other variables that affect the probability of a company's financial distress, considering to use of feature selection in the data before machine learning simulations, such as using the Chi Square method, Fisher Score, and considering to apply simulation using other methods of machine learning as a comparison with SVM methods, such as Random Forest, KNN, and so on.

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Indonesia Pension Fund Asset Allocation During Financial Market Uncertainty

Due to Covid-19 Pandemic

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Abstract

Aging populations and the low growth and interest rate environment have weighed heavily on retirement savings arrangements. Covid -19 pandemic will certainly compound those challenges for pension fund, as we expect interest rates and investment returns to stay low for some time. This study applies Markowitz's mean-variance optimization method (MVO) for Indonesian pension fund asset allocation. This study also using Black-Litterman model as comparison and complement the Markowitz's. The historical return and risk data used in this study are obtained from daily bond and stock indexes of Indonesia also 1-week Jakarta Interbank Offered Rate (JIBOR). This study shows that the asset allocation composition using Black-Litterman generates higher expected return and Sharpe Ratio than MVO model. Therefore, asset allocation suggested to Dana Pensiun Bank Indonesia (DAPENBI) as one of the biggest Indonesian pension fund and others who has same risk appetite, is the optimum weight using Black-Litterman model.

Keywords— Asset allocation; Black-Litterman; Covid-19; Mean-Variance Optimization; Pension fund

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I. INTRODUCTION

Pension fund assets exceeded USD 35 trillion at end-2020, still increasing during COVID-19 in almost all countries (OECD, 2021). Pension funds also achieved positive investment returns in most reporting countries in 2020 including Indonesia. In other hand, aging populations and the low growth and interest rate environment have weighed heavily on retirement savings arrangements. Pension funds in most countries, including Indonesia are facing safe payment crisis. Pension fund ability to maintain and increase the value of pension funds through diversified investment in capital market become an important thing. Covid -19 pandemic will certainly increase and complicate those challenges, as we expect interest rates and investment returns to stay low for some time.

Moreover, Indonesia pension fund specifically face additional challenges than other countries such as limited investment outlet since the financial deepening is still in progress. In general, pension fund asset allocation consists of stocks, government bonds, corporate bonds, mutual fund and cash including term deposit and short-term bills. High financial market uncertainty during Covid-19 pandemic enforced the pension fund globally to adjust their return target and risk appetite to ensure their investment safe and liquid enough, including Indonesian pension fund.

Dana Pensiun Bank Indonesia (DAPENBI) is one of pension funds in Indonesia that has Asset Under Management (AUM) more than IDR 10 trillion. It also faces same challenge with others pension fund in Indonesia especially the limited investment outlet that could provide return that could fulfill the liabilities. For now, DAPENBI invest in some liquid asset such as term deposit, government bonds, corporate bonds, mutual funds and stocks that listed in Indonesia Stock Exchange (DAPENBI, 2016). The fund managed by DAPENBI are assets that are separated from Bank Indonesia's asset as the founder. It is collected from participant contributions and Bank Indonesia's contribution as employer. The performance of pension fund managed by DAPENBI can be assessed from the financial statements announced every end of each year.

This study applies Markowitz (1952) mean-variance optimization method (MVO) to construct the optimum asset allocation with some minimum return constraints for DAPENBI as a pension fund who has minimum return to maintain the purchasing power. MVO is at the core of modern portfolio theory. However, in practical implementation, estimation errors could lead to extreme portfolios (Idzorek, 2007). This study also applies Black and Litterman (1992) model to construct optimum portfolio to compare with MVO model to find out which model is more suitable for longer term investor such as pension fund.

In actual fact, the Black-Litterman model has numerous advantages. First, it has been used in the situation of the modern portfolio theory to integrate the view of the investors and the uncertainties in the expected returns and also the correspondent covariance matrix which the standard statistical models usually ignore them. Second, it

also enables investor not only to take into account the historical data but also to include the prior information like the experts' experience. This knowledge should help to make the portfolio more reasonable and well-diversified based on the pure statistical portfolio optimization methods (Trichilli et al., 2020).

Some studies using Black-Litterman model in Indonesia to construct optimum investment portfolio during Covid-19 pandemic period. Research by Subekti et al. (2022) aims to demonstrate portfolio modeling, which leads to Sharia compliance in encountering crises because of COVID-19. The authors proposed adapt Black-Litterman model to Sharia-compliant stock portfolio. Another research held by Yosmar et al. (2021) tries to determine the stock portfolio with the Black-Litterman model using company data listed in the LQ45 stock index from January 2020 to June 2020. Those studies determined optimum portfolio limited in one class asset which is stock portfolio only. Therefore, this study aims to construct investment portfolio using multi asset classes including stocks, bonds, mutual fund and cash with both Markowitz and Black-Litterman Model.

II. LITERATURE REVIEW

Asset liability management (ALM) and liability driven investment (LDI) strategies are usually adopted to guide pension fund managers in relation to strategic allocation in asset classes that should compose their investment portfolios and to the liquidity needed in each period, but not specifying in which assets to allocate resources from among the infinity of assets available in the financial market (Paula & Iquiapaza, 2021).

Portfolio optimization has been extensively studied in the theoretical and the empirical financial literature. Among the techniques of portfolio optimization, the Modern Portfolio Theory was first introduced through the canonical model of portfolio choice. In fact, Markowitz (1952) suggested that investors should focus on selecting portfolios on the basis of their overall risk-reward characteristics. This asset allocation could help pension fund to find the optimum asset allocation to fulfill the hurdle rate of the liabilities.

Even though MVO is at the core of modern portfolio theory but in practical implementation, estimation errors could lead to extreme portfolios. The Black-Litterman asset allocation model is a sophisticated portfolio construction method that overcomes the problem of unintuitive, highly-concentrated portfolios, input-sensitivity, and estimation error maximization (Black & Litterman, 1992; Idzorek, 2007). Idzorek (2007) on his research gives some insights from the relatively few works on the model and also, he provides step-by-step instructions that enable the reader to implement this complex model. After having attempted to many of the articles about the Black-Litterman model, none of the relatively few articles provide enough step-by-step instructions for the average practitioner to derive the new vector of expected returns.

The Black-Litterman model uses a Bayesian approach to combine the subjective views of an investor regarding the expected returns of one or more assets with the market equilibrium vector of expected returns on the prior distribution to form a new and mixed estimate of the expected returns. The Black-Litterman model could create stable and mean-variance efficient portfolios. This model is based on an investor's insights, which could overcome the problem of input-sensitivity that usually faced while using the Markowitz model. The most important input in mean-variance optimization is the vector of expected returns which provided by investor. However, Best and Grauer (1991) demonstrate that a small increase in the expected return of one of the portfolio's assets can force half of the assets from the portfolio.

Investing using the Black-Litterman model becomes very intuitive that the weight increases as the investor becomes more bullish on the view, and the magnitude of the weight also increases as the investor becomes more confident about the view (He & Litterman, 2002). Asset allocation with this model most likely could give better performance than MVO asset allocation.

Research that evaluates portfolio proves that the Black-Litterman model generates portfolios with lower risk, less extreme asset allocations, and higher diversification across asset classes. Sensitivity analyses indicate that these advantages are due to more stable mixed return estimates that incorporate the reliability of return predictions, smaller estimation errors, and lower turnover (Bessler et al., 2017).

Another research shows that the portfolio that constructed with limited number securities generates returns higher with lower risk using the allocation that construct with Black-Litterman model (Stoilov et al., 2021). Their research uses shares of four industrial companies in Bulgarian Stock Exchange and construct an active portfolio management which means the views of the investor is the short-term outlook.

Meanwhile in Indonesia, the research conducted by Subekti et al. (2022) also used Black-Litterman model to compare two portfolio that built from two perspective: reverse optimization and the CAPM formula. Both model

are applied in the Indonesian stock market and the result shows that both approaches can build a portfolio using Black-Litterman model with same weight allocation.

Chairunnisa (2016) also conduct research comparing both Markowitz and Black-Litterman model optimum allocation performance with one to twelve months period. The research shows that Black-Litterman model optimum allocation generates higher return and better portfolio performance than Markowitz portfolio.

III. RESEARCH METHODOLOGY

This paper constructs optimum weight on asset allocation of the investment portfolio that owned by DAPENBI, using Markowitz model and also Black-Litterman Model as a comparation. After finding the optimum weight that used both Markowitz and Black-Litterman model, this research tried to compare the weight and tested it using historic return of all of the class assets and find the best model that can be provided to DAPENBI or any pension funds that has the same risk appetite.

This study will focus on investment portfolio that managed by DAPENBI as one of the largest pension funds in Indonesia who manages more than IDR 10 trillion. Their portfolio consists of five asset class that consider as the most liquid one which are cash/term deposit, government bonds, corporate bonds, stock and mutual fund.

1. Markowitz Model

In the Mean Variance approach, Markowitz (1952), the investor optimizes a tradeoff between risk and return. We calculated the asset return with this formula:

$$R_{t+1} = ln(P_{t+1}) - ln(P_t) = ln\frac{(P_{t+1})}{(P_t)} \tag{1}$$

where: R_{t+1} = log return for period t

P_{t+1} = the price of a security at time t + 1

P_t = the price of a security at time t

Then the investor needs to find the expected portfolio of risky assets which is is the weighted average of the expected return of each asset in the portfolio. The weight assigned to the expected return of each asset is the percentage of the market value of the asset to the total market value of the portfolio.

$$E(R_p) = w_1 E(R_1) + w_2 E(R_2) + \cdots + w_G E(R_G); \tag{2}$$

Where: R_p = rate of return on the portfolio over the period

R_g = rate of return on asset g over the period

w_G = weight of asset g in the portfolio (i.e., market value of asset g as a proportion of the market value of the total portfolio) at the beginning of the period

G = number of assets in the portfolio

To measure the risk this paper used variance and standard deviation. In the case of an asset's return, the variance is a measure of the dispersion of the possible rate of return outcomes around the expected return (Fabozzi et al., 2012). The equation for the variance of the expected return for asset i, denoted $var(R_i)$ with this formula:

$$var(R_i) = \sum_{n=1}^{N} p_n [r_n - E(R_i)]^2 \tag{3}$$

Since the variance is squared units, as we know from earlier in this section, it is common to see the variance converted to the standard deviation by taking the positive square root $SD(R_i) = \sqrt{Var(R_i)}$ (4)

This equation gives us the variance an individual return.

The variance of the portfolio return is calculated with covariance. The covariance between any two assets i and j is computed using the following formula:

$$cov(R_i, R_j) = p_1 [r_{i1} - E(R_i)][r_{j1} - E(R_j)] + p_2 [r_{i2} - E(R_i)][r_{j2} - E(R_j)] + \ldots + p_N [r_{iN} - E(R_i)][r_{jN} - E(R_j)], \tag{5}$$

where:

r_{in} = the nth possible rate of return for asset i

r_{jn} = the nth possible rate of return for asset j

p_n = the probability of attaining the rate of return r_{in} rin and r_{jn} for assets i and j

N = the number of possible outcomes for the rate of return

In general, for a portfolio with G assets, the portfolio variance is given by:

$$var(R_p) = \sum_{g=1}^{G} w_g^2 var(R_g) + \sum_{\substack{g=1 \\ and}}^{G} \sum_{\substack{h=1 \\ h \neq g}}^{G} w_g w_h cov(R_g, R_h) \tag{6}$$

Last, the formulation of the mean-variance portfolio problem is given by:

$$\underset{w_t}{min} \; w_t \sum_{r_{t|t-1}} w_t - \frac{1}{\delta} w_t' \mu_{r_{t|t-1}} \text{ subject to } w_t' = 1 \; and \; w_t > 0 \tag{7}$$

2. Black-Litterman Model

One of the popular features in Black-Litterman model is the possibility of an investor input the prediction that he has as a view component that the Markowitz model did not recognize. The investor view that is used in this research provided by DAPENBI, the pension fund that managed the investment portfolio. DAPENBI shared the expected return on each class assets that owned by its investment portfolio after getting insight from other pension fund and/or investment management in Indonesia. The Black-Litterman model uses equilibrium returns as a neutral starting point. Then, it is blended with the equilibrium portfolio from CAPM. The combination of CAPM and views investors resulted in the new expected return.

The equilibrium returns are derived using a reverse optimization method in which the vector of implied excess equilibrium returns is extracted from known information using this formula:

$$\Pi = \lambda \sum w_{market} \tag{8}$$

where:

Π = Implied Excess Equilibrium Return Vector;

λ = risk aversion coefficient;

$\sum$ = the covariance matrix of excess returns (*N x N* matrix); and

w_{market} = the market capitalization weight (N x 1 column vector) of the assets.

Then the new Combined Return Vector (E[R]) is calculated with this formula:

$$E[R]_{BL} = [(\tau\Sigma)^{-1} + P'\Omega^{-1}P]^{-1}[(\tau\Sigma)^{-1}\Pi + P'\Omega^{-1}Q] \tag{9}$$

The combination on this formula can be seen in this illustration (Satchell & Scowcroft, 2007):
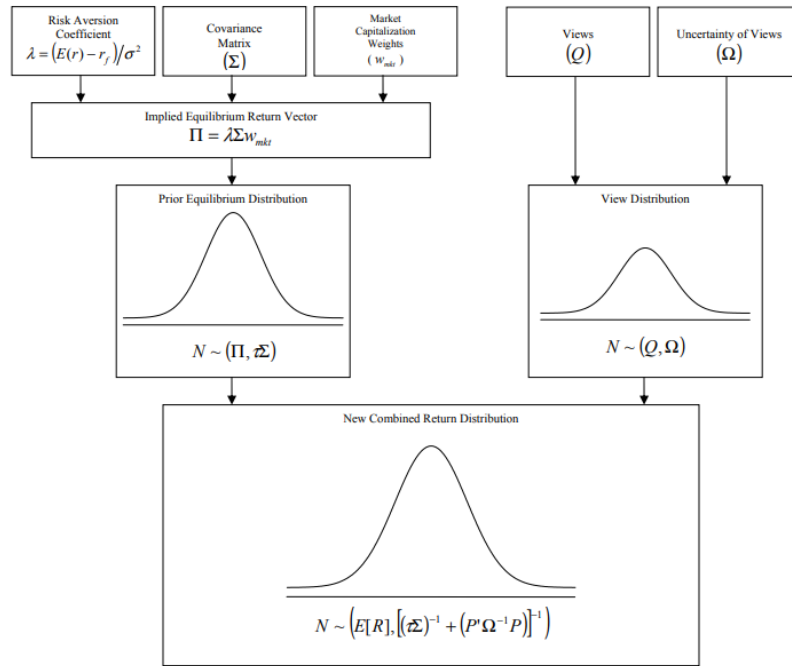
Fig. 1 Deriving the New Combined Return Vector (*Source, Idzorek, 2007)*

The variance posterior distribution above is calculated with

$$M_{BL} = [(\tau\Sigma)^{-1} + P'\Omega^{-1}P]^{-1} \tag{10}$$

where:

$E[R]_{BL}$ is the posterior return vector ($N \times 1$ vector);

τ = uncertainty scalar of Implied Equilibrium Return;

Σ = covariance matrix from historical return (N × N matrix)

P   = link matrix ($K \times N$ matrix)

Ω = uncertainty of the view (K × K matrix)

Π = implied equilibrium returns (N × 1 vector)

Q   = view vector from each asset (K × 1 vector)

This new expected return and variance as the risk approach then becomes the new input in the process of optimization. Using again the Markowitz model, the asset allocation of Black-Litterman can be expressed by this formula:

$$w_{BL} = (\lambda\Sigma_{BL})^{-1}\mu_{BL} \tag{11}$$

3. Compare The Optimum Weight

After having the optimum asset allocation using both Markowitz model and Black-Litterman model, this study will try to back testing those allocations. Both of the asset allocations will be compared with risk adjusted performance, which is Sharpe Index and also compare the annual return.

Sharpe ratio is calculated using this formula (Bodie et al., 2013):

$$\frac{(r_p - r_f)}{\sigma_p} \tag{12}$$

  where:

r_p = the average return on the portfolio

r_f = average risk-free rate

σ_p = standard deviation of portfolio return

IV. RESULT / FINDING

In this study, the portfolio is consisting of five liquid class assets in Indonesia which are cash that represented by Jakarta Interbank Offered Rate (JIBOR) 1-week, government bonds and corporate bonds using index published by Indonesian Bond Pricing Agency (IBPA), stocks represented by LQ45 index and mutual fund. The daily return was gathered from January 2015 to December 2021.

A. Markowitz Model

Table 1 shows the descriptive statistics for all class assets, including the average daily and annual return also the daily standard deviation that represent the risk of the asset. The average daily return will be used as the expected return in Markowitz model.

Table 11. Average Return and Risk Period 2015-2021

	Cash	Government Bonds	Corporate Bonds	Stocks	Mutual Fund
Daily Return	0.0213%	0.0390%	0.0427%	0.0024%	0.0012%
Annual Return	5.3350%	9.7501%	10.6838%	0.5955%	0.2877%
StdDev (Daily)	0.0033%	0.3301%	0.1499%	1.4031%	1.2918%

Source: (Processed by author, 2022)

Combining expected return that showed in Table 1 and the variance-covariance matrix in Table 2 below and also some constraint that DAPENBI defined, the optimum weight generated with Markowitz model can be seen in Table 3 while the expected return and sharpe ratio is provided in Table 4

Table 12. Variance-Covariance Matrix on Daily Return

	Cash	Government Bonds	Corporate Bonds	Stocks	Mutual Fund
Cash	0.0000000	0.0000055	0.0000011	0.0000985	0.0000832
Government Bonds	0.0000055	0.0000109	0.0000066	0.0001039	0.0000887
Corporate Bonds	0.0000011	0.0000066	0.0000022	0.0000996	0.0000843
Stocks	0.0000985	0.0001039	0.0000996	0.0001969	0.0001816
Mutual Fund	0.0000832	0.0000887	0.0000843	0.0001816	0.0001663

Source: (Processed by author, 2022)

Table 13. Optimum Weight Markowitz Model

Asset Class	Weight
Cash	4.00%
Government Bonds	30.00%
Corporate Bonds	58.00%
Stocks	4.00%
Mutual Fund	4.00%

Source: (Processed by author, 2022)

Table 14. Expected Return & Sharpe Ratio

Portfolio Expected Return (Daily)	0.037%
Portfolio Expected Return (Annual)	**9.370%**
Portfolio SD	0.437%
Expected Sharpe Ratio	**3.473%**

Source: (Processed by author, 2022)

4. Black-Litterman Model

The information of a covariance matrix of five returns, the link matrix **P** associated with the views and the prediction **Q** are provided in Table 5. The information on market returns is also included. The absolute views of **Q** are provided by DAPENBI as the owner of portfolio that used in this study.

Table 15. The Information Related to Parameter Black-Litterman

Parameter	Estimated Value
τ = tau	0.05
λ = scalar	3.02948693
Link/Pick matrix	$P = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$
Predictive return Q	$Q = \begin{bmatrix} q_{cash} \\ q_{SBN} \\ q_{obligasi} \\ q_{saham} \\ q_{reksadana} \end{bmatrix} = \begin{bmatrix} 0.040\% \\ 0.030\% \\ 0.028\% \\ 0.058\% \\ 0.046\% \end{bmatrix}$
Combined Return Vector	$E_r BL = \begin{bmatrix} 0.040\% \\ 0.039\% \\ 0.038\% \\ 0.068\% \\ 0.062\% \end{bmatrix}$
Matrix Varian-Covarian B-L	$\sigma_{B-L} = \begin{bmatrix} 0.0000000011 & 0.0000056845 & 0.0000011838 & 0.0001025763 & 0.0000866567 \\ 0.0000056845 & 0.0000113476 & 0.0000068475 & 0.0001082770 & 0.0000923586 \\ 0.0000011838 & 0.0000068475 & 0.0000023419 & 0.0001037801 & 0.0000878619 \\ 0.0001025763 & 0.0001082770 & 0.0001037801 & 0.0002050620 & 0.0001892118 \\ 0.0000866567 & 0.0000923586 & 0.0000878619 & 0.0001892118 & 0.0001732312 \end{bmatrix}$

Source: (Processed by author, 2022)

The following Table 6 will provide the optimum weight for asset allocation using the Black-Litterman model with the detail information on the expected return and sharpe ratio provided in Table 7.

Table 16. Optimum Weight Black-Litterman Model

Asset Class	Weight
Cash	4.00%
Government Bonds	30.00%
Corporate Bonds	58.00%
Stocks	4.00%
Mutual Fund	4.00%

Source: (Processed by author, 2022)

Table 17. Expected Return & Sharpe Ratio

Portfolio Expected Return (Daily)	0.039%
Portfolio Expected Return (Annual)	**9.866%**
Portfolio SD	0.473%
Expected Sharpe Ratio	**3.633%**

Source: (Processed by author, 2022)

5. Back Testing Result

In order to have another comparison between the optimum weight using Markowitz model with Black-Litterman model, this study also did back testing using the return in 2020 to show the impact on market uncertainty due to Covid-19 to the portfolio.

Table 18. Comparison Weight

Asset Class	DAPENBI	Markowitz	Black-Litterman
Cash	9.51%	4.00%	10.00%
Government Bonds	46.62%	30.00%	55.00%
Corporate Bonds	22.74%	58.00%	27.00%
Stocks	3.54%	4.00%	5.00%
Mutual Fund	10.23%	4.00%	3.00%

Source: (Processed by author, 2022)

Table 19. Back Testing Result

	Annual Return 2020	Std Deviation (Annualized) 2020	Sharpe Ratio
DAPENBI	9.02%	8.08%	0.43
MVO	10.10%	6.00%	0.75
B-L	10.52%	6.57%	0.75

Source: (Processed by author, 2022)

V. DISCUSSION

At a glance we can see from Table 1 that bond gives the highest annual return during period 2015 to 2021, both government and corporate bonds. In other hand, during the same period it is obvious that cash generates the lowest standard deviation meaning the lowest risk compare to other assets. If we put more details on the bond asset classes, the corporate bond generates higher return and surprisingly lower risk compare to government bond. The lower standard deviation most likely influenced by corporate bond's investor prefer to hold the bond into maturity since it is not actively traded in secondary market.

If we compare Table 4 and Table 7, it shows that optimum weight using Black-Litterman model generating both higher expected return and sharpe ratio. These results support the research conducted by Chairunnisa (2016) which the Black-Litterman allocation construct better portfolio performances. Additionally, the portfolio that generated with Black-Litterman model indicates more intuitive since this model include the investor's subjective view. This model is not just considering the historical data but also including the expected return ahead. We can see that Black-Litterman model gives higher composition in cash and also government bonds.

Table 8 showing the comparison between portfolio that generated by both of the model and the existing DAPENBI's portfolio. It presents that the portfolio constructed with Black-Litterman model seems close to the pattern of the DAPENBI's portfolio. Therefore, it is more visible for DAPENBI mimicking the asset allocation generated by Black-Litterman model. Furthermore, if we compare the back-testing result, even though both model shows similar Sharpe Ratio but the portfolio constructed by Black-Litterman model generates higher annual return.

VI. CONCLUSION AND RECOMMENDATION

The mean-variance optimization is an essential tool for portfolio managers. However, it does have some weaknesses. The model's sensitivity to small changes in initial values, the estimation errors and the use of historical data are three elements that lead to a concentrated distribution of assets. The Black-Litterman model integrates the market equilibrium hypothesis according to the CAPM into the investors' views and creating a new return vector.

This study applied both Markowitz and Black-Litterman model to construct optimum weight for asset allocation managed by DAPENBI. The asset classes that used in this study are same asset classes with DAPENBI's existing portfolio. The result shows that the asset allocation constructed by Black-Litterman model pledges better both expected annual return and sharpe ratio. The back-testing result more or less shows the same thing, the Black-Litterman model generates higher return but at the same time generates higher standard deviation so that provides same sharpe ratio.

Both of DAPENBI and Black-Litterman model has higher allocation on government bonds than the corporate bonds. Markowitz model suggests higher allocation on corporate bonds because the historical return is also higher

but in contrast the market capitalization of this assets is not high so that it is harder for DAPENBI to implement. Considering the existing DAPENBI's portfolio asset allocation and also the risk adjustment performance as well as back testing result, this study recommends DAPENBI to implement the optimum asset allocation generated by Black-Litterman model.

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Analysis The Effect Of Education, Women's Health, and Labor Force Participation Rates on Poverty in Metropolitan Semarang in 2017-2021

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Abstract

This research is entitled "Analysis of the Effect of Education, Women's Health, and Labor Force Participation Rate on Poverty in Metropolitan Semarang in 2017-2021". The purpose of the study was to analyze the effect of independent variables which include women's life expectancy, average years of schooling, and labor force participation rates on poverty in Metropolitan Semarang. The analytical method used is panel data regression with a cross section covering 6 regencies/cities in the Semarang Metropolitan area, including Semarang City, Kendal Regency, Demak Regency, Salatiga City, Grobogan Regency, Semarang Regency. While the time series data starts from 2017 to 2021. The results showed that the life expectancy of women and the average length of schooling for women had an effect on poverty in the Semarang Metropolitan area.

Keywords— Poverty, Women's Life Expectancy, Average Length of Schooling, Labor Force Participation Rate, Panel Data Regression.

I. INTRODUCTION

One of the problems in Indonesia is poverty. Even every developing country has the same problem. Economic development has a goal to improve the welfare of the people who have a close relationship with poverty. One way to increase the level of human welfare is to invest in human capital in education and health. Human capital investment has the aim of increasing productivity and creating community welfare.

Therefore, the problem of poverty has always been a development priority of a third world country. Changes in the condition of society and the existence of poverty which are in real terms are dynamic which always changes both in intensity or in size. Continuing a careful assessment so that the handling of this problem is always in accordance with the context of poverty itself. In Indonesia, with a large number of poor people, making the problem of poverty one of the development priorities (Hofmarcher, 2021).

The development of education and health are the two pillars to form human capital in economic development which is nothing but a long-term investment of a country. The achievement of development goals in the fields of education and health, in turn, can improve the quality and productivity of the population, where population productivity growth is the driving force for economic growth and the welfare of the population itself. Through investment in education, it will be able to improve the quality of human resources as shown by increased knowledge and skills that will encourage an increase in one's work productivity, and in the end someone who has high productivity will obtain better welfare and avoid poverty (Widyasworo, 2014).

The number of poor people in Semarang City in 2021 will reach 84.45 thousand people (4.56 percent), an increase of 4.87 thousand people compared to 2020 which amounted to 79.58 thousand people (4.34 percent). The poverty line of Semarang City also increased from Rp. 522,691, - in 2020 to Rp. 543,929,- in 2021. Despite the increase, Semarang City still has the lowest percentage of poor people in Central Java. Meanwhile, in general, in Central Java, the level of education completed by the poor is elementary/junior high school/high school graduation. However, the percentage of not completing elementary school is also high. The 12-year Compulsory Education Program still needs to be promoted to support compulsory basic education for the poor. And for Semarang, based on information obtained from poverty data and information in 2019, the majority of the poor graduated from SD/SLTP/SLTA.

Like education, welfare is basically a human resource speculation to create a prosperous society. The level of general welfare will greatly influence the level of local government assistance and has the power to closely relate to needs. Meanwhile, the level of need will be associated with the level of prosperity. Since welfare is the main character's effort to continue public government assistance, welfare has always been the main concern of public authorities as public specialist cooperatives. Public authorities must have options to ensure the right individuals to be solid by providing welfare administration in a fair, equitable, adequate, reasonable and quality manner.

Not only that, health problems are also another priority. A number of health problems that occur in the community are a priority for handling the Central Java Provincial Health Office together with related parties. With adequate health facilities and easily accessible to the public, health problems can be overcome little by little (Wijaya et al., 2020).

Assuming it's back to the state's goal, which is to help their relatives with a good salary, the issue of work is also one of the public's points of view that must be considered. In addition, the high population growth will affect the development of the young workforce. Apart from a rapidly growing workforce, the main problem of employment in Indonesia is how to increase efficiency. One of the advances in the field of business that requires extraordinary consideration in the implementation of its progress is that it is undeniable that the task of the female workforce is huge.

If we compare the lives of people in the poorest communities across developing countries, we can find that in fact - everywhere - it is women and children who are most deprived. To improve the living conditions of the poorest people, women must be involved in the mainstream of the economy. This includes increasing the level of women's participation in education and training programmers, expanding formal sector employment and expanding agriculture. In addition, it is very important to strive for guarantees for women to obtain equal access to various empowerment opportunities through education programs, services, and job opportunities. Legalizing employment in the informal sector where the majority of workers are women can also improve women's economic status (Dwi & Amory, 2018).

According to previous research by (Widyasworo, 2014) with the results showing that the three independent variables affect the level of poverty. The level of education and participation of women's workforce has a significant effect either partially or simultaneously, while the level of health has an effect but is not significant. The relationship that exists between the independent variable and the dependent variable is in the opposite direction. When one or all of the independent variables increase, the poverty rate will decrease. And the variable of women's labor force participation has the greatest influence on the poverty level because the reason women go to work is more dominant due to the economic demands of the family.

According to research from (Mulasari, F Dyah, 2015) the role of women seen from the life expectancy of women has a better value than men, the average length of schooling for women is still below the average length of school for men, the participation rate of the female workforce is still below the level of participation of the male workforce. man. Suggestions in this study are improvements in women's education, women's education and health are two interrelated things. If women have good education, the next generation will have good quality as well. In employment, it is necessary to review policies that make women marginalized in the world of work.

According to research from (Faridi, 2016) labor force participation reduces poverty. The coefficient of labor force participation is negative and very significant. The findings show that an increase of one unit of labor force participation reduces poverty by about 1.35 units. The reason may be that when job opportunities increase, people's incomes also increase, thereby reducing poverty. Health is another important factor reducing poverty. The results of this study are theoretically reasonable but not statistically significant. Although health spending reduces poverty, it has minimal impact. The literacy rate coefficient is negative and highly statistically significant. The findings show that with an increase of one literacy unit (LITR), poverty is reduced by around 1.13 units.

According to research from (Jacobus et al., 2022) the results of the study show that education, unemployment and gender inequality have an effect on poverty. This shows that the variables of education and gender inequality have a significant and negative effect on poverty, while the unemployment variable has a significant and positive effect on poverty in the Regency of Siau Islands, Tagulandang Biaro.

According to research from (Mulugeta, 2021) with the result that women's participation reduces household poverty. Therefore, this study recommends that households use family planning, promote women to attend higher education, be exposed to mass media, create public or private child care centers and access credit for women. At this time both the household and the government should have a joint effort and responsibility to find a possible panacea.

Based on the above, this research seeks to identify the variables, namely the level of education, women's health and the level of labor force participation, which are instruments that can help overcome the problem of poverty and seek appropriate solutions to help overcome the problem of poverty effectively according to its objectives.

II. LITERATURE REVIEW

Poverty Poverty is one of the problems that humans always face. The problem of poverty is as old as humanity itself and the implications of the problem can involve all aspects of human life, although it is often not realized that its presence is a problem for the people concerned. For those who are classified as poor, poverty is something that is real in their daily lives, because they feel and live for themselves how they live in poverty (Mowafi & Khawaja, 2005).

Education (Nurkholis, 2013) a tool for economic development and also to advance the world of technology. In the practice of modern education management, one of the five functions of education is a technical-technological function both at the individual level to the global level. The technical-technological function refers to the contribution of education to technological developments, for example, education can help students to gain knowledge and skills necessary to live and compete in a competitive economy.

Many poor people experience ignorance or experience stupidity even systematically. Therefore, it becomes important for us to understand that poverty can lead to stupidity, and stupidity is clearly synonymous with poverty. To break the chain of cause and effect above, there is one key element, namely education. Because education is a means of eradicating ignorance as well as poverty.

(Tubaka, Saddam, 2019) stated that one of the basic capitals in the implementation of economic development is a good public health condition. In economic development, the implementation of health development must also be considered.(Nukholis Afid, 2016) revealed that human capital can be measured through health, because awareness of health has a relationship with a person's productivity in carrying out their activities. Measurement of human capital in health can use the Life Expectancy Rate (AHH), where the higher a person's life expectancy, the higher the quality of his health indicators, and vice versa.

The analysis used to estimate the factors that influence poverty in Metropolitan Semarang. In this study, a regression model is used which must use three independent variables with a panel data regression analysis equation model with the selected model Fixed Effect Model. Regression analysis with econometric model as follows:

$$PVRT_{it} = \beta_0 + \beta_1 AHH_{it} + \beta_2 RLS_{it} + \beta_3 TPAK_{it} + e_{it}$$

Inwhere:

Poverty	: Poverty
AHH	: Life expectancy
RLS	: Average Length of School
TPAK	: Labor Force Participation Rate
ε	: Error Term (Error Factor)
β_0	: Constant
$\beta_1 \dots \beta_4$	: Independent Variable Regression Coefficient
it	: Year

III. RESEARCH METHODOLOGY

The analysis used to estimate the factors that influence poverty in Metropolitan Semarang. In this study, a regression model is used which must use three independent variables with a panel data regression analysis equation model with the selected model Fixed Effect Model. Regression analysis with econometric model as follows:

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$TPAK$: Labor Force Participation Rate

ε : Error Term (Error Factor)

β_0 : Constant

$\beta_1 \dots \beta_4$: Independent Variable Regression Coefficient

it : Year

IV. RESULT / FINDING

This data analysis uses an error correction model, namely the Fixed Effect Model. The estimation steps include the Chow test, the goodness of the model test and the effect validity test in order to test the validity of the model and the Chow Test steps (Common Effect Model test, Fixed Effect Model test, test Hausman Test, Random Effect Model test). Test the goodness of the model and test the validity of the effect.

A. Chow test

The Chow test is a test used to determine whether the use of general fixed effects or effects is the most appropriate when estimating panel data (Widarjono, 2009).

The hypotheses of the chow test are:

H0 : Common Effect Model / CEM selected model

Ha : Fixed Effect Method / FEM selected model

B. Hausman Test (Hausman Test)

Hausman test is a test that compares the fixed effect model with random effects to determine the best model. Hausman's test is in accordance with the idea that Least Square Dummy Variables (LSDV) in the fixed effects model (FEM) and Generalized Least Square (GLS) in the random effects model are efficient, while ordinary least squares (OLS) in the general effects model (CEM) is not. efficient(Munandar, 2017). Hausman test hypothesis as follows:

H0 : selected model Random Effect Model / REM

Ha : Fixed Effect Model / FEM selected model

C. Lagrange Multiplier Test

The Lagrange Multiplier (LM) test is a test used to see whether the random effect model is better than the common effect model(Nandita et al., 2019). The hypotheses used are:

H0 : selected model Random Effect Model / REM

Ha : the selected model Common Effect Model / CEM

D. Parameter significance test
E. Simultaneous Significance Test (F-Test)

The F-test is used to understand whether all the independent variables (independent) have an effect on the dependent variable(Syukri & Hinaya, 2019). The F statistic test is a one-way significance test. The hypothesis of the F test is:

$H_0: \beta_{p,q} = 0$(the independent variable regression parameter p on the dependent variable q has no significant effect)

$H_0: \beta_{p,q} \neq 0$(the independent variable regression parameter p on the dependent variable q has a significant effect)

Based on the results of panel data regression calculations using the Fixed Effect Method model, the variables of Education, women's health, and labor force participation rates on poverty in the Semarang metropolitan in 2017-2021 were chosen with the following equation:

$PVRT_{it} = -128.2078 + 1.9000291AHH_{it} - 1.888113RLS_{it} + 0.075370TPAK_{it} + e_{it}$

Panel data estimation results with the selected model FEM:

Table 1. FEM . test

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-128.2078	78.45312	-1.634196	0.1171
AHH	1.900291	1.082594	1.755313	0.0938
RLS	-1.888113	0.911205	-2.072106	0.0508
landfill	0.075370	0.052279	1.441683	0.1641

R-squared	0.988358
F-statistics	222.8438
Prob(F-statistic)	0.000000

Source: Output Eviews 10

The result of the coefficient of determination (R2) which is0.988358or 98.83% shows that all independent or independent variables consisting of education variables, women's health, labor force participation rate explain the changes contained in the dependent variable, namely poverty by 98.83% while the remaining 1.17% is explained by the variable others not included in this study. So you candThe conclusion is that poverty in the Semarang metropolitan area is very much dominated by the independent variables in this study.

F-Statistic value of222.8438has a probability of 0.00 at a significance level of 5%, meaning that all independent variables significantly affect Semarang metropolitan poverty.

t test

The results of the t-test for all independent variables are in table 2.

Table 2. t test

Variable	t-Statistics	Prob.	Alpha	Conclusion
AHH	1.755313	0.0000	0.10	Significant (<α)
RLS	-2.072106	0.0000	0.10	Significant (<α)
landfill	1.441683	0.0000	0.10	Not Significant (<α)

Source: Output Eviews 10

V. DISCUSSION

Based on the results of the study, it shows that health has an effect on poverty with a coefficient value of 1.900291, education has a negative effect on poverty with a coefficient value of -1.888113 and the level of labor force participation has an effect on poverty with a coefficient value of 0.075370.

This research is in line with(Widyasworo, 2014), which the results of this study indicate that the three independent variables have an effect on the level of poverty. The level of education and participation of women's workforce has a significant effect either partially or simultaneously, while the level of health has an effect but is not significant. The relationship that exists between the independent variable and the dependent variable is in the opposite direction. When one or all of the independent variables increase, the poverty rate will decrease. And the variable of women's labor force participation has the greatest influence on the poverty level because the reason women go to work is more dominant due to the economic demands of the family.

VI. CONCLUSION AND RECOMMENDATION

ResultsThe analytical method used is panel data regression with a cross section covering 6 regencies/cities in the Semarang Metropolitan area, including Semarang City, Kendal Regency, Demak Regency, Salatiga City, Grobogan Regency, Semarang Regency. The results showed that the life expectancy of women and the average length of schooling for women had an effect on poverty in the Semarang metropolitan area. While the level of labor force participation has no effect on poverty in Semarang.

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Operational Performance Efficiency and Financial Performance Efficiency of Aviation Companies in The Asia-Pacific Region During Covid-19 Pandemic

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Abstract

This study aims to evaluate the factors that affect the resilience of Asia Pacific airlines during the Covid-19 pandemic through operational efficiency and the financial performance's efficiency. The pressure due to the Covid-19 pandemic due to the lack of occupancy can disrupt the aviation industry's operational performance and financial performance. However, there are still few research examining the impact of the Covid-19 pandemic on the efficiency of airlines' operational and financial performance in the Asia Pacific region. By evaluating eight airlines located in the Asia Pacific region through two-stage data envelopment analysis.: For FSC companies, only Eva Air and China Airlines were able to increase the company's efficiency to achieve efficient conditions both operationally and financially during the Covid-19 pandemic (in 2020), and Air Asia as an LCC company was able to maintain good efficient conditions in 2019 and 2020 operationally and financially. Employees are the most important factor in influencing the efficiency of an airline. Thus, to be efficient and durable it is necessary to reduce the number of employees by 43%. the company's management can digitize to make it easier and provide a sense of security to customers, rearrange the strategy for selecting the fleet structure and focusing on domestic flights or short-haul flights before long-haul routes between continents.

Keywords— Aviation Industry; Covid-19; Financial Performance Efficiency; Internal Two-Stage DEA; Operational Efficiency.

I. INTRODUCTION

Covid-19 pandemic has been going on for 2 years and has caused a disruption on human life. This calamity resulted in an economic crisis that greatly affected the business world, including the aviation industry. The travel and tourism sectors are amongst the most affected sectors because they are vulnerable to the spread of the virus. The aviation industry, which is included in this sector experienced a decline in demand (Shao & Sun, 2016).

Conforming to International Civil Aviation Organization (ICAO) in 2021, the aviation industry had suffered a loss of $371 billion. From 6 regions (Africa, Asia-Pacific, Europe, Latin America, Middle East, and North America), on average, airlines are experiencing a 2,695,480,497 decrease in occupancy in 2020 or 45.48% lower than the previous year (ICAO, 2021).
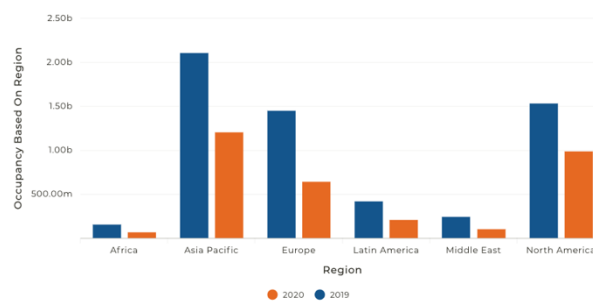
Fig. 10. Airline's Occupancy By Region (Source: ICAO, 2021)

Asia-Pacific had the highest occupancy in 2019, which means most flights happened in the Asia-Pacific region. As reported by the survey agency Skytrax, for the top 50 airlines company in 2019, 24 of them are from Asia-Pacific region, 14 are based in Europe, 4 in Middle East and North America, and 2 from Latin America and Africa region (Skytrax, 2020).

According to the International Air Transport Association (IATA), in 2020 airline's passengers as measured by revenue passenger kilometer (RPK), decreased by 90% YoY in April 2020. The collapse of economic activity and trade also affected the rate of shipments of goods at almost 30% lower YoY. Based on the International Civil Aviation Organization (ICAO), the total flights (passenger and cargo, domestic and international) had reached the lowest point in April 2020 where there were only 1,134,269 flights or 69.43% lower than April in 2019 (IATA, 2021).
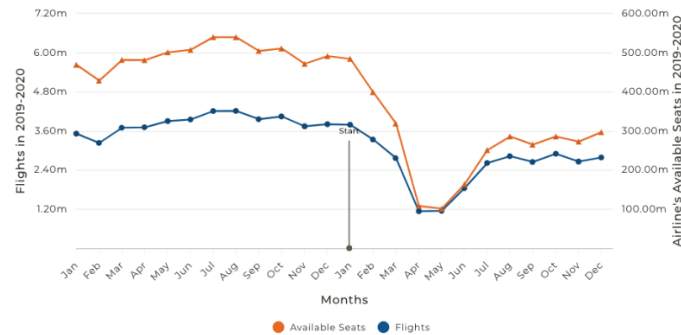
Fig. 11. Flights and Airline's Available Seats in 2019-2020 (Source: ICAO, 2021)

The airline's available seats also experienced a drastic decline after the spread of the Covid-19 virus. In May 2020, there were only 100,978,462 seats available or 79.84% lower compared to the same month of the previous year. Decreasing number of flights and available seats, as shown in **Figure 2** simulates how a decrease in revenue will affect the performance or efficiency of the airlines companies because the aircrafts had been grounded and sent back to lease's company as indicated by RPK and available seats kilometer (ASK). The financial performance was also affected by this turmoil because it prevented companies from making investment due to lack of cash (Abdullah et al., 2020). Poor company performance can also increase the financial distress of the company which can lead to bankruptcy. A decrease in the amount of revenue can affect the company's cash flow which will affect the management of company assets. Companies will experience difficulties in regulating, managing or investing in working capital because they are constrained in cash. To operate or perform in daily services, company issued a number of funds and expect their returns in short period from sales or services that have been conducted. If the sales are higher, the operation cost will be lower and the profitability of the company will increase (Li & Cui, 2017, 2018; Mallikarjun, 2015).

Several studies had been conducted to analyze the impact of Covid-19 pandemic on airline companies (Abdullah et al., 2020; Pereira & Soares de Mello, 2021; Zheng, 2021). Some studies on airlines or aviation companies used the internal two-stage DEA model to measure the efficiency of the companies (Lin & Hong, 2020; Michali et al., 2021; Shao & Sun, 2016). These studies show that the scope on measuring the efficiency of the company's operations is limited with operational data only. According to these research that had been conducted, mostly only relied on operational data from the airlines. There are also limitations to the research conducted by Lin & Hong (2020) namely on the number of aircraft companies included, which was only the four best aircraft companies in China and they suggested that further research should increase the number of airlines and use more complex input and output variables.

There are several studies on airlines or aviation companies that use the internal two-stage DEA model (Lin & Hong, 2020; Michali et al., 2021; Shao & Sun, 2016). From these studies, the scope or limitations of the research only mostly measure efficiency from the operational side of the company, and according to research conducted by the type of data used only operational data from airlines, and there are limitations to the research conducted by Lin & Hong (2020), namely the limited number of aircraft companies that are used only to the 4 best aircraft companies in China and suggest that further research can be done by increasing the number of airlines and using more complex input and output variables (Lin & Hong, 2020). Therefore, by looking at the limitations of these studies and the opportunities that can be used for further research, this research could contribute by including financial aspects to measure the efficiency of financial performance and widen the studies coverage to Asia-Pacific region. This is because the Asia-Pacific region have the highest number of companies compared to other regions according to a survey by Skytrax in 2020. This research will also be conducted during the time period when conditions were 1 year before pandemic and the first year of the Covid-19 pandemic to see

the natural response or direct effect given by this pandemic to aircraft companies. Hence, this research is focusing on how Covid-19 pandemic affects the operational efficiency and the financial performance of aviation industry by using internal two-stage data envelopment analysis or also called network data envelopment analysis (NDEA) approach for airlines company in Asia-Pacific.

II. LITERATURE REWIEW

A. Data Envelopment Analysis

Data Envelopment Analysis (DEA) is a famous method on analyzing the efficiency of a company (Wu et al., 2006). This method can also be applied to measure airline company efficiencies (Emrouznejad et al., 2008; Emrouznejad & Yang, 2018; Ghorbani et al., 2010; Liu et al., 2013; Mardani et al., 2017; Odeck & Bråthen, 2012; Sueyoshi et al., 2017; Xiong et al., 2020). In the previous studies mentioned before, they used traditional DEA types which were often criticized because in they appear to only change or transform input variables into output variables without explicitly explaining how this transformation process occurs (Färe & Grosskopf, 2000). To improve the use of the DEA method, the two-stage DEA model is more appropriate to use. There are two models of two-stage DEA, namely internal two-stage DEA and external two-stage DEA (Emrouznejad & Yang, 2018). Internal two-stage DEA is a type of DEA which uses an intermediate variable in its operation. This variable is indicated by the existence of an output variable from the stage 1 process and acts as an input variable at stage 2. This internal two-stage DEA is often also called network DEA (NDEA). Meanwhile, external two-stage DEA is a type of DEA that uses other methods or analytical techniques at the second stage after carrying out DEA operations (stage 1). The methods in stage 2 that are commonly used are regression techniques such as ordinary least squares (OLS) or bootstrapping, analytical hierarchy process (AHP), etc. (Henriques et al., 2020). Answering the main problem of the traditional DEA method, the two-stage internal model is the right model because this method explains how the process of transforming input variables into output variables with the help of the intermediate variables (Henriques et al., 2020; Kao & Hwang, 2008).

B. Efficiency of Airlines Company

First, research that was conducted by Lin & Hong (2020) regarding to the evaluation of cost efficiency, cost effectiveness and services effectiveness of 8 airline companies in China using the internal two-stage DEA method or network DEA (NDEA). The input variables consist of operating expenses, and the number of employees. Variables that act as intermediate variables (output stage 1 becomes input stage 2) are available seat kilometer (ASK) and available tonne kilometer (ATK). Meanwhile, the main outputs (stage 2's output) are revenue passenger kilometer (RPK), and revenue tonne kilometer (RTK). The results show that the service effectiveness of the aircraft company is better than its cost efficiency.

According to Tavassoli (2014) on his research in measuring the operational performance of airlines for passenger and cargo transportation. This study uses a novel-slacks-based method in measuring network data envelopment analysis (SBM-NDEA) to measure the technical efficiency and service effectiveness of the aircraft company. The results showed that the average technical efficiency and service effectiveness of the 11 aircraft companies were 0,7599 and 0,4515. The input variables are number of passenger planes, number of employees, and number of cargo planes. The intermediate variables are passenger plane kilometers and cargo plane kilometers. The output variables are passenger kilometers and tonne kilometers. The findings of this study are the average efficiency score at stage 2 is better than stage 1, and the efficiency value of aircraft companies is very low.

Then, the measurement of the company's operational efficiency (allocation, passenger transport, and freight transport) from 477 flight routes by Shao & Sun (2016) using the internal two-stage DEA (NDEA) method. This research has an input flight related cost variable. The intermediate variables are available tonnage (AT) and available seats (AS). The output variables are passenger throughput (PT) and freight throughput (FT). They revealed the differences in the constraints when measuring intermediate on NDEA significantly affect the value of flight route efficiency. Most flight routes have high allocation efficiency and passenger transport efficiency, while having low efficiency values in freight transport.

Next, as Ling et al., (2018) research on regarding to the productivity and efficiency of ASEAN aircraft companies using an external two-stage DEA method, namely DEA-Malmquist Total Factor Productivity (TFP) which has input variables in the form of operating cost, ASK, and output. In the form of RPK, passenger revenue. He agrees that RPK and passenger revenue have a positive significant effect on efficiency, ASK has a negative significance on efficiency, and operating cost does not have a significant impact on efficiency.

Furthermore, another external two-stage of DEA on measuring the efficiency of ASEAN aircraft using DEA and bootstrapping conducted by Hu & Tung (2017) shows that the efficiency of ASEAN aircraft companies from 2010 - 2014 has a declining trend. This study uses input variables in the form of aircraft number, operating cost, ASK, and output in the form of RPK and total revenue. The research focuses on measures and benchmarks the comparative operating efficiencies of ASEAN's major airlines and presents a new interpretation along with managerial implication and he argues that the disaggregate input efficiency of ASEAN airlines shows that aircraft efficiency is the lowest, operating cost efficiency is better, and available seat efficiency is the best.

Finally, study that was conducted by Barbot et al., (2008) regarding to the aircraft performance using the external two-stage DEA method consisting of DEA and total factor productivity. This research has inputs in the form of labor, fleet (number of operated aircraft) and fuel (in gallons consumed), as well as outputs such as ASK, RPK, and RTK. He claims a low-cost carriers (LCC) aircraft are more efficient than full-service carriers (FSC), then only labor has an effect on productivity.

Based on those evidence, for this research, The relationship between variables for the financial and operational performance of aircraft companies with the Covid-19 pandemic in this study is as follows
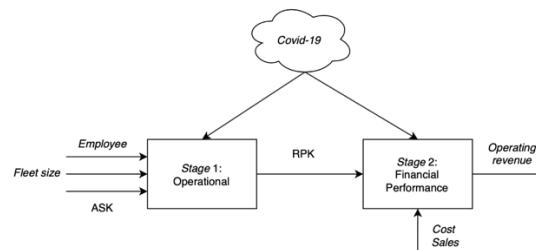
Fig. 12. Research Framework (Source: Author, 2022)

Based on Fig.3, it shows the relationship between the phenomenon or crisis of the Covid-19 pandemic on operational efficiency and the efficiency of the financial performance of aircraft companies. Operational performance can be seen from company resources such as capacity, number of airlines, and number of employees in carrying out company operations so as to obtain revenue which can be an efficiency component or variable of the company's financial performance (Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2018; Mallikarjun, 2015; Tavassoli et al., 2014).

III. RESEARCH METHODOLOGY

A. Data

The data in this research is airline companies that are registered or listed on the local stock market, and has complete data such as financial reports and their operational reports. Data is retrieved from S&P Capital IQ and Thomson Reuters on annual basis starting from pre-Covid-19 pandemic (January 2019) until the first year of the Covid-19 pandemic crisis (December 2020). This is because in figure 2, in January 2020, the number of flights and the available seats has decreased. For the number of flights, the large decrease in January 2020 against December 2019 was 16.067 flights, and for the large decrease in the number of occupied seats between January 2020 and December 2019 which was 6.891.182 seats. So, it can be said that in January 2020, the aviation industry was already feeling the effects of the Covid-19 pandemic. Another reason for choosing this period is to see the changes of companies performance conditions naturally without any bias from previous years.

Table 20. Airlines Company in Asia-Pacific

No	Airline's company (FSC)	IATA Code	Country
1	Singapore Airlines	SQ	Singapore
2	ANA Airlines	NH	Japan
3	Cathay Pacific	CX	Hong Kong
4	Eva Air	BR	Taiwan
5	Japan Airlines	JL	Japan
6	China Southern Airlines	CZ	China
7	China Airlines	CI	China

No	Airline's company (FSC)	IATA Code	Country
	Airline's company (LCC)	IATA Code	Country
1	Air Asia	AK	Malaysia

Source: Skytrax (2020)

Asia-Pacific had the highest occupancy in 2019, which means most flights happened in the Asia-Pacific region (Skytrax, 2020). in the 50 best airlines companies based on Skytrax 2019, 24 of them or 48% are from the Asia Pacific region. Of the 24 data, 17 of them are listed on stock exchanges in each country. In 17 listed Asia Pacific airlines, 8 of them have complete data where seven of them are *full service carrier* (FSC) and one *low-cost carrier* (LCC).

B. Two-Stage Data Envelopment Analysis

In general, DEA is used in two formulation orientations, named input minimization (input oriented) and output maximization (output oriented). Input minimization is carried out to obtain the optimal number of inputs which will later be used for a predetermined amount of output. On the other hand, output maximization is used to obtain the optimal amount of output from a predetermined number of inputs. A DMU is said to be efficient if the efficiency score is 1 and inefficient if the efficiency score is below 1. In the two-stage DEA model, the orientation used in stage 1 is input oriented and output oriented at stage 2 (Chen & Zhu, 2018; Kao & Hwang, 2008, 2011). If the efficiency value generated by DEA is 1, this indicates that 100% of the inputs used are allocated or transformed into outputs. If the efficiency value is less than 1, the DMU or unit is not efficient and there are parts of the input that are not used or are not maximized by the existing inputs (Suzuki et al., 2011).

$$DMU_j, j = 1, \ldots, N$$

$$x_{pj}, p = 1, \ldots, P \qquad z_{qj}, q = 1, \ldots, Q \qquad y_{sj}, s = 1, \ldots, S$$
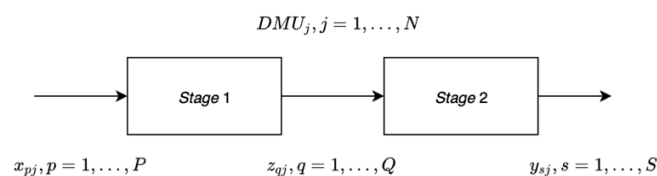
Fig. 13. Two-Stage DEA Process (Source: Emrouznejad, Dehnokhalajj & Clegg, 2021)

In this research, phase 1 is measuring operational efficiency and phase 2 is measuring the efficiency of financial performance. The network structure in the internal two-stage DEA of this study includes human resources which are described by the number of employees of the aircraft company. The number of employees is the input in the company's operations because it represents an investment in human resources. In achieving the level of operational efficiency, it is necessary to have a number of employees so that they can work more effectively and efficiently (Cui & Jin, 2020; Cui & Li, 2017; Li & Cui, 2017, 2018). Based on research conducted by Mallikarjun (2015); Tavassoli et al., (2014), seat miles (ASM or ASK) represent service capacity (supply), and passenger miles (RPM or RPK) represent service requests (service). It is not appropriate to increase supply and demand at the same time. RPK and ASK are 2 important indicators in measuring the operations of an aircraft company. ASK is used to produce RPK because this RPK is defined as the sum of ASK products between 2 places (destinations) and the amount of income (income passengers) served on the trip. Fleet size is the number of aircraft fleets available for maximum service. Companies that have large fleets tend to be able to change the number of ASK to a larger number of RPKs compared to companies that have a small fleet (low fleet size). Therefore, in this study, in phase 1, it will be used to measure the operational efficiency of airlines that have ASK and fleet size as input variables, and RPK as intermediate variables. The RPK which acts as the output of stage 1 will also act as input in stage 2. In this financial performance it can be seen from the service in selling its services as much as possible to generate income as well as the amount of costs incurred during operations, where this can be seen from the operating income and the cost of sales of the companies. Therefore, operating income can be used as an output variable from stage 2 and cost of sales as an input in stage 2 (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015; Tavassoli et al., 2014). So, this research will use employee, fleet size and ASK as input (stage 1 input), RPK as an intermediate variable, and operating revenue as output variable (stage 2 output).

Measurement of operational efficiency and financial performance efficiency of this company will use R software in its processing and search for the weighted value (λ) for each company's DMU and the target value of each input, intermediate, and output variable so that the company becomes efficient. Based on previous research, input variable, intermediate variable, and output variable can be seen below.

Table 21. Two-Stage Data Envelopment Analysis Variables

Input Variable (Stage 1)	Intermediate Variable	Output Variable
Employees (Cui & Jin, 2020; Cui & Li, 2017; Li & Cui, 2017, 2018)	RPK (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015)	Operating revenue (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015)
Fleet size (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015)		
ASK (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015)		
Input Variable (Stage 2)		
Cost Sales (Cui, 2019; Cui et al., 2020; Cui & Li, 2017; Li & Cui, 2017, 2018; Mallikarjun, 2015)		

Source: Author (2022)

IV. RESULT / FINDING

A. *Efficiency Analysis*

By conducting an internal two-stage of DEA, the results show that for full service carrier (FSC) airlines, Singapore Airlines in 2019, China Southern Airlines in 2019, Eva Air 2020 and China Airlines in 2020 which are efficient airlines (indicated by Overall Efficiency of 1). Cathay Pacific in 2019 has an efficiency value that is close to efficient with a value of 0.99. A company that has an efficiency of 1, means that this company is able to utilize company resources (shown by fleet, employees, ASK, and cost sales) to a minimum in creating or producing company revenue (indicated by operating revenue) efficiently. As for the low-cost carrier (LCC) company, Air Asia, it has an efficient level both before the Covid-19 pandemic (2019) or during the Covid-19 pandemic (2020). If you look at the average, FSC type companies are lower than LCC for the range of years from 2019 to 2020 which overall, the efficiency value for FSC is 0.91 while for LCC it is 1.00. When viewed based on the stage of the airline company's efficiency analysis process, at the operational efficiency stage, FSC, Singapore Airlines, Cathay Pacific, and China Southern Airlines were unable to maintain the company's operational efficiency, which was initially efficient (in 2019) to become inefficient during the Covid-19 pandemic. 19 takes place (in 2020). This is different from Eva Air and China Airlines, where during the Covid-19 pandemic the company's operations were still able to run efficiently. For LCC companies (Air Asia), the company can still run efficiently (efficiency = 1). Then, on the stage of financial performance efficiency, for FSC companies, Singapore Airlines companies (in 2019 and 2020), ANA Airlines (in 2019 and 2020), Eva Air 2020, Japan Airlines in 2019, China Southern Airlines in 2019 and China Airlines in 2020 has an efficient efficiency in its financial management. ANA Airlines was able to maintain the efficiency of its company's financial performance during the Covid-19 (2020) pandemic, and Eva Air and China Airlines succeeded in increasing the efficiency of the company's efficiency during the Covid-19 pandemic. In the Covid-19 pandemic (in 2020), with the decrease in the number of passengers and the drastic decline in the number of flights that can be seen from passenger revenue for each flight route (RPK), the majority of airlines in Asia Pacific have inefficient values. As for LCC companies, Air Asia was able to maintain its efficiency at an efficient level (efficiency = 1) before and during the pandemic.

Table 22. Airline Efficiency in 2019 and 2020

No	Type	Company	Efficiency

		(DMU)	Operational	Financial Performance	Overall	Direction
1	FSC	SQ 2020	0,83705	1	0,92	decrease
2		SQ 2019	1	1	1	
3		NH 2020	0,50716	1	0,75	decrease
4		NH 2019	0,83993	1	0,92	
5		CX 2020	0,77924	0,99917	0,89	decrease
6		CX 2019	1	0,99254	0,99	
7		BR 2020	1	1	1,00	increase
8		BR 2019	1	0,90494	0,95	
9		JL2020	0,57333	0,85559	0,71	decrease
10		JL 2019	0,88311	1	0,94	
11		CZ 2020	0,85769	0,73202	0,79	decrease
12		CZ 2019	1	1	1	
13		CI 2020	1	1	1	increase
14		CI 2019	1	0,88345	0,94	
		AVERAGE	0,88	0,95	0,91	
		STD DEV	0,16	0,08	0,1	
15	LCC	AK 2020	1	1	1,00	constant
16		AK 2019	1	1	1,00	
		AVERAGE	1,00	1,00	1,00	
		STD DEV	**0,00**	**0,00**	**0,00**	

IATA code: SQ = Singapore Airlines; NH = ANA Airlines; CX = Cathay Pacific; BR = Eva Air; JL = Japan Airlines; CZ = China Southern Airlines; AK = Air Asia; CI = China Airlines

Source: Author (2022)

In the airline industry, although they have the same line of business, the scale of operation, type of technology and focus of the airline business are different for each company. For example, the scale of this operation can be seen from the small or large number of airlines that are used for short-haul or long-haul flights. For long-distance flights, the company will prefer to use large-sized aircraft (wide body) because it requires a larger capacity and is able to cover longer distances in one flight compared to short-haul flights which only use small-sized aircraft (narrow body) (Khan & Pai, 2020).

The next step is to measure the target value of the input and output variables so that the DMU of the Asia Pacific airlines can be efficient (efficiency = 1) during Covid-19 pandemic (2020). The target value can be seen in **Appendix B**. Company that has achieved the efficient state (efficiency = 1), the change in the input and output value between the actual and the target is 0, where actual is the real data of companies input and output data in 2020. This is because the input or output value in the company is already optimal. Thus, reducing the number of inputs is no longer needed. For the operational stage, using a two-stage DEA analysis with oriented input consisting of employee, fleet, and ASK inputs, FSC companies such as Singapore Airlines, Eva Air, and China Airlines already have efficient efficiency values. Meanwhile, ANA Airlines, Cathay Pacific, Japan Airlines, Cathay Southern Airlines require substantial input reduction in order to achieve efficient conditions for their operations. In LCC companies such as Air Asia, during the Covid-19 pandemic, companies can achieve efficient conditions for their operations. This is in accordance with research conducted by Gillen & Gados, (2008); Sakthidharan & Sivaraman, (2018) which LCC companies are more suitable or suitable for high employee productivity due to various factors such as the type of fleet used tends to be the same (single type), service flight onboard such as less food or catering which leads to shorter turnaround times and less amount of cargo compared to preparation done by FSC companies. Therefore, at the stage of financial performance, LCC companies are able to have higher efficiency than FSC companies because they have a lower cost structure than FSC. This is in

accordance with research conducted by Jain & Natarajan (2015) and Lee & Worthington (2010). In addition, for the financial performance stage using a two-stage DEA analysis with output oriented, with the value of RPK and cost sales obtained by each company, the company should be expected to be able to achieve or obtain the revenue contained in the target operating revenue section.

V. Discussion

For FSC companies located in China, China Airlines is more efficient than China Southern Airlines, both operationally and financially, even though both companies are located in the same country. This is because if you look at Appendix A, the number of employees, fleet, and ASK has a much different number between the two companies. China Airlines has significantly fewer numbers than China Southern Airlines. The large number of Chinese Southern Airlines company resources that are not utilized optimally due to the Covid-19 pandemic makes the company have to reduce the number of company resources or inputs in order to achieve efficient conditions. This can be one of the factors why the China Southern Airlines company is not efficient, because during the Covid-19 pandemic, many resources were not used optimally.

From Table 5 and Appendix D, Singapore Airlines and ANA Airlines are not operationally efficient but financially efficient. The company's operational inefficiency can be seen in the large difference between the number of companies input utilities that are not used optimally while the resulting operational output is much lower, so companies need to reduce company inputs in terms of the number of employees (employees), the number of airlines (fleet), and available seat kilometer (ASK) in order to obtain efficient results. Meanwhile, the efficiency of the financial performance of the two companies can be due to the company's management being able to take full advantage of the financial conditions affected by the Covid-19 pandemic or have other strategies to get revenue when the company's operations are difficult. This is demonstrated by Singapore Airlines issuing mandatory convertible bonds to increase gross yields by approximately $6.2 billion. The issuance of these bonds allows Singapore Airlines to maintain its equity base and provides additional options for increasing debt financing (Singapore Airlines, 2021). Unlike the case with ANA Airlines, to improve the efficiency of the company's financial performance, ANA Airlines is building a new business platform that utilizes customer data assets to create new revenue opportunities (ANA Airlines, 2021). This is useful for increasing the company's digitalization by combining existing business platforms such as the ANA Mileage Club app, Transportation Business, Travel Services, and ANA Credit Card business for customer convenience, such as ticket purchases and service sales operations. Then, on the company's cost management, in responding to Covid-19, ANA Airlines evaluated and drastically reduced the company's variable costs by adjusting capacity to suit passenger demand. For fixed costs, the company evaluates employee salaries and bonuses (employees). There are initiatives taken by the company to improve the efficiency of the company's financial performance such as reducing officer remuneration and employee salaries, reducing bonuses related to employee performance, conducting temporary leave programs, using digital technology for labor savings and automation, and using external resources (ANA Airlines, 2021).

From the results of calculating the efficiency target value for airlines, from the types of company input variables, it is found that the employee variable (employee) which has the biggest influence that causes airlines to become inefficient, which for inefficient companies in Asia Pacific, needs to do the reduction in the number of inputs by 43%, followed by the number of airlines (fleet) by 38%, and the number of available seats kilometer (ASK) by 28%. By reducing a very large number of employees, it is also expected to be able to reduce or minimize the company's fixed costs such as salaries and employee bonuses. Instead, this can be achieved through digitalization to provide convenience and a sense of security to customers because during the Covid-19 pandemic, it is necessary to reduce contact between people. Apart from the employee, in terms of the fleet, and available seat kilometer (ASK), the company's management can rearrange the strategy for selecting the fleet structure or combination of fleet types used by the company, such as focusing on maximizing the use of small fleets (narrow body) and retiring the widebody aircraft fleet, which is also a concern for companies that provide aircraft rental services (lessors) regarding the efficiency of this airline because the charter company is unable to pay its obligations or meet the requirements, the aircraft used will be returned to the airline. lessor companies and need to pay attention to the revenue structure of airlines (airline revenue strategy) which can be seen from revenue per available seat kilometer (ASK), revenue passenger kilometers (RPK), and company financing structures such as employee salaries, fleet maintenance costs (Guzhva et al., 2019). This is also a concern for the government because companies such as Singapore Airlines, Chinas Airlines, China, and Southern Airlines are state-owned enterprises. This is because the state becomes an investor or lender who can provide liquidity to support corporate airlines so that companies can survive during the Covid-19 pandemic (Albers & Rundshagen, 2020). In operational recovery, it can be done by focusing on domestic flights or short-haul flights before long-haul intercontinental routes. This

is in accordance with research conducted by Maung et al. (2022). Domestic and regional markets are the core business for low-cost airlines (LCC), but also a significant proportion of the total ASK generated by full service airlines (FSC). The combination of cessation of aircraft operations, as well as rebalancing of flight route networks that are rebalanced and focusing on shorter flight networks will have an impact on the pattern of growth rates and profitability (Maung et al., 2022).

Stage 1 is about measuring the company's operational efficiency during Covid-19 pandemic. Then, stage 2 is used to measure how efficiently the company creates revenue from the company's operational services. Since the research focuses on the international aviation industry, the results can be compared with similar research in the aviation field. Using internal two-stage DEA, airline company efficiencies from 2019 through 2020, operational efficiency is higher that the financial efficiency, and thus supporting the conclusion drawn by Lin & Hong (2020). Although the value of the company's operational efficiency is high, this has not determined whether the value of the company's financial performance efficiency is also high. This is conclusion supporting the conclusions drawn by Gramani (2012). This can be due to other factors that influence the formation of company revenue as well as cost components such as fuel costs and others (ben Lahouel et al., 2022; Cui & Li, 2017; Li & Cui, 2017, 2018). The high and low efficiency of the financial performance stage indicates how much RPK is being formed or converted into revenue. However, there is an advantage by separating the two stages, which can make it easier for managers to provide an overview of each company's performance. If these stages are not separated, it will be difficult to see which variables have the greatest influence on other variables, both at the operational stage and in financial performance. Since the research focuses on the international aviation industry, the results can be compared with similar research in the aviation field.

VI. CONCLUSION AND RECOMMENDATION

The research was conducted on 8 airlines in Asia-Pacific consisting of 7 full service carriers (FSC) and 1 low-cost carrier (LCC) from 2019 to the first year of the Covid-19 pandemic (in 2020). aims to evaluate the factors that affect the resilience of Asia-Pacific airlines during the Covid-19 pandemic through operational efficiency and the efficiency of the company's financial performance. By using the internal two-stage DEA method, the results showed that from the component input variables used, it was found that the number of employees was the biggest factor affecting the resilience of aviation companies during the Covid-19 pandemic, so it was necessary to reduce the number of company inputs. in terms of employees so that the company is able to survive during the Covid-19 pandemic, followed by a reduction in the number of fleets as well as the number of available seat kilometer (ASK). In increasing the company's resilience, the company's management can digitize to make it easier and provide a sense of security to customers. Then, the company can rearrange the strategy for selecting the fleet structure or combination of fleet types used by the company, such as focusing on maximizing the use of the narrow body fleet and retiring the wide body fleet. In operational recovery, it can be done by focusing on domestic flights or short-haul flights before long-haul routes between continents. In this way, the combination of cessation of aircraft operations, as well as rearrangement of flight route networks and a focus on shorter flight networks will have an impact on the pattern of growth rates and profitability.

This research was conducted on 8 airlines in Asia-Pacific consisting of 7 full service carriers (FSC) and 1 low-cost carrier (LCC) from 2019 to the first year of the Covid-19 pandemic (2020) to analyze the operational efficiency and financial performance efficiency of the company. By using the internal two-stage DEA method, it found that the operational efficiency of the airline company is higher than its financial efficiency. This supports the conclusion drawn by Lin & Hong (2020). Overall efficiency, for full service carrier (FSC) airlines, five (Singapore Airlines, ANA Airlines, Cathay Pacific, Japan Airlines, and China Southern) of the seven companies experienced a drastic decrease in efficiency between 2019 and 2020 due to the Covid-19 pandemic in 2020. Then, two of them (Eva Air and China Airlines) experienced an increase in efficiency but only China Airlines reached the point of efficiency (efficiency = 1) both operationally and financially. Meanwhile, LCC-type airlines such as Air Asia, experienced an increase in efficiency during the Covid-19 pandemic but had not yet reached an efficient condition (efficiency = 1).

This research also suffers from some limitations. First, the availability of data or samples is one of the limitations. It was hard to find the complete data for each airline company such as airlines for low-cost carrier. Based on Skytrax, only Air Asia (AK) that a low-cost carrier that listed in their own stock market. So, it is quite difficult to compare between the full-service carrier and low-cost carrier. The differences number of airlines between full service carrier and low-cost carrier might impacts on the result. Second, the impacts of some external

factors on airline efficiency. Some existing papers applied some external factor by using regression to analyze the impacts of external factors, such as economic level, price level, etc (Li & Cui, 2018; Merkert & Pearson, 2015). Corresponding to these limitations, the suggestions or recommendation for the future research are consider the number of airline companies and in order to increase the efficiency accuracy, it is necessary to add other factors or variables into the study. It can be achieved by combine the internal two-stage DEA with external two-stage DEA, so method such regression can be applied to determine the external factor and it is possible to add some stages to the measurement of airline efficiency so that the process of transforming inputs into outputs becomes wider.

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APPENDIX

Appendix A. Research Data frame

Company	Employees	Fleet	ASK (Km)	RPK (Km)	Cost of Sales (USD)	Operating Revenue (USD)
Singapore Airlines 2020	15.790	129	19.254.000.000	2.582.000.000	2.640.980.000	2.837.350.000
Singapore Airlines 2019	16.760	133	127.166.000.000	104.135.000.000	8.395.270.000	11.235.920.000
ANA Airlines 2020	46.580	293	41.362.000.000	14.408.000.000	9.041.700.000	6.588.500.000
ANA Airlines 2019	45.849	307	127.438.000.000	89.721.000.000	14.715.700.000	18.347.400.000
Cathay Pacific 2020	19.452	239	34.609.000.000	20.079.000.000	5.276.060.000	6.053.410.000
Cathay Pacific 2019	27.342	234	163.244.000.000	134.397.000.000	10.637.800.000	13.733.660.000
Eva Air 2020	18.153	87	20.826.436.000	10.710.890.000	2.865.190.000	3.169.790.000
Eva Air 2019	19.680	84	59.672.883.000	48.682.624.000	5.296.610.000	6.059.680.000
Japan Airlines 2020	36.060	237	31.371.000.000	11.479.000.000	4.902.230.000	4.351.080.000
Japan Airlines 2019	35.650	241	90.524.000.000	67.349.000.000	10.001.190.000	13.115.280.000
China Southern Airlines 2020	65.349	867	214.721.970.000	153.440.120.000	14.545.080.000	13.832.370.000
China Southern Airlines 2019	69.776	972	344.061.860.000	284.920.810.000	19.487.280.000	21.777.280.000
Air Asia 2020	18.848	247	19.121.000.000	14.268.000.000	1.086.400.000	779.140.000
Air Asia 2019	24.416	246	74.642.000.000	63.382.000.000	2.239.500.000	2.896.310.000
China Airlines 2020	11.390	93	16.116.497.000	9.097.000.000	3.738.700.000	4.102.470.000
China Airlines 2019	12.239	91	58.590.098.000	47.462.000.000	5.072.950.000	5.630.760.000

Source: Author (2022)

Appendix B. Input and Output Target

Type	Company (DMU)	Employees				Fleet				ASK (Km)			
		Actual	Target	Change	%	Actual	Target	Change	%	Actual	Target	Change	%
FSC	SQ 2020	15.790	11.390	-4.400	-28,00%	129	93	-36	-28,00%	19.254.000.000	16.116.497.000	-3.137.503.000	-16,00%
	NH 2020	46.580	14.836	-31.744	-68,00%	293	149	-144	-49,00%	41.362.000.000	20.977.250.300	-20.384.749.700	-49,00%
	CX 2020	19.452	15.158	-4.294	-22,00%	239	166	-73	-30,00%	34.609.000.000	26.968.881.609	-7.640.118.391	-22,00%
	BR 2020	18.153	18.153	0	0,00%	87	87	0	0,00%	20.826.436.000	20.826.436.000	0	0,00%
	JL 2020	36.060	13.673	-22.387	-62,00%	237	136	-101	-43,00%	31.371.000.000	17.986.053.895	-13.384.946.105	-43,00%
	CZ 2020	65.349	42.855	-22.494	-34,00%	867	541	-326	-38,00%	214.721.970.000	184.164.327.407	-30.557.642.593	-14,00%
	CI 2020	11.390	11.390	0	0,00%	93	93	0	0,00%	16.116.497.000	16.116.497.000	0	0,00%
LCC	AK 2020	18.848	18.848	0	0,00%	247	247	0	0,00%	19.121.000.000	19.121.000.000	0	0,00%
Inefficient Company-Specific Input Changes				-17.063	-43%			-136	-38%			-15.020.991.956	-28%

Type	Company (DMU)	RPK (Km)				Cost of Sales (USD)				Operating Revenue (USD)			
		Actual	Target	Change	%	Actual	Target	Change	%	Actual	Target	Change	%
FSC	SQ 2020	104.135.000.000	104.135.000.000	0	0%	2.640.980.000	2.640.980.000	0	0%	2.837.350.000	18.600.670.176	15.763.320.176	556%
	NH 2020	14.408.000.000	14.408.000.000	0	0%	9.041.700.000	9.041.700.000	0	0%	6.588.500.000	6.588.500.000	0	0%
	CX 2020	20.079.000.000	20.079.000.000	0	0%	5.276.060.000	5.276.060.000	0	0%	6.053.410.000	7.473.934.412	1.420.524.412	23%
	BR 2020	10.710.890.000	10.710.890.000	0	0%	2.865.190.000	2.865.190.000	0	0%	3.169.790.000	4.857.916.989	1.688.126.989	53%
	JL 2020	11.479.000.000	11.479.000.000	0	0%	4.902.230.000	4.902.230.000	0	0%	4.351.080.000	5.217.462.178	866.382.178	20%
	CZ 2020	153.440.120.000	153.440.120.000	0	0%	14.545.080.000	14.545.080.000	0	0%	13.832.370.000	19.467.016.537	5.634.646.537	41%
	CI 2020	9.097.000.000	9.097.000.000	0	0%	3.738.700.000	3.738.700.000	0	0%	4.102.470.000	4.102.470.000	0	0%
LCC	AK 2020	14.268.000.000	14.268.000.000	0	0%	1.086.400.000	1.086.400.000	0	0%	779.140.000	6.522.967.294	5.743.827.294	737%

IATA code: SQ = Singapore Airlines; NH = ANA Airlines; CX = Cathay Pacific; BR = Eva Air; JL = Japan Airlines; CZ = China Southern Airlines; AK = Air Asia; CI = China Airlines

Source: Author (2022)

Analysis of Factors Affecting the Indonesian Sharia Stock Index on the Indonesia Stock Exchange (IDX) for the period of February 2014 – January 2022

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Abstract

The Indonesian Syariah Stock Index is one of the stock indexes which of all shares have been listed on the Indonesia Stock Exchange. The Indonesian Syariah Stock Index was established on May 12, 2011 and in the year of its establishment it was listed on the Indonesia Stock Exchange with a total of 214 shares. The price of crude oil had a positive impact on the price of gold, the price of gold would always follow a rise in the price of crude oil. This proves that the price of gold does not function as a safeguard against the price of crude oil(Reboredo, 2013).(Gangopadhyay, Subhashis & Sen,2016)find the price of crude oil negative on the price of gold. Gold can be a hedge when oil prices rise, investors choose to invest in gold. There has been a controversy between these studies about how crude oil prices affect the price of gold. The analytical method used in this study is descriptive analysis and data regression analysis Error Correction Model. (ECM) using eviews 10 software with secondary data obtained from the Central Statistics Agency (BPS), BI, and IDX. This study aims to determine the effect of Inflation, Exchange Rate, BI Rate, World Crude Oil Prices, and World Gold Prices on the Indonesian Sharia Stock Index in 2014 – 2022. The results showed that the five variables tested in this study, used the ECM method, using the ISSU, INF, KURS, BIR, HMD, and HED variables. In the period period 2014-2022. The results of the ECM regression, the variables that have an effect are EXCHANGE, INF(-1), EXCHANGE (-1), BIR (-1), HMD (-1) and HED (-1). So in the F test it looks like 0.0000 and R-square is 0.470686.

Keywords— Inflation, Exchange Rate; BI Rate; World Crude Oil Prices; and World Gold Prices.

I. INTRODUCTION

The stock price is an indicator of the success of the company's management. The better the company's performance will increase the share price of the company concerned. The increase in the share price will also reflect an increase in the wealth of shareholders as investors. Investors in investing their capital expect to make a profit, so before investing their capital, investors first need to recognize the factors that affect stock prices. Recognizing these factors is necessary so that investors can predict future stock prices and so that investors can prevent losses in their investments, because every investment must contain risks.

Investment is one of the activities to invest a capital that has been owned for a relatively long time with the aim of getting a profit in the future in the next few years. The era has progressed, all civilizations have had many renewals, of course, people also have many choices in investing their assets in addition to using banks, namely by investing their assets in the capital market.(Pardiansyah, 2020).

This is where market participants, namely individuals or business entities that have excess funds, invest in securities offered by companies that sell shares in the capital market (issuers). The capital market that is experiencing an increase (Bullish) or experiencing a decline (Bearish) can be seen from the rise and fall of recorded stock prices and is reflected through an index movement or better known as the Stock Price Index.(Dewi, Vina Sintya, 2016). The desire of potential investors to invest in listed companies is one of the factors that can affect stock prices. The factors that affect the capital market index are the exchange rate, inflation, BI Rate, world oil prices, world gold prices. The inflation rate in Indonesia, which often fluctuates, always experiences fluctuations in the graph of the inflation rate being not fixed every month, of course this will affect investment in capital, especially investment in this case the Stock Index. If the exchange rate experiences a decline, investors who will invest their shares will also experience a decline and this makes the capital market difficult to develop if the exchange rate is experiencing a decline.

The BI Rate is the interest rate, one of the policies that the government has implemented in regulating the amount of money circulating in the community when the BI Rate changes it will affect the interest rates for loans

or deposits. World crude oil has a significant influence on stock indices, meaning that when world oil prices increase in price, it will be a positive response to stock indexes, especially in the mining sector.

According to previous research conducted by(Martien, Rahmawati, 2015)macroeconomic factors that can affect stock price movements in Indonesia Sharia Stock Index on the Indonesia Stock Exchange as a factor of inflation, SBI interest rates and exchange rates. The results show that inflation is partially insignificant and has a negative relationship to ISSI stock prices, SBI interest rates are not significant and have a positive relationship to ISSI stock prices, the exchange rate has a significant effect on stock prices in Indonesia Syariah Stock Index (ISSI) and has a positive effect on stock prices. negative.

According to(Utari Purwo Astuti, 2021)that in the long run the exchange rate, gold price, DJIM have a significant positive effect and inflation has a significant negative effect on ISSI. In the short term, the inflation variable has a significant negative effect, while the exchange rate, gold price, and DJIM have no significant effect on ISSI.

Research from(Robiyanto, R, 2018)discusses The Effect of Gold Price Changes, USD/IDR Exchange Rate Changes and Bank Indonesia (BI) Rate On Jakarta Composite Index (JCI)'S Return and Jakarta Islamic Index (JII)'SReturn, while the results of this study are the USD exchange rate /IDR has a significant negative effect on JCI. Meanwhile, the USD/IDR Exchange Rate and BI Rate had a significant negative effect on JII, while gold prices had a positive effect on JII.

Research from(Oktavia & Handayani, 2018) discusses the Effect of Rupiah Exchange Rate, GDP Growth, and Dow Jones Index on Composite Stock Price Index In Indonesia Stock Exchange with research results showing that the rupiah exchange rate has no effect on the JCI. Meanwhile, GDP growth and the Dow Jones average index (DJIA) have an influence on the JCI.

Research from(Umam, Khaerul Angga, 2019)discusses The Efficiency Of Macroeconomic Variables In Predicting Indonesian Sharia Stock Index with the results of the study showing that there is a short-term and long-term effect between the variables of exchange rates, interest rates, industrial production index, SBIS, and inflation on ISSI.

Research from(Halim, S, 2020) discusses the Analysis Of The Effect On Inflation, Interest Rate, Dow Jones Islamic Malaysia Index and Profitability On Stock Prices As Selected As Indonesia Sharia Stock Index while the results are Inflation, Interest Rates, Dow Jones Sharia, Profitability has an influence on the Indonesian Sharia Stock Index.

According to(Nature, Azhar, 2020)with the discussion of The Influence of Determining Factors on Islamic Stock Index in Indonesia, research shows that the Indonesian Sharia Stock Index (ISSI) is significantly and negatively affected by central bank interest rates in a long-term analysis. Similarly, in the short-term analysis, the central bank's interest rate has a significant and negative effect on ISSI and currency exchange rates. On the other hand, the SBIS rate of return and inflation are indicated to have an insignificant negative effect on ISSI. This study suggests that ISSI investors consider Central Bank interest rates, inflation, rupiah exchange rates, and SBIS returns to predict stock prices so that investors can make the right decisions in their investment policies.

Starting from this phenomenon, it is necessary to study more deeply about the factors that affect the stock price index on the IDX in the title Analysis of Factors Affecting the Indonesian Stock Index on the Indonesia Stock Exchange (IDX) for the period February 2014-January 2022. 2014 " The researcher hopes to find conclusions that are different from previous research and can look for more accurate subject matter for further research.

II. LITERATURE REVIEW

The Indonesian Sharia Stock Index (ISSI) is an indicator that investors can use to determine stock market movements. By looking at the index numbers, it can be seen whether the current market movement is increasing or decreasing from before. The index serves as an indicator of market trends, meaning that the movement of the index describes market conditions at a certain time(Hasibuan, SA, Arwansyah, 2020). According to(Widodo, W, 2018)The Stock Price Index is an indicator or reflection of stock price movements. The index is one of the guidelines for investors to invest in the capital market, especially stocks. In investment activities, of course, investors as capital owners must be willing to take risks (risk takers). At the same time, the expected future return is one of the motivations for investors. The risk in investment is the possible difference between the actual return received and the expected return.

The capital market / stock market is a securities mechanism that is organized through the main exchange and parallel exchange. Included in the securities traded are common stock, preferred stock, convertible bonds, options, share rights, and share purchase rights certification(Shivakumar, H, 2007). The main instruments that can be used as an alternative investment for investors are stocks and bonds. One of the media that can be used as an alternative source of funding is the capital market by going public(Fudji Sri M, nd).

In investment, high inflation causes investors to be more careful in choosing and conducting transactions, so investors tend to wait to invest until the economic conditions are conducive to avoid the risks that may be caused by high inflation.(Goddess, VS, 2016). An increase in the price of just one or two goods cannot be called inflation, unless the increase extends to (or results in an increase in) most of the prices of other goods.(Salim, 2021). Currency rates show the price of a currency when it is exchanged for another currency. Determination of the exchange rate of a country's currency with the currency of another country is determined as well as goods, namely by the demand and supply of the currency concerned(Purwaningsih & Sulistiyani, 2020).

The interest rate can be used to show how much must be paid for a loan or other investment, all of which are contained in the agreement for repayment which is expressed as a percentage in an year. Interest rates can also affect company profits. The interest rate affects stock prices, the higher the interest rate, the lower the profit earned by the company and causes more investors to withdraw their funds by selling their stock and switching to the bond market. The increase in the BI rate has resulted in tighter liquidity in the banking sector which has resulted in difficulties in obtaining funds from third parties, namely: demand deposits, savings, deposits in addition to causing the cost of funds of banks to increase.Rachmawati & Marwansyah, 2019). In general, the interest rate used in banks is determined and regulated by the government and its function is as a means of controlling the economy of a country(Halim, S, 2020).

World crude oil has a significant influence on stock indices, meaning that when world oil prices increase in price, it will be a positive response to stock indexes, especially in the mining sector. The world oil price that is often used as a reference in oil trading is West Texas Intermediate (WTI). WTI oil price is the highest oil price between Brent Blend and OPEC. This is because WTI is the highest quality oil because it has a low sulfur content so it is very good for use as gasoline(Gumilang & Hidayat, 2014).

Gold is a type of investment that investors are interested in because it has a relatively low level of risk, functions as a protector of wealth and is not affected by inflation (zero inflation). The increase in world gold prices will make investors more interested in investing in gold than stocks. This situation will make the JCI go down because investors will flock to sell their shares to switch to gold. The World Gold Price is the spot price in the London Gold Market which is formed from the accumulation of supply and demand. The World Oil Price is the spot price using the West Texas Intermediate standard which is formed from the accumulation of demand and supply of Light Sweet crude oil from market participants in Oklahoma, Texas(Handiani, S, 2014).

This research is a replica of the research conducted by (Hidayah, Anissa Nur, 2022) The World Gold Price has no significant effect in the short term but in the long term the World Gold Price has a significant effect on the Indonesian Sharia Stock Index (ISSI). What distinguishes this research from previous research is the time period taken in the study.

The econometric models for estimating the factors that influence the Stock Price Index are as follows:

$$\Delta \ln(\text{ISSIt}) = \gamma_0 + \gamma_1 \Delta(\text{INF}_t) + \gamma_2 \Delta\ln(\text{KURS}_t) + \gamma_3 \Delta(\text{BIR}_t) + \gamma_4 \Delta\ln(\text{HMD}_t) + \gamma_5 \Delta\ln(\text{HED}_t)$$

$$+\gamma_6(\text{INF}_{t-1}) + \gamma_7\ln(\text{KURS}_{t-1}) + \gamma_8(\text{BIR}_{t-1}) + \gamma_9\ln(\text{HMD}_{t-1}) + \gamma_{10}\ln \text{HED}_{t-1}) + \gamma_{11}\text{ECT} + \varepsilon_{it}$$

where :

ISSI	: Indonesian Sharia Stock Index (Point)
INF	: Inflation (%)
EXCHANGE RATE	: Exchange Rate (Rupiah)
BEER	: BI Rate (%)
HMD	: World Crude Oil Price (US$ per Barrel)
HED	: World Gold Price (US$ per Ounce)
ECT	: Error Correction Term
$\gamma 0$	: $\lambda\beta 0$

$\gamma1, \gamma2, \gamma3, \gamma4, \gamma5$	: short-term regression coefficients INF, EXCHANGE, BIR, HMD and HED
$\gamma6$	: $-\lambda(1 - \beta1)$
$\gamma7$	: $-\lambda(1 - \beta2)$
$\gamma8$	: $-\lambda(1 - \beta3)$
$\gamma9$	: $-\lambda(1 - \beta4)$
$\gamma10$	: $-\lambda(1 - \beta5)$
λ	: adjustment coefficient
ε	: element of error (error term)
t	: year

III. RESEARCH METHODOLOGY

The analysis used to estimate the factors that influence the Indonesian stock index in this study used a regression model where we had to use two independent variables with multiple regression analysis equation model. The data that will be used in this study is secondary data in the form of time series data, obtained from February 2014-January 2022. The data collection in this study was done by opening literature studies and documents from previous research results and statistical data related to agriculture. In this study, using 5 variables consisting of the dependent variable including Inflation, Exchange, BI Rate, World Oil Jarga, World Gold Price.

The econometric model is as follows:

$$\Delta \ln(ISSIt) = \gamma_0 + \gamma_1\Delta(INF_t) + \gamma_2\Delta\ln(KURS_t) + \gamma_3\Delta(BIR_t) + \gamma_4\Delta\ln(HMD_t) + \gamma_5\Delta\ln(HED_t)$$

$$+\gamma_6(INF_{t-1}) + \gamma_7\ln(KURS_{t-1}) + \gamma_8(BIR_{t-1}) + \gamma_9\ln(HMD_{t-1}) + \gamma_{10}\ln HED_{t-1} + \gamma_{11}ECT + \varepsilon_{it}$$

where :	
ISSI	:Indonesian Sharia Stock Index (Point)
INF	:Inflation (%)
EXCHANGE RATE	:Exchange Rate (Rupiah)
BEER	:BI Rate (%)
HMD	:World Crude Oil Price (US$ per Barrel)
HED	:World Gold Price (US$ per Ounce)
ECT	:Error Correction Term
$\gamma0$	: $\lambda\beta0$
$\gamma1, \gamma2, \gamma3, \gamma4, \gamma5$	: short-term regression coefficients INF, EXCHANGE, BIR, HMD and HED
$\gamma6$	: $-\lambda(1 - \beta1)$
$\gamma7$	: $-\lambda(1 - \beta2)$
$\gamma8$	: $-\lambda(1 - \beta3)$
$\gamma9$	: $-\lambda(1 - \beta4)$
$\gamma10$	: $-\lambda(1 - \beta5)$
λ	: adjustment coefficient
ε	: element of error (error term)
t	: year

IV. RESULT / FINDING

Estimation results from the ECM . regression model

$$\Delta \ln(ISSIt) = 2.34 - 0.007INF_t - 0.867 KURS_t - 0.0223 BIR_t + 0.0285HMD_t + 0.77HED_t$$

$$-0.137 INF_{t-1} - 0.269 KURS_{t-1} - 0.134(BIR_{t-1}) - 0.107HMD_{t-1} - 0.181HED_{t-1} + 0.130 ECT + \varepsilon_{it}$$

Table 1. VIF Multi Multiolearity Test

Variable	VIF	Criteria	Information
INF	1.230383	<10	There is no multicollinearity problem
EXCHANGE RATE	1.401488	<10	There is no multicollinearity problem
BEER	1.492080	<10	There is no multicollinearity problem
HMD	1.524455	<10	There is no multicollinearity problem
HED	1.128675	<10	There is no multicollinearity problem

Source:Eviews 10 data processing results

From the table it can be seen that the VIF value is not more than 10, so it can be concluded that in the regression model there is no multicollinearity and the regression model is feasible to use..

Table 2. Heteroscedasticity Test

White White Test

F-statistics	3.137661 Prob. F(72,22)	0.0019
Obs*R-squared	86.56958 Prob. Chi-Square(72)	0.1160
Scaled explained SS	84.23371 Prob. Chi-Square(72)	0.1535

Source: Eviews 10 data processing results

The output results show the value of Obs*R-squared (Chi-Square) is86.56958while the probability value on the Chi-Square is0.1160> 0.05, it can be concluded that there is no heteroscedasticity problem.

Table 3. Linearity Test-Ramsey Reset

	Value	df	Pro
F-statistics	2.006715	(1, 82)	0.1604
Likelihood Ratio	2.296861	1	0.1296

Source: Eviews 10 data processing results

Linearity test used in this research is the Ramsey-Reset test with hypothesis formulation; : linear model (correct model specification) and : non-linear model (wrong model specification). The significance level ( ) used is 0.05 with the test criteria; accepted if F count or F statistic 0.05 and rejected if F count or F statistic > 0.05. The probability value of the test results is 0.1604 > 0.05 then it is accepted. It can be concluded that the model used is linear

Tables. 4 The Results of The Estimation of the Error Correction Model (ECM) Short-Term

Independent Variables	Coefficient	t-Statistic	Prob
D(INF)	-0.006493	-0.978725	0.3306
DLOG(EXCHANGE)	-0.868651	-6.129456	0.0000
D(BEER)	-0.022745	-1.141155	0.2571
DLOG(HMD)	0.028585	1.076131	0.2850
DLOG(HED)	0.078564	0.905446	0.3679
ECT	0.130056	2.584269	0.0115

| C | 2.316963 | 2.556817 | 0.0124 |

R-squared	0.470686
Adjusted R-squared	0.40536
F-statistics	6.709716
Prob(F-statistic)	0.000000
Durbin-Watson stat	1.963793

Source: Eviews 10 data processing results

The results of the ECM estimation above show that short-term changes in currency exchange rates have an effect on the Indonesian Sharia Stock Index while other variables have no effect.

Tables. 5 The Results of The Estimation of the Error Correction Model (ECM) Short-Term

Independent Variables	Coefficient	t-Statistic	Prob
INF(-1)	-0.047100	-0.703154	0.4840
LOG(EXCHANGE(-1))	-0.052696	-0.494981	0.6220
BEER(-1)	-0.048588	-0.699244	0.4865
LOG(HMD(-1))	-0.043862	-0.729892	0.4676
LOG(HED(-1))	-0.058915	-0.635218	0.5271
ECT	0.130056	2.584269	0.0115
C	2.316963	2.556817	0.0124

Source: Eviews 10 data processing results

The results of the ECM estimation above show that long-term changes in inflation, currency exchange rates, BI Rate, World Oil Prices and World Gold Prices have an effect on the Indonesian Sharia Stock Index.

V. DISCUSSION

Based on the results of the study, it shows that changes in the inflation rate in the short term (less than 1 year) have no effect on changes in the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of -0.00649. While in the long term (more than 5 years) changes in the government's inflation rate in the long term have a negative effect on changes in the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of -0.047100.

Based on the results of the study, it shows that changes in the exchange rate (exchange rate) in the short term (less than 1 year) have a negative effect on changes in the Indonesian Islamic stock index (ISSI) on the IDX with a coefficient of -0.868651. Whereas in the long term (more than 5 years) changes in exchange rates (exchange rates) to long-term changes potential negative effect on the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of as big as -0.052696

Based on the results of the study, it shows that the BI Rate in the short term (less than 1 year) has no effect on the Islamic stock price index (ISSI) on the IDX with a coefficient of -0.022745. While in the long term (more than 5 years) the BI Rate has a negative effect on changes in the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of -0.043862.

Based on the results of the study, it shows that the world oil price in the short term (less than 1 year) has no effect on the Islamic stock price index (ISSI) on the IDX with a coefficient of 0.028585. While in the long term (more than 5 years) World Oil Prices have a negative effect on changes in the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of -0.048588.

Based on the results of the study, the World Gold Price in the short term (less than 1 year) has no effect on the Islamic stock price index (ISSI) on the IDX with a coefficient of 0.078564. While in the long term (more than 5 years) the World Gold Price has a negative effect on changes in the Indonesian Sharia Stock Index (ISSI) on the IDX with a coefficient of -0.058915.

VI. CONCLUSION AND RECOMMENDATION

In the short term, only the exchange rate variable has an influence on the movement of the Indonesian Sharia Stock Index, while in the long term(more than 5 years)all variables affect the movement of the Indonesian Sharia Stock Index which includes Inflation, Exchange Rate, BI Rate, World Oil Prices, and World Gold Prices

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Analysis Of The Impact Index Of Human Development In The Province Of Bali And Factors Influencing It

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Abstract

The Human Development Index (HDI) is one of the most important indicators to measure success in efforts to build the quality of human life. HDI also plays an important role in the development of the modern economy because good human development can make production factors able to be maximized. A good quality population will be able to innovate to develop the existing production factors. In addition, high human development also results in an increase in the population so that it will increase consumption levels and will make it easier to increase economic growth. Badung Regency is a Regency in Bali Province that has been included in the high HDI category since 2017 with a value of 81.83. Meanwhile, districts with a medium HDI category are Bangli and Karangasem districts. Nevertheless, HDI achievements in all regencies/cities in the province of Bali have always increased in the last five years. This increase shows that the quality of human resources (HR) in Bali Province continues to increase. The improvement in the quality of human resources if used properly will certainly have a positive impact on the economy of the Province of Bali. This study focuses on 2017 to 2020 by observing several influencing variables, namely the district minimum wage, poverty, and education level. This study aims to analyze the magnitude of the influence of several variables in the model on the human development index in Bali in 2017-2020. And it can be concluded that the variables of Minimum Wage, Poverty, Education together affect the HDI in Bali Province, and the variables in the model affect the HDI by 99.86% and the remaining 0.14 is influenced by variables outside the model. The method that will be used in this research is quantitative method with panel data regression model. This research is expected to be a reference or information related to the Bali Province human development index that is used by related agencies or the community.

Keywords—Human Development Index; District Minimum Wage; Poverty; Education Level.

L. INTRODUCTION

Economic development in a region is the increase in people's income that occurs in the region, namely the increase in all added value that occurs in the region. The increase in income is measured in real value, meaning that it is measured in constant prices. It also describes the remuneration for production factors operating in the area. One of the factors that influence the economic development of a region is the human development index (HDI). HDI is an indicator of how to measure important aspects of the quality of human development and explains how people can access development outcomes in terms of income, health, education, and so on.

Badung Regency is a Regency in Bali Province that has been included in the high HDI category since 2017 with a value of 81.83. Meanwhile, regencies with moderate HDI category are Bali and Karangasem regencies. Nevertheless, HDI achievements in all regencies/cities in the province of Bali have always increased in the last five years. This increase shows that the quality of human resources (HR) in Bali Province continues to increase, so in this study we want to prove whether HDI is very influential on the development of the province of Bali.

The human development index (HDI) is one indicator to measure the level of physical and non-physical development of the physical quality of the population (andaiyani, 2012). The human construction index is a composite index that includes three alleged fields of human development from a physical and non-physical perspective of population quality. Differences in people's welfare levels can cause inequality between regions, so there must be a benchmark to analyze how much the Regency/City minimum wage (UMK) is influenced by the Human Development Index (IPM) in the province of Bali 2017-2020. The table is related to the HDI of the Province of Bali in 2017-2020.

Table 1. Bali Province Human Development Index 2017-2020

Tahun	IPM
2017	74,30
2018	74,77
2019	75,38
2020	75,50

II. LITERATURE REVIEW

A. *Human Development Index (HDI)*

The Human Development Index (HDI) is a compositional index based on three indicators: health, education and standard of living (Arsyad, 2010). The Human Development Index (IPM) is an aggregate measure of the basic dimensions of human development by looking at its development. The calculation of HDI as an indicator of human development has important objectives, including:

  a. Establish indicators that measure the basic dimensions of human development and the expansion of freedom of choice.
  b. Utilize a number of indicators to keep the measure simple.
  c. Form a single composite index instead of using a number of base indices.
  d. Create a measure that includes social and economic aspects. The index is a basic index that
  e. composed of the following dimensions:
  f. Long life and healthy life, with life expectancy indicators;
  g. Knowledge, as measured by literacy rates and a combination of school enrollment rates for
  h. elementary, middle and high levels; and
  i. A decent standard of living, with an indicator of GRDP per capita in the form of Purchasing Power Parity (PPP).

The concept of Human Development developed by the United Nations (UN), assigns a ranking of human development performance on a scale of 0.0 – 100.0 with the following categories:
High: HDI more than 80.0
Upper Middle: HDI between 66.0 – 79.9
Lower middle: HDI between 50.0 – 65.9
Low   : HDI less than 50.0.

B. *District Minimum Wage (UMK)*

UMK stands for City/Regency Minimum Wage. UMK is the lowest monthly wage consisting of basic wages and fixed allowances. Wages are money and so on which are paid as payers or as payers who have been assigned to do something, wages, rewards, rewards (actions), risks (Indonesian dictionary, 2002:1250).

Wage is the right of the worker/labourer that is received and expressed in money as payment from the employer or employer to the worker/laborer who is already established and paid in accordance with the work agreement, agreement, or statutory regulations, including allowances for the worker/labourer and his/her family for a job and/or service that has been or will be performed (Article 1 number 30 of manpower number 13 of 2003 concerning manpower).

C. *Poverty (KEM)*

The definition of poverty in a broad sense is the limitations carried by a person, a family, a community, or even an area that causes discomfort in life. The poverty rate according to the Central Statistics Agency (BPS) is the percentage of the population below the poverty line in each district/city in Central Java. The poverty line which is the basis for calculating the number of poor people is determined by two criteria, namely consumption expenditure per capita per month which is equivalent to 2100 calories per capita per day and the minimum value for non-food commodities.

Robert Chamber (2010) said that poverty is an integrated concept that has five dimensions, while the five dimensions form a deprivation trap, namely:

a. poverty itself,
b. powerlessness (powerless),
c. vulnerability to emergency situations (state of emergency),
d. dependency, and
e. isolation, both geographically and sociologically.

Poverty is one of the diseases in the economy of a region. Poverty is complex, meaning that poverty does not appear suddenly, but has a fairly long and complex background so that it is very difficult to find out the root of the problem of poverty itself, while poverty is multidimensional, meaning that it is seen from the many diverse human needs, so poverty also has various aspects. primary in the form of poverty of assets, socio-political organization, knowledge, and skills, and secondary assets in the form of poverty of social networks, financial resources, and information. As a result of the nature of poverty, it is illustrated in the form of malnutrition, inadequate water and housing, poor health services, and low levels of education. The pattern of poverty according to SumitroDjojohadikusumo (1995) is divided into four parts, namely:

a. -Persistent poverty, namely poverty that has been chronic or hereditary
b. -Cyclical poverty, namely poverty that follows the pattern of the overall economic cycle
c. -Seasonal poverty, namely seasonal poverty as found in the case of fishermen and food crop farmers
d. -Accidental poverty, namely poverty due to natural disasters or the impact of a certain policy that
e. causes a decrease in the level of welfare of the population.

Meanwhile, according to Ragnar Nurkse (1953) and MudrajatKuncoro (1997) they divide poverty simply and generally into several measures:

a. Absolute Poverty Individuals or groups, which are included in the absolute poverty measure if their
b. income is below the poverty line and is not sufficient to meet their basic needs. This measure is
c. used to determine the minimum level of income that is sufficient to meet basic needs, such as food,
d. clothing, and shelter to survive.
e. Relative Poverty Individuals or groups, which are included in the relative poverty measure if their
f. basic needs have been met, but are still much lower than the situation
g. surrounding community. Based on this measure, the poverty line will change if the level of people's
h. lives changes, so that the measurement of poverty is relatively dynamic or will always exist.
i. Individual or group cultural poverty, which is included in the measure of cultural poverty if the
j. individual or group does not want to try to improve their level of life even though there are efforts
k. from other parties or there are opportunities, in other words the individual or group is poor because
l. of their own attitude, namely lazy and not there is an effort to improve his life to a better condition

D. Level of education

The level of education according to Lestari in Wirawan (2016) is an activity of a person in developing his abilities, attitudes and forms of behavior, both for future life where through certain organizations or not organized. Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state (Republic of Indonesia). Indonesia. 2003. Law No. 20 of 2003 concerning Education. No. 1.)

Feni in Kosilah&Septian (2020, 1139) Education is guidance or assistance given by adults to the development of children to reach maturity with the aim that children are capable enough to carry out their own life tasks, not with the help of others, "continued Hariandja in Nuruni (2014). :14) added that the education level of an employee can increase the company's competitiveness and improve company performance, his potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself, society, nation and state. Education is a process that aims to increase skills, knowledge and increase independence and the formation of one's personality (Arfida, 2003). It can be concluded from the above understanding that education is a process or effort for individuals to add higher knowledge and understanding that is needed by themselves, society, nation and state.

E. Past Research:

Research conducted by Pradnyadewi, D., & Purbadharmaja, I. B. (2017) entitled The influence of HDI, infrastructure costs, investment and economic growth on income distribution inequality in the province of Bali. In this study it was found that the HDI directly and significantly affect economic growth. Infrastructure costs and economic growth have a direct and significant impact on the inequality of income distribution. While HDI and investment have no significant effect on income distribution inequality. Economic growth is a variable that intervenes in the indirect effect of HDI and infrastructure costs on the unequal distribution of income.

Research conducted by Alhudhori, M. (2017). The title is The Effect of HDI, GRDP and the number of unemployed on the poor in Jambi Province. Economical. Based on multiple linear regression analysis, HDI has a positive relationship to the poor, where if the HDI increases by 1 percent, the number of poor people will increase by 0.358.

Research conducted by Susanto, A. B. (2013), entitled The Effect of Human Development Index (HDI) and Inflation on Economic Growth in Lamongan Regency. The econometric model hypothesis is used with the OLS (Ordinary Least Square) method. From the results of the analysis it can be concluded that the HDI and inflation variables based on the results of simultaneous testing, all variables simultaneously have a significant effect on economic growth in Lamongan Regency.

Research conducted by Saputra, W. A., & Mudakir, Y. B. (2011) with the title Analysis of the influence of population, GDP, HDI, unemployment on poverty levels in districts/cities of Central Java. The regression model used is Ordinary Least Square Regression using panel data using a fixed effect approach. This study uses a dummy year as one of the variables. From the research, it can be concluded that the Human Development Index has a negative and significant effect on the poverty rate in Central Java and unemployment negatively and significantly affects the poverty rate in Central Java.

III. RESEARCH METHODOLOGY

The data collection method in this study used secondary data obtained from the Central Statistics Agency in 2017 to 2020 using the Quantitative panel data regression method with the following equation following :

$$IPM_{it} = \beta_0 + \beta_1 UMK_{it} + \beta_2 KEM_{it} + \beta_3 TP_{it} + \varepsilon_{it}$$

Where :

HDI	= Human Development Index
UMK	= District Minimum Wage (Rupiah)
KEM	= Poverty (Rupiah)
TP	= Education Level (%)
β_0	= Constant
$\beta_1 .. \beta_3$	= Regression coefficient of independent variable
i	= District/City to i
t	= Year t
ε	= Error term (error factor)

The estimation stages of the econometric model above will include: estimation of model parameters using the Pooled Least Square (PLS) or Common Effect Mode (CEM) approach, Fixed Effect Model (FEM), and Random Effect Model (REM); selection of the best estimated model using the Chow test and Hausman test; test the goodness of the model on the selected model ; and test the validity of the effect of the independent variable on the selected model.

A. Common Effect Model (CEM)

The Common Effect Model or Pooled Least Square is the simplest panel data model approach, by combining time series data and cross section data. This model does not pay attention to the dimensions of time or individuals, so it can be assumed that the behavior of the data between individuals is the same in various time periods (Basuki, 2014). This method can use the Ordinary Least Square (OLS) approach. According to Gujarat (2012) OLS is a regression method that minimizes the number of squared errors.

B. Fixed Effect Model (FEM)

Fixed Effect Model (FEM) is a model with a different intercept for each subject (cross section), but the slope of each subject does not change over time (Gujarati, 2012). This model assumes that the intercept is different in each subject, while the slope remains the same between subjects. In differentiating one subject from another, a dummy variable is used (Kuncoro, 2011). This estimation model is also known as the least Square Dummy Variable (LSDV) model.

C. Random Effect Model (REM)

REM is a method that can be interpreted as individual effects that are assumed to be random. REM is more accurately estimated using the generalized least square (GLS) method because of the potential correlation between the disturbance variables in the equation. In the random effect model, the intercept value is assumed to be random from a large population value by taking into account errors from the cross section and time series. There are weaknesses in the fixed effect model resulting in reduced efficiency of 40 parameters, which can be overcome by random effects using the Generalzed Least Square (GLS) model (Gujarati and Porter, 2012).

D. Selection of Panel Data Regression Estimation Test

Chow test

Chow test is a test to determine the best model between Common Effect Model (CEM) and Fixed Effect Model (FEM). If the result states that the null hypothesis is accepted, then the best model is CEM. But if the results reject the null hypothesis, then the best to use is FEM.

Hausman test

Hausman test aims to determine the Random Effect Model (REM) or Fixed Effect Model (FEM) to be used

Lagrange Multiplier (LM) Test

The Lagrange Multiplier (LM) test aims to compare and choose which model is the best between the Common Effect Model (CEM) and the Random Effect Model (REM).

E. Hypothesis testing

Simultaneous Significance Test (F Test)

The F test was conducted to see how much influence the independent variable had on the dependent variable as a whole. The hypothesis to test this is as follows:

a. If the calculated F probability value < 0.05 then Ho is rejected, meaning that overall there is an
b. influence of the independent variable on the dependent variable.
c. If the calculated F probability value > 0.05 then Ho is accepted, so that together or as a whole there is no effect of the independent variable on the dependent variable.

Partial Significance Test (t Test)

The test used to see how far the influence of one variable individually in the related variables is described. The characteristics of the test used at the level = 5% are as follows:

a. If the probability value < 0.05 then Ho is rejected, so the independent variable has a significant effect on the related variable.

b. If the probability value > 0.05 then Ho is accepted, so that the independent variable has no significant effect on the specified variable.

Regression Coefficient (Adjusted R^2)

Adjusted R^2 is used to measure how large the independent variable is able to explain the related variable. Adjusted R^2 is used because the value obtained is the corrected R^2 value so that the results are not biased.

IV. RESULT / FINDING

Table 1.
Regression Data Panel
CEM
Dependent Variable: HDI
Method: Least Squares Panel
Date: 06/11/22 Time: 14:12
Samples: 2017 2020
Periods included: 4
Cross-sections included: 9
Total panels (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.98512	11.25825	1.508683	0.1412
UMK	-1.71E-06	1.65E-06	-1.035380	0.3083
KEM	3.43E-05	7.78E-06	4.404318	0.0001
PEN	0.511536	0.147398	3.470433	0.0015

R-squared	0.882963	Mean dependent var	74.17306
Adjusted R-squared	0.871991	S.D. dependent var	5.350214
S.E. of regression	1.914219	Akaike info criterion	4.240936
Sum squared resid	117.2555	Schwarz criterion	4.416882
Log likelihood	-72.33684	Hannan-Quinn criter.	4.302346
F-statistic	80.47267	Durbin-Watson stat	0.206205
Prob(F-statistic)	0.000000		

Table 2.
FEM

Dependent Variable: HDI
Method: Least Squares Panel
Date: 06/11/22 Time: 14:13
Samples: 2017 2020
Periods included: 4
Cross-sections included: 9
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	69.72534	4.186383	16.65527	0.0000
UMK	3.28E-06	5.40E-07	6.075980	0.0000
KEM	-1.08E-05	4.61E-06	-2.346346	0.0275
PEN	0.012599	0.043840	0.287385	0.7763

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998601	Mean dependent var	74.17306
Adjusted R-squared	0.997960	S.D. dependent var	5.350214
S.E. of regression	0.241678	Akaike info criterion	0.258784
Sum squared resid	1.401803	Schwarz criterion	0.786624
Log likelihood	7.341887	Hannan-Quinn criter.	0.443014
F-statistic	1557.162	Durbin-Watson stat	2.353113
Prob(F-statistic)	0.000000		

Table 3. REM

Dependent Variable: IPM
Method: Panel EGLS (Cross-section random effects)
Date: 06/11/22   Time: 14:13
Sample: 2017 2020
Periods included: 4
Cross-sections included: 9
Total panel (balanced) observations: 36
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56.82010	3.759783	15.11260	0.0000
UMK	1.51E-06	4.67E-07	3.229390	0.0029
KEM	4.84E-06	3.93E-06	1.232189	0.2269
PEN	0.128371	0.040107	3.200746	0.0031

Effects Specification			
		S.D.	Rho
Cross-section random		2.098269	0.9869
Idiosyncratic random		0.241678	0.0131

Weighted Statistics			
R-squared	0.707189	Mean dependent var	4.264557
Adjusted R-squared	0.679737	S.D. dependent var	0.644937
S.E. of regression	0.364981	Sum squared resid	4.262761
F-statistic	25.76178	Durbin-Watson stat	1.204267
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.360496	Mean dependent var	74.17306
Sum squared resid	640.6982	Durbin-Watson stat	0.008012

Table 4. Uji Chow

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	247.938634	(8,24)	0.0000
Cross-section Chi-square	159.357461	8	0.0000

Cross-section fixed effects test equation:
Dependent Variable: IPM
Method: Panel Least Squares
Date: 06/11/22   Time: 14:14
Sample: 2017 2020
Periods included: 4
Cross-sections included: 9
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.98512	11.25825	1.508683	0.1412
UMK	-1.71E-06	1.65E-06	-1.035380	0.3083
KEM	3.43E-05	7.78E-06	4.404318	0.0001
PEN	0.511536	0.147398	3.470433	0.0015

R-squared	0.882963	Mean dependent var	74.17306
Adjusted R-squared	0.871991	S.D. dependent var	5.350214
S.E. of regression	1.914219	Akaike info criterion	4.240936
Sum squared resid	117.2555	Schwarz criterion	4.416882
Log likelihood	-72.33684	Hannan-Quinn criter.	4.302346
F-statistic	80.47267	Durbin-Watson stat	0.206205
Prob(F-statistic)	0.000000		

Table 5. Uji Hausman

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	43.981913	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
UMK	0.000003	0.000002	0.000000	0.0000
KEM	-0.000011	0.000005	0.000000	0.0000
PEN	0.012599	0.128371	0.000313	0.0000

Cross-section random effects test equation:
Dependent Variable: IPM
Method: Panel Least Squares
Date: 06/11/22   Time: 14:15
Sample: 2017 2020
Periods included: 4

Cross-sections included: 9
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	69.72534	4.186383	16.65527	0.0000
UMK	3.28E-06	5.40E-07	6.075980	0.0000
KEM	-1.08E-05	4.61E-06	-2.346346	0.0275
PEN	0.012599	0.043840	0.287385	0.7763

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998601	Mean dependent var	74.17306
Adjusted R-squared	0.997960	S.D. dependent var	5.350214
S.E. of regression	0.241678	Akaike info criterion	0.258784
Sum squared resid	1.401803	Schwarz criterion	0.786624
Log likelihood	7.341887	Hannan-Quinn criter.	0.443014
F-statistic	1557.162	Durbin-Watson stat	2.353113
Prob(F-statistic)	0.000000		

Table 6. Uji T

Variabel	Coefficient	Prob.	Alfa	Kesimpulan
UMK	3,28E-06	0,0000	< 0,01	Significant at 0.01 . alpha
KEM	-1,08E-05	0,0275	< 0,05	Significant at 0.05 . alpha
PEN	0,012599	0,7763	>0,10	Not Significant at alpha 0.10

Table 7. Uji F dan R-square

Uji F	0,0000	Variables Minimum Wage, Poverty, Education together affect the HDI
R-Square	0,9986	Variables in the model affect HDI by 99.86% and the remaining 0.14 is influenced by variables outside the model.

Variabel	PLS	FEM	REM
C	16.98512 (0.1412)	69.72534 (0.0000)	56.82010 (0.0000)
UMK	-1.71E-06 (0.3083)	3.28E-06 (0.0000)	1.51E-06 (0.0029)
KEM	3.43E-05 (0.0001)	-1.08E-05 (0.0275)	4.84E-06 (0.2269)
PEN	0.511536 (0.0015)	0.012599 (0.7763)	0.128371 (0.0031)
0,0000			
0,9986			

Table 8. Uji F dan R-square

Uji F	0,0000	Variables Minimum Wage, Poverty, Education together affect the HDI

R-Square	0,9986	Variables in the model affect HDI by 99.86% and the remaining 0.14 is influenced by variables outside the model.

V. Discussion

On the results of the Chow test, which shows that the probability value of the resulting Chi square cross section is 0.0000. These results indicate that the probability value is less than 5% (0.05), so it can be concluded that the Fixed Effect Model is the chosen model. Hausman test results show that the probability value of a random cross section is 0.0000. These results indicate that the probability value is less than 5% (0.05), so it can be concluded that the Fixed Effect model was selected in the Hausman test.

While the regression results show that the district minimum wage has a significant effect of 0.0000 (<0.01) which shows a positive influence on the human development index in Bali Province with a coefficient of 3.28E-06. The results conclude that when the minimum wage increases by 1 rupiah, income inequality will increase by 3.28E-06%. The regression results show that poverty has a significant effect of 0.0275 (<0.05) which shows a negative influence on the human development index in Bali Province with a coefficient of -1.08E-05. The results conclude that when poverty increases by 1 rupiah, income inequality will decrease by 1.08E-05%.

The regression results show that education has a significant effect of 0.7763 (> 0.10) which shows a positive influence on the human development index in Bali Province with a coefficient of 0.012599. The results conclude that when education increases by 1 percent, income inequality will increase by 0.012599%.

VI. Conclusion

This study uses panel data regression method so that the significant variables are the district minimum wage of 0.0000 (<0.01), poverty of 0.0275 (<0.05), education of 0.7763 (>0.10). The F test in this study is 0.0000 so it can be interpreted that all variables together have an effect on HDI. R-Square is 0.9986 so that in this study the variables in the model have an effect of 99.86%.

The variables of Minimum Wage, Poverty, Education together have an effect on HDI. And the variables in the model affect HDI by 99.86% and the remaining 0.14 is influenced by variables outside the model. and in this study the best method chosen is the Fixed Effect Model (FEM). so that the human development index (HDI) is very influential on the province of Bali because by increasing the development index (IPM) it can increase the development of the province of Bali.

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Pharmaceutical Firm Profitability : A Descriptive Analysis During The Covid-19 Pandemic in Indonesia

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Abstract

This study aims to analyze pharmaceutical firm profitability during Covid-19 pandemic in Indonesia. During the Covid-19 period, the pharmaceutical industry was facing the demand for pharmaceutical products related to the treatment of Covid-19 experienced a significant increase, but on the other hand, the demand for products that were indirectly related to Covid-19 did not experience growth or even decreased. This study improves the existing literature on profitability in which includes factors effecting it (firm growth, market power, liquidity, firm size) based on quarterly financial statements. The studies used this industry and this scope of factors remains limitedThe study period is January 2018 – December 2019 as period before Covid-19 and January 2020 – December 2021 as period during Covid-19. The data used is secondary data from the quarterly financial statements of selected nine pharmaceutical firms listed on the Indonesia Stock Exchange. Firm profitability is measured by ROA and ROE. Firm growth, market power, liquidity, firm size used in various researches as factors affecting profitability are also being analyzed in this study. A descriptive statistic is used to analyze the data. The results show that during pandemic firms continue to grow positively and increase the size even though the growth rate is lower. Firms tends to be less liquid and becomes more competitive facing fierce condition. Pharmaceutical companies in Indonesia can maintain profitability during pandemic but it is important to have a diversified portfolio which can fulfill the market demand.

Keywords— Profitability; Indonesia; Pharmaceutical; Covid-19

I. INTRODUCTION

The Covid-19 pandemic in Indonesia has caused more than 1.3 million people starting from the first case published in March 2020. The pandemic has an impact on various sectors, one of which is the pharmaceutical sector. Most of the national pharmaceutical raw materials depend on imports. The lockdown in raw material supplying countries has hampered the supply of national pharmaceutical raw materials. This condition certainly disrupts the business processes of pharmaceutical companies. During the Covid-19 period, the pharmaceutical industry was facing the demand for pharmaceutical products related to the treatment of Covid-19, such as prescribed medicine and supplement, experienced a significant increase, but on the other hand, the demand for pharmaceutical products that were indirectly related to Covid-19 did not experience growth or even decreased.

The industrial sector still provides the largest contribution to the structure of the national gross domestic product (GDP). Even though in the midst of a contraction in the national economy, the manufacturing industry sector still recorded positive performance, including the chemical, pharmaceutical and traditional medicine industries. The pharmaceutical industry is on the top five largest contributors from non-oil and gas manufacturing industry to the Indonesian economy. The value and GDP growth of the chemical, pharmaceutical and traditional medicine industries still grow during the pandemic.

According to data from the Ministry of Health, until 2021 there are 241 pharmaceutical manufacturing industries, 17 pharmaceutical raw material industries, 132 traditional medicine industries, and 18 natural product extraction industries. The pharmaceutical manufacturing industry consists of four state-owned companies, namely PT Bio Farma Tbk (as holding), PT Kimia Farma Tbk, PT Indofarma Tbk, and PT. Phapros Tbk and there are at least 195 national private industries, as well as 24 multinational companies (MNCs). Picture 1.1 shows the top 10 pharmaceutical companies in Indonesia based on sales value.
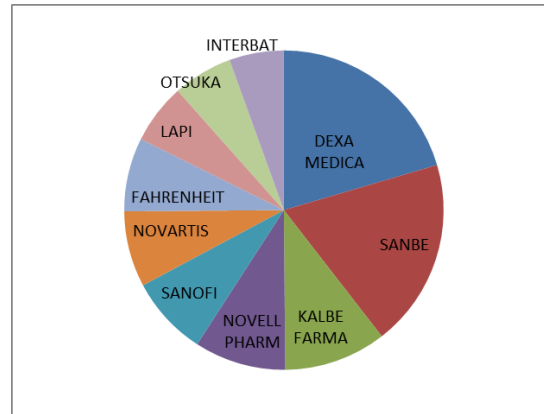
Fig 1. Top 10 Pharmaceutical Companies in Indonesia (Source : IMS Q4 2021)

One of the important goals of company management is to maximize financial and operational performance, because this will affect the company's stock price, company market value, owner's wealth and number of investors (Lessambo, 2018). The main objectives of the company in general is to maximize company profits. Without profit, it will be difficult for the company to achieve company targets. If the company performance increases, this can be seen from the incessant company's activities to produce profit (Kaylsi & Khoiruddin, 2021). The Covid-19crisis brought enormous changes in financial position and business performance. For the pharmaceutical companies effects in 2020 are twofold. Their operations stayed stable, but average profitability decreased (Tusek, 2021). Therefore, it is important to understand the profitability of pharmaceutical firms and factors affecting it so firms can still manage to maximize their profit and performance during crisis.

II. LITERATURE REVIEW

A. Fundamental Theories

Sustainable financial performance is a key success factor for any organization (Liu, 2020). It is important to measure the company's performance continuously, and try to improve it by updating plans, improving operating techniques, measuring output, identifying the impact of resource use on financial performance, minimizing company risk, and being prepared to face conditions of uncertainty. Firm performance is used as the dependent variable in many studies. The company's performance represents the company's ability, effectiveness and efficiency when using its resources to produce output. Company performance is a set of partial organizational effectiveness, which includes the financial and operational output of the company (Lessambo, 2018).

The income statement provides very useful information about the profitability of a company's business enterprise and how it relates to the value of the company's stock. Profitability ratios show a company's operating or net income as a share of sales, and they are an indication of the company's efficiency and pricing strategy (Berk, DeMarzo, & Harford, 2012). ROA measures the profit derived from the value of its assets, which can be calculated from net income divided by total assets. ROE measures how the fate of shareholders during the year, which can be calculated from net income divided by total equity (Ross, Westerfield, & Jordan, 2016).

B. Previous empirical studies

There have been several previous studies conducted regarding factors related to firms profitability from various industrial sectors as well as research related to the implications of Covid-19 on business and the economy. Lim and Rokhim (2020) found that liquidity, firm size, market power has significant relationship to profitability measured by ROA and ROE of pharmaceutical companies in Indonesia after the implementation of universal health coverage from the Indonesian government. Alarussi and Alhaderi (2018) also found firm size (total sales) has strong relationship to profitability in Malaysia. Jreisat & Bawazir (2021) conclude that there is a significant positive relationship between bank size and profitability (ROE).

As long as the business is operating, companies tend to grow and enlarge in size which gives them perfect control over the business environment. Growth (size) is highly desirable for corporate firms to stay in business or else the dynamic competitive forces of the market will reduce them to non-entities (Yadav et al., 2020). A study on banking profitability by examining the impact of competition found that lower level of competition in the market leads to increased profitability of Chinese commercial banks (Tan, 2017). Eladly (2021) in his

research found that there was a significant positive linear relationship between the standard deviation of equity returns on liquidity. Liquidity is valuable. The more liquid a business is, the less likely it is to experience financial distress (Ross, Westerfield, & Jordan, 2016).

III. RESEARCH METHODOLOGY

A descriptive research design is applied in this research to describe the profitability of pharmaceutical firms in Indonesia. The sampling technique in this study is purposive sampling on the consideration of certain characteristics. This study selects nine listed pharmaceutical firms in Indonesia within the years 2018 until 2020 as the sample. These companies are listed in Indonesia Stock Exchange (www.idx.co.id) based on the health sector in accordance with the JASICA (Jakarta Stock Exchange Industrial Classification) classification which was then selected only for those engaged in the pharmaceutical sector and registered for an IPO before 2020. Quarterly financial statement is taken from Thomson Reuters Datastream as well as obtained directly from the firm. Further, it's categorized into two periods which are 2018-2019 as the period before the Covid-19 pandemic and 2020-2021 as the period during the Covid-19 pandemic.

Table 1.Selected Nine Pharmaceutical Companies Listed in Indonesia Stock Exchange

No	Firm Code	Firm Name	Listing Date
1	DVLA	Darya-Varia Laboratoria Tbk.	11 Nov 1994
2	INAF	Indofarma Tbk.	17 Apr 2001
3	KAEF	Kimia Farma Tbk.	04 Jul 2001
4	KLBF	Kalbe Farma Tbk.	30 Jul 1991
5	MERK	Merck Tbk.	23 Jul 1981
6	PEHA	Phapros Tbk.	26 Des 2018
7	PYFA	Pyridam Farma Tbk.	16 Okt 2001
8	SIDO	Industri Jamu dan Farmasi Sido	18 Des 2013
9	TSPC	Tempo Scan Pacific Tbk.	17 Jun 1994

Source : Indonesia Stock Exchange (2021)

The variables and proxy measurements used in this study are ROA, ROE, firm growth (sales growth), market power (lerner index), liquidity (current ratio), firm size (total sales). The following formula used to calculate each variable.

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} \times 100\% \tag{1}$$

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Total equity}} \times 100\% \tag{2}$$

$$\text{Current ratio} = Log \frac{\text{Current asset}}{\text{Current liabilities}} \tag{3}$$

$$\text{Sales Growth} = Log \frac{(\text{revenue of current year - revenue of previous year})}{\text{revenue of previous year}} \tag{4}$$

$$\text{Lerner Index} = \frac{(\text{revenue – cost of goods sold})}{\text{revenue}} \tag{5}$$

IV. RESULT / FINDING

Table 2 shows the research on 70 observations. The average ROA of pharmaceutical companies in Indonesia before the Covid-19 pandemic showed a value of 2.1772 with a maximum value of 6.7907 and a standard deviation of 1.9605. ROE has an average of 3.1761 with a maximum value of 10.3009 and a standard deviation of 2.9513. Growth has a mean of 0.1010 with a maximum value of 2.6122 and a standard deviation of 0.5224. Lerner index has a mean of 0.4569 with a maximum value of 0.6160 and a standard deviation of 0.1191. Current ratio has a mean of 2.3715 with a maximum value of 2.9021 and a standard deviation of 0.2450. Size has a mean of 8.7860 with a maximum value of 9.7644 and a standard deviation of 0.6076.

Table 2. Descriptive Statistical Analysis (2018-2019)

Parameter	ROA	ROE	Growth	Lerner	Current Ratio	Size
Mean	2.1772	3.1761	0.1010	0.4569	2.3715	8.7860
Median	2.0125	3.5139	0.0299	0.4731	2.4280	8.6905
Maximum	6.7907	10.3009	2.6122	0.6160	2.9021	9.7644
Minimum	-2.3202	-7.1946	-1.4470	0.0954	1.9811	7.7600
Std. Dev.	1.9605	2.9513	0.5224	0.1191	0.2450	0.6076

Table 3 shows the research on 71 observations. The average ROA of pharmaceutical companies in Indonesia during the Covid-19 pandemic showed a value of 2.1974 with a maximum value of 9.9565 and a standard deviation of 2.5442. Meanwhile, ROE showed a decrease with an average of 2.9922 with a maximum value of 11.8650 and a standard deviation of 2.5442. Profitability in the period before the Covid-19 pandemic varied between the two proxies. ROA is higher during the Covid-19 period and the distance between maximum and minimum is also longer. In contrast to ROA, ROE in the period before the Covid-19 pandemic was higher with the distance between the maximum and minimum also relatively longer. Growth shows a decrease in sales growth compared to before the Covid-19 pandemic with an average of 0.0950 with a maximum value of 2,2002 and a standard deviation of 0.4173. Lerner index has decreased during the Covid-19 pandemic by an average of 0.4332 with a maximum value of 0.6547 and a standard deviation of 0.1192. This shows that there is higher competition during the Covid-19 pandemic. Current ratio has a mean of 2.3618 with a maximum value of 2.7724 and a standard deviation of 0.2540. The firm was listed as more liquid in the period before the Covid-19 pandemic. Size has an average of 8.8439 with a maximum value of 9.8600 with a standard deviation of 0.5868 which indicates that the market size is getting bigger than before the Covid-19 pandemic.

Table 3. Descriptive Statistical Analysis (2020-2021)

Parameter	ROA	ROE	Growth	Lerner	Current Ratio	Size
Mean	2.1974	2.9922	0.0950	0.4332	2.3618	8.8439
Median	1.5066	3.3780	0.0511	0.4470	2.4455	8.7398
Maximum	9.9565	11.8650	2.2002	0.6547	2.7724	9.8600
Minimum	-2.0100	-7.9500	-0.9000	-0.0300	1.9489	7.6287
Std. Dev.	2.5442	3.6452	0.4173	0.1192	0.2540	0.5868

Table 4 shows a comparison of the minimum and maximum data by firm between before and during the Covid-19 pandemic period. From a profitability perspective, Indofarma Tbk, a state-owned firm, had the lowest performance compared to other pharmaceutical companies in Indonesia both in the period before and during the Covid-19 pandemic. Meanwhile, Merck Tbk had the best performance in the period before the Covid-19 pandemic and was replaced by the Sido Herbal and Pharmaceutical Industry as the firm with the best performance during the Covid-19 pandemic period.

In terms of firm growth, Indofarma Tbk had the best performance in the period before and during the Covid-19 pandemic, while Merck Tbk had the lowest performance in the period before the Covid-19 pandemic and Tempo Scan Pacific Tbk in the period during the Covid-19 pandemic. Indofarma Tbk consistently has the lowest market power as indicated by the lowest lerner index both in the period before and during the Covid-19

pandemic, while Phapros Tbk. had the best market power in the period before the Covid-19 pandemic and was replaced by Pyridam Farma Tbk in the period during the Covid-19 pandemic. In terms of liquidity, it is shown that the data is quite varied with Phapros Tbk and Kimia Farma Tbk, both of which are also state-owned companies, being the companies with the lowest liquidity in the period before the Covid-19 pandemic. Meanwhile, Sido's Herbal and Pharmaceutical Industry was the most liquid firm in the period before the Covid-19 pandemic and was replaced by Pyridam Farma Tbk in the period during the Covid-19 pandemic. Pyridam Farma Tbk is consistent as the smallest firm in terms of firm size, while Kalbe Farma Tbk. consistently as the largest firm both in the period before and during the Covid-19 pandemic.

Table 4. Comparison of Minimum and Maximum Data by Firm

Variable	Minimum				Maksimum			
	2018-2019		2020-2021		2018-2019		2020-2021	
	Firm	Month-Year	Firm	Month-Year	Firm	Month-Year	Firm	Month-Year
ROA	Indofarma Tbk.	Sep-2018	Indofarma Tbk.	Dec-2021	Merck Tbk.	Dec-2019	Industri Jamu dan Farmasi Sido	Sep-2021
ROE	Indofarma Tbk.	Sep-2018	Indofarma Tbk.	Dec-2021	Merck Tbk.	Dec-2019	Industri Jamu dan Farmasi Sido	Sep-2021
Growth	Merck Tbk.	Mar-2018	Tempo Scan Pacific Tbk.	Dec-2021	Indofarma Tbk.	Dec-2019	Indofarma Tbk.	Dec-2020
Lerner	Indofarma Tbk.	Sep-2018	Indofarma Tbk.	Dec-2021	Phapros Tbk.	Sep-2018	Pyridam Farma Tbk.	Jun-20
Current Ratio	Phapros Tbk.	Mar-2019	Kimia Farma Tbk.	Sep-2020	Industri Jamu dan Farmasi Sido	Mar-2018	Pyridam Farma Tbk.	Mar-2021
Size	Pyridam Farma Tbk.	Jun-2019	Pyridam Farma Tbk.	Jun-2020	Kalbe Farma Tbk.	Jun-2019	Kalbe Farma Tbk.	Dec-2021

V. DISCUSSION

The study results indicate that pharmaceutical firms still manage to maintain profitability in the midst of pandemic Covid-19. Compare to before pandemic, it is found that the average of ROA is slightly increased. The increase of ROA means increase of return rate and it indicates better performance. On the other hand, ROE found to be decreased. It suggests the firms are becoming less efficient at creating profits and increasing shareholder value. For better firm performance of pharmaceutical sector particularly in Indonesia, the implementations of innovative capabilities are very important (Andjarwati, 2020). The pharmaceutical industry is required to have a diversified product portfolio since the Covid-19 pandemic has change consumer behavior and the demand (Erlangga et al., 2020; Ayati et al., 2020). Pharmaceutical firms should gain momentum to create breakthrough products which also fulfill the need for Covid-19 related drugs.

Firms continue to grow positively even though the growth rate is lower during the pandemic. The slowdown in growth can be more due to the entry of newer medications since the priorities of pharmaceutical firms change in their portfolio to meet the market demand. Supply shortage of both active pharmaceutical ingredients (APIs) and finished products may have contributed slow-down in production thus price increase in essential prescription medicines, including antibiotics (Ayati et al., 2020). The market power tend to be more competitive during the pandemic as indicated by the lower Lerner index. The current global crisis due to Covid-19 has made product market competition fiercer, which ultimately affects the firm's performance (Liu et al, 2022). Firms become less liquid during pandemic. The emergence of the Covid-19 pandemic further worsened liquidity where the cash ratio and current ratio decreased (Karim et al., 2021). In terms of size, it is showed that firms becoming much

larger despite the pandemic situation. According to sales record in 2021 from IMS, despite slowdown in prescription drugs, supplement, herbal and over the counter products show a significant growth during pandemic. Thus, it is obvious that Industri Jamu and Farmasi Sido which its main products are supplement, herbal and over the counter be the most profitable firms during pandemic.

VI. Conclusion and Recommendation

The objective of this study was to analyze pharmaceutical firm profitability during Covid-19 pandemic in Indonesia. Profitability, measured by ROA and ROE, and its factors (firm growth, market power, liquidity, firm size) are included in the analysis. The data was collected from the quarterly annual statement of selected nine pharmaceutical firms in Indonesia listed in Indonesia Stock Exchange. A descriptive research design is applied in this research. The findings indicated that pharmaceutical firms still manage to maintain profitability in the midst of pandemic Covid-19. Firms continue to grow positively and increase the size even though the growth rate is lower. Firms are becoming more competitive facing fierce situations due to pandemic. Liquidity should be a concern since firms tend to be less liquid during pandemic. It is important to put attention on the factors affecting profitability especially competitiveness and liquidity. With regards to competitiveness, based on previous research, the implementations of innovative capabilities are very important. The pharmaceutical industry is required to have a diversified product portfolio since the Covid-19 pandemic has change consumer behavior and the demand.. Pharmaceutical firms should gain momentum to create breakthrough products which also fulfill the need for Covid-19 related drugs. As for liquidity, the cash conversion cycle is also important because it will impact to cash received by the firm. This study is expected to provide fresh insight related to profitability and its factors of pharmaceutical firms especially during crisis.

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Regulation Analysis of Implementation Mobile Virtual Network Operator Business Model in Indonesia

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Abstract

Mobile Virtual Network Operator (MVNO) is an operator that does not have a frequency spectrum license, so MVNO must lease a frequency band to the Mobile Network Operator (MNO). The MVNO has three business models: Full MVNO, Light MVNO, and Brand Reseller. The difference between the three business models is in the ownership of the infrastructure of each business model. The MVNO has a positive impact, including increasing the market share of MNO, increasing connectivity, and being a choice for the customer. Many countries have successfully implemented MVNO, including Malaysia and Singapore. In Indonesia, MVNO cannot be implemented because of the regulations. However, the existence of Undang-Undang No. 11 Tahun 2020 tentang Cipta Kerja can support the implementation of MVNO in Indonesia through several amendments in the previous regulation. Therefore, in this study, we will discuss the analysis of the regulation of MVNO implementation in Indonesia using literature study method in terms on telecommunication operations. Based upon the result, The Full MVNO, Light MVNO, and Brand Reseller business models have different licenses due to different ownership of infrastructure. A business model with an active infrastructure is classified as a telecommunications network operator, and a business model without active infrastructure is classified as a telecommunications service provider.

Keywords—Telecommunication Operators; MVNO; Telecommunication Regulation

I. INTRODUCTION

Currently, cellular technology has entered the 5G generation. This 5G technology can provide data speeds up to 100 times compared to the previous generation. In addition, 5G technology can also use three different frequency spectrum bands, namely low band, mid-band, and high band, with a bandwidth around 80 MHz to 100 MHz. With this performance, the 5G network can support various new services such as autonomous cars, virtual reality, augmented reality, industry 4.0, the Internet of Things, and many more (GSMA, 2016). In this case, MVNOs can help MNOs develop 5G services (Mobilise, 2019). In addition, MVNO also has various other advantages, such as being able to help accelerate the improvement of broadband networks, increasing domestic innovation products, providing a variety of choices to the community, and many more (Munawaroh, 2016), (Rasmussen, 2021),(Williams, 2019).

The MVNO has been implemented in other countries, but the existing regulations in Indonesia, MVNO, cannot be implemented. In Peraturan Pemerintah No. 52 Tahun 2000 tentang Penyelenggaraan Telekomunikasi it was stated that the frequency spectrum could not be traded or transferred (Kementerian Komunikasi dan Informatika, 2000). Meanwhile, MVNO must lease the frequency spectrum from MNO in its implementation because MVNO does not have a frequency spectrum license, so MVNO must lease the frequency spectrum to MNO.

Previously research has been conducted on the study of the regulation of MVNO implementation in Indonesia and analysis of strategies using SWOT in Indonesia. The study results show that MVNO can be a profitable business for both the MVNO itself, MNO, and the community, so regulators must immediately develop regulations related to MVNO (Arif, 2010). Furthermore, research has been carried out on the Analysis of the Implementation of the Mobile Virtual Network Operator (MVNO) Business Model that is Appropriate to be Implemented in Indonesia as a Recommendation for the Ministry of Telecommunications and Information Technology. This study explains that MVNOs can provide differentiation for the community and provide a new positive impact for business competitors in the telecommunications industry by adjusting existing telecommunications regulations in Indonesia without forgetting aspects related to consumer protection (Munawaroh, 2016). Third references are about Governing MVNO in Development Countries by Pham Hai Son. This journal explains about developing regulatory framework for MVNO in development countries. The result from this research is offers several recommendations based on observations related to the structure, operation, and government of MVNO. Then, this recommendation can be considered as a reference and guidance for

implementation MVNO based on industry environment and social environment in a country (Son et al, 2019). Based on this, this study will discuss the analysis of the regulation of MVNO implementation in Indonesia.

II. LITERATURE REVIEW

A. Mobile Virtual Network Operators

MVNO is a service provider that does not have a frequency spectrum license, so MVNO must lease a frequency spectrum to MNO to operate. MVNO's cooperation with MNO will certainly provide mutual benefits. As a new operator, MVNO will increase the public's brand awareness of itself. As an existing, well-established operator, MNO can explore new markets that may have been previously unreachable (Camarán and Miguel, 2008), (Wahyudin, Amalia, and Lindra, 2017).

Based on the business model, MVNO has three business models, namely Full MVNO, Light MVNO, and Brand Reseller. The difference between the three business models lies in the ownership of the infrastructure. In the full MVNO business model, MNO only provides an access network, but for infrastructure starting from the core network, the services delivered into the sales distribution will be managed by MVNO. In the light MVNO business model, MVNO does not have any network infrastructure, so in its implementation, MVNO only focuses on business management and can create services specifically for its customers. A light MVNO business model will be leased to MNO for infrastructure technology. The reseller brand business model is different from the lightweight MVNO business model. MVNO in the reseller brand business model acts as an extension of MNO so that MVNO only resells services owned by MNO and cannot create its services. The difference between the three business models can be seen in Figure 1 (Nereo Consulting, 2014).

From an economic perspective, these differences will impact the revenue earned by each of these business models. These differences can affect the CAPEX and OPEX issued by the MVNO. From the Average Revenue Per User (ARPU) side, the full MVNO business model can determine the selling price or the ARPU itself. In contrast, the light MVNO business model and the ARPU reseller brand obtained are not as large as the ARPU in the full MVNO model (Nereo Consulting, 2014), (Cartesian, 2017). Previously, research has been carried out on the analysis of techno-economic calculations for the implementation of MVNO in Bandung City with the title "Cost-Benefit Analysis of MVNO Business Model for LTE 4G Services in Bandung City". This study indicates that MVNO is feasible to be implemented in Indonesia because it can create an ideal telecommunications industry. This study explained that the most feasible business model to be implemented in Bandung with the condition of the existing population was the Brand Reseller business model (Wahyudin, Amalia, and Lindra, 2017).

Fig. 1. The differences between MVNO Business Model (Nereo Consulting 2014)

B. Benefit of Implementation MVNO in Indonesia

The implementation of the MVNO will undoubtedly impact Indonesia, especially for the MNO, the community, or the government. The following is the impact of MVNO implementation.

Table 1. Benefit of Implementation MVNO in Indonesia.

The Parties	Benefit
Mobile Network Operators	• Increase MNO's market share • MNO can get new revenue streams • Reduce MNO's Subscriber Acquisition Cost (SAC) costs • Increase MNO EBITDA
The Government	• Increasing the acceleration of broadband network deployment in Indonesia • Improve connectivity and utility • Providing new service innovations
The Customers	• Increasing the variety of operator choices for Indonesian citizens • There is more competitive tariff flexibility. • Provide new content with more exclusive content and services

Source: (Camarán and Miguel, 2008), (Rasmussen, 2021), (Williams, 2019)

C. Benchmark of Implementation MVNO in Other Countries

Several countries in the world have successfully implemented MVNO. The following explains the MVNO that has been successfully implemented in several countries.

1. Malaysia

Malaysia is the countries with a very competitive telecommunications industry. There are four MVNO business models in Malaysia: Full MVNO, Enhanced Service Provider, Enhanced Reseller, and Reseller. The Malaysian Communications and Multimedia Commission (MCMC) has determined that every MVNO must have a license originating from the MCMC. There are three categories of licenses in Malaysia, namely:

a. Network Facilities Provider (NFP) is a license for ownership of infrastructures such as towers, satellites, optical cables, and other devices.

b. Network Service Provider (NSP) is a license that can support connectivity.

c. Application Service Provider (ASP) is a license related to services that require internet (Malaysian Communication and Multimedia Commission, 2021).

MVNO implementation in Malaysia must have a license according to their respective business models.

Table 2. Benefit of Implementation MVNO in Indonesia.

Business Model	NFP	NSP	ASP
Full MVNO	✓	✓	✓
Enhanced Service Provider		✓	✓
Enhanced Resellers		✓	✓

Source: (Malaysian Communication and Multimedia Commission, 2021)

2. Singapore

There are two licenses in Singapore, namely Facilities-Based Operator (FBO) and Service-Based Operator (SBO). FBO is a license used to build a private customer network through international transfers. Meanwhile, SBO is a license used for telecommunications operations, including voice and data services. To be able to operate, the MVNO must have an FBO license. The MVNO must pay the FBO to use the network or other segments associated with the network (IMDA, 2019).

3. India

MVNO was introduced in 2008 by Telecom Regulatory Authority of India (TRAI). India is the second largest mobile telephony market after China, and it attracted the interest of foreign players to enter the Indian mobile market. Operators such Vodafone, Maxis, Etisalat, and Telenor have already acquired stakes in existing players.

Based on this condition, TRAI allowing MVNO to operate in the market. TRAI has proposed a regulatory framework and their recommendation are expected to result in the issue of MVNO license. Table 3 shows the summary of recommendations by Indian Regulator on MVNO (Capgemini, 2009).

Table 3. Recommendation Indian Regulator for MVNO (Capgemini, 2009).

Regulatory Parameters	Current Regulations	Implication for MVNO
License	MVNO own individual license with service area same as parent MNO No rollout obligations	MVNO free to selective rollout within licensed circle of MNO
Business Model	Flexibility to choose business model Scope of service same as MNO while licensing and entry fee are lower requirement	Reduced rollout cost for MVNO
Service Obligations & Tariffs	MNO has no influence on prices MVNO is responsible for customer services, QoS, etc	MVNO are free to set their prices and MVNO need to push for comprehensive SLA with MNO
MNO – MVNO Relationship	There is no limit to the amount of cooperation between MVNO and MNO MVNO and MNO only attached in the same area MVNO license depend on relationship with MNO	MNO have higher bargaining power to MVNO
Exit Clause	6 months' notice to give to MNO, customers, DoT, and TRAI MVNO will be disqualified from obtaining a new license in the same service area PBG will be forfeited and returned after the dues are paid	MVNO will need to be selective about regions of service rollout

4. Pakistan

Pakistan was the first who introduced MVNO in South Asia. Basic regulation of MVNO in Pakistan is Clause 9.11.1 of Telecommunications Policy 2015. Tabel 4 shows the flow for MVNO License in Pakistan (SATRC , 2018).

Table 4. MVNO regulatory framework in Pakistan (SATRC, 2018).

Regulatory Parameters	Description
License Issuance and Commercial Agreements	MVNO allowed to operate a commercial agreement with more than one MNO The scope of MVNO and MNO cooperation define in the agreement between MVNO and MNO The commercial agreement shall submit to Pakistan Telecommunication (PTA) for approval After approval, the company should apply MVNO license to PTA MVNO are not allowed to instaal their own network element.
Number Allocation	MVNO should ensure that their users receive a goog quality services MVNO shall look into individual responsibilities aspect regarding clearly be pronounced in the document. MVNO is responsible for the national security issues
Customer Care and Services Provosioning	MVNO should not suspend services to MNO without approval PTA MVNO responsible for facilitating and billing customer MVNO shall submit the Code of Commercial Practice and Standard Contract of Service to PTA
Fee	MVNO should pay the regulatory fees
Roaming Agreement	MVNO should not enter into roaming agreements with other operatos

5. Bhutan

MVNO will be licensed in ICT service and not permitted to develop its own core network due to the small market. For licensed frequency, MVNO in Bhutan eligible to apply spectrum similar t oo their parents MNO. In Bhutan, allocation of spectrum frequency based on the requirement of individual operators. The cooperation between MVNO and MNO in Bhutan expected to signing agreement before submitting license application.

Bhutan's regulators believe that the introduction of MVNO might make mandatory obligation for MNO to entertain the request for MVNO. Otherwise, with the small market on Bhutan it might be difficult to introduce MVNO (SATRC, 2018).

D. Telecommunication Operations
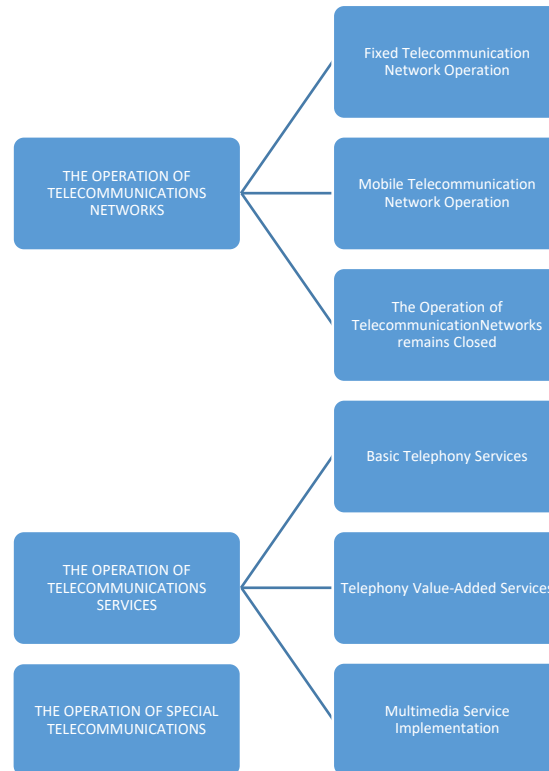
Fig. 2. Telecommunication Operations in Indonesia (Kementerian Komunikasi dan Informatika 2000).

Based on Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi, it is stated that the operation of telecommunications is the activity of providing and providing telecommunications services that enable the operation of telecommunications (Pemerintah Republik Indonesia, 1999). The operation of telecommunications is divided into three operations: the operation of telecommunications services, telecommunications networks, and special telecommunications.

An explanation of the categories of telecommunications operations can be seen in the following points.

1. Telecommunication Service Operation

The operation of telecommunications services is the activity of providing or providing telecommunications services that enable the implementation of telecommunications. The operation of telecommunications services is further divided into three parts: Basic Telephony Services, Telephony Value-Added Services, and Multimedia Service Implementation. The Regulation of the Minister of Communication and Information Number 5 of 2021 concerning Telecommunications Operations (Kementerian Komunikasi dan Informatika, 2020).

2. Telecommunication Network Operation

The definition of telecommunications network operation is providing and serving telecommunications networks that enable the implementation of telecommunications (Kementerian Komunikasi dan Informatika, 2020). The operation of the Telecommunication Network is divided into three categories: Fixed Telecommunication Network Operation, Mobile Telecommunication Network Operation, and The Operation of Telecommunication Networks remains Closed. Specific regulations that discuss the operation of

telecommunications networks in Indonesia can be seen in the Peraturan Menteri Komunikasi dan Informatika No. 7 Tahun 2015 (Kementerian Komunikasi dan Informatika, 2015).

3. Special Telecommunications Operations

The operation of special telecommunications is the operation of telecommunications with exceptional nature, designation, and operation. Regulations regarding the operation of special telecommunications are contained in the Peraturan Menteri Komunikasi dan Informatika No. 12 Tahun 2018 tentang Penyelenggaraan Telekomunikasi Khusus untuk Keperluan Instansi Pemerintah atau Badan Hukum.

E. Regulation of Telecommunication Operations in Indonesia

. Regulations related to the operation of Telecommunications in Indonesia are regulated in:

   a. Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi
   b. Undang-Undang No. 11 Tahun 2021 tentang Cipta Kerja
   c. Peraturan Pemerintah No. 52 Tahun 2000 tentang Penyelenggaraan Telekomunikasi
   d. Peraturan Pemerintah No. 46 Tahun 2021 tentang Pos, Telekomunikasi, dan Penyiaran
   e. Peraturan Menteri Kominfo No. 5 Tahun 2020 tentang Penyelenggaraan Telekomunikasi
   f. Peraturan Menteri Kominfo No. 13 Tahun 2019 tentang Penyelenggaraan Jasa Telekomunikasi.

III. RESEARCH METHODOLOGY

The method used in this research is a literature study. A literature study is a research conducted based on theoretical descriptions, findings, and other research materials, which will be used to develop a framework for solving research problems (Kementerian Komunikasi dan Informatika, 2021). In this study, the data used as literature study material are MVNO definitions, MVNO business processes, benchmarks from other countries that have implemented MVNO, and existing regulations related to telecommunications operations in Indonesia. Then the data will be analyzed to produce an insight or recommendation regarding the regulation of MVNO implementation in Indonesia.

IV. RESULT / FINDING

A. Definition of MVNO Based on Existing Regulation

Judging from the definition, MVNO is a service provider that does not have a frequency spectrum license, so if a definition approach is taken with existing regulations, MVNO can be categorized as a Telecommunication Operator. Telecommunications operations are divided into three categories: the operation of telecommunications networks, the provision of telecommunications services, and the operation of special telecommunications. The MVNO categories can be distinguished based on the ownership of the infrastructure by the MVNO. In the full MVNO business model, the infrastructure that MVNO must own is a core network, while in the light MVNO business model and brand resellers do not need to provide or have any infrastructure. Based on Peraturan Pemerintah No. 46 Tahun 2021 tentang Pos, Telekomunikasi dan Penyiaran, it is stated in the Pasal 26 clause (1) and (2) that:

   a. Business Actors who have an active infrastructure in the Telecommunications and/or Broadcasting sector may open access to the utilization of the said infrastructure to Telecommunication providers based on an agreement through the cooperation of the parties considering fair business competition by the provisions of laws and regulations.
   b. Business Actors who have the active infrastructure, as referred to in paragraph (1) for the Telecommunications sector, are Telecommunication Network operators (Kementerian Komunikasi dan Informatika, 2021).

From the regulations contained in the Government Regulation, it can be concluded that the MVNO with the Full MVNO business model is included in the Telecommunication Network Operation because the core network owned by this business model is included in active telecommunications equipment. In addition, MVNO can also have and provide its SIM card with a separate numbering system from MNO in this business model. The numbering system is also regulated in Peraturan Pemerintah No. 46 Tahun 2021 tentang Pos, Telekomunikasi, dan Penyiaran, as stated in Pasals 17 and 18 (Kementerian Komunikasi dan Informatika, 2021).

In the light of MVNO and Brand Reseller business models, MVNO does not have any telecommunication infrastructure, either active or passive, so these two business models can be categorized as Telecommunication

Service Providers. In the operation of telecommunications services, a license for the operation of telecommunications services will be granted by the Minister to telecommunications service providers to provide commercial telecommunications services (Kementerian Komunikasi dan Informatika, 2019). The implementation of telecommunications services is regulated in Peraturan Pemerintah No. 46 Tahun 2021 tentang Pos, Telekomunikasi, dan Penyiaran in Pasal 43 clause (1), (2), and (3) as follows.

    a.   Telecommunication Network Operators may lease their Telecommunication Networks to other Telecommunication providers and non-telecommunication providers.

    b.   As referred to in paragraph (1), the telecommunications network rental is carried out based on a fair, fair, and non-discriminatory agreement.

    c.   In addition, the rental, as referred to in paragraph (1), the Telecommunication Network may be used by the Telecommunication service provider.

Regulations concerning the leasing of telecommunications networks are detailed in the Peraturan Menteri Komunikasi dan Informatika No. 5 tahun 2021 tentang Penyelenggaraan Telekomunikasi (Kementerian Komunikasi dan Informatika, 2020).

B. Adjustment with Undang-Undang No. 11 Tahun 2021 tentang Cipta Kerja

Telecommunication regulation in Undang-Undang No. 11 Tahun 2011 tentang Cipta Kerja regulated in Paragraph 15 concerning Post, Telecommunications and Broadcasting starts from Pasal 69 to Pasal 72. Telecommunications law is regulated in Pasal 71, which changes, deletes, or adds from Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi. Several Pasals of from Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi as amended in the Undang-Undang No. 11 Tahun 2011 tentang Cipta Kerja in Pasal 71 consisting of Pasal 11, Pasal 28, Pasal 30, Pasal 32, Pasal 33, Pasal 34, Pasal 45, Pasal 46, Pasal 47, and Pasal 48 (Pemerintah Republik Indonesia 2020b). This amendment can be seen in Table 3.

Table 3. Amandement in Undang-Undang No. 11 Tahun 2022 tentang Cipta Kerja.

Amendment	Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi	Undang-Undang No. 11 Tahun 2021 tentang Cipta Kerja
Pasal 11	The operation of telecommunications as referred to in Pasal 7 can be carried out after obtaining a permit from the Minister of Finance. The permit as referred to in paragraph (1) is granted with due observance of: simple procedure a transparent, fair and non-discriminatory process; as well as solution in a short time. Provisions regarding the licensing of telecommunications operations as referred to in paragraph (1) and paragraph (2) shall be regulated by a Government Regulation.	The telecommunications operation as referred to in Pasal 7 paragraph (1) can be carried out after fulfilling the Business Licensing from the Central Government. Further provisions regarding Business Licensing as referred to in paragraph (1) shall be regulated in a Government Regulation.
Pasal 28	The tariff for the operation of telecommunications networks and or telecommunications services is determined by the operator of telecommunications networks and or telecommunications services based on a formula determined by the Government.	The tariff for the operation of telecommunications networks and/or telecommunications services is determined by the operator of telecommunications networks and/or telecommunications services based on a formula determined by the Central Government. The Central Government may determine the upper limit tariff and/or lower limit tariff for telecommunications operations by taking into account the interests of the public and fair business competition.
Pasal 30	If the telecommunications network operator and/or telecommunications service provider has not been able to provide access in certain areas, the special telecommunications operator as referred to in Pasal 9 paragraph (3) letter a may operate the telecommunications network and or telecommunications services and or telecommunications services as referred to in Pasal 7 paragraph (1) letter a and letter b after obtaining permission from the Minister. If the telecommunications network operator and/or telecommunications service provider has been able to provide access in the area as referred to in paragraph (1),	In the event that the telecommunications network operator and/or telecommunications service provider has not been able to provide access in certain areas, the special telecommunications operator as referred to in Pasal 9 paragraph (3) letter a may operate the telecommunications network and/or telecommunications services as referred to in Pasal 7 paragraph (1) letter a and letter b after fulfilling the Business Licensing from the Central Government. In the event that the telecommunications network operator and/or telecommunications service provider has been able to provide access in the area as referred to in paragraph (1), the special telecommunications operator may continue to

the said special telecommunications operator may continue to operate telecommunications networks and or telecommunications services.

The requirements for obtaining a permit as referred to in paragraph (1) shall be regulated by a Government Regulation.

operate telecommunications networks and/or telecommunications services.

Further provisions regarding Business Licensing as referred to in paragraph (1) shall be regulated in a Government Regulation.

Pasal 32

Telecommunication equipment which is traded, manufactured, assembled, imported and/or used in the territory of the Republic of Indonesia must comply with technical requirements and be based on permits in accordance with the prevailing laws and regulations.

Provisions regarding the technical requirements of telecommunications equipment as referred to in paragraph (1) shall be regulated by a Government Regulation.

Every telecommunication tool and/or equipment manufactured, assembled, and imported for trading and/or use in the territory of the Republic of Indonesia must meet technical standards.

Further provisions regarding technical standards of telecommunication tools and/or equipment as referred to in paragraph (1) shall be regulated in a Government Regulation.

Pasal 33

The use of a radio frequency spectrum and satellite orbit must obtain a government permit.

The use of the radio frequency spectrum and satellite orbit must be in accordance with their designation and not interfere with each other.

The government supervises and controls the use of the radio frequency spectrum and satellite orbit.

Provisions on the use of the radio frequency spectrum and satellite orbit used in the operation of telecommunications are regulated by a Government Regulation.

The use of radio frequency spectrum and satellite orbit by Business Actor is required to fulfill Business Licensing from the Central Government.

Use of radio frequency spectrum and satellite orbit by other than Business Actors must obtain approval from the Central Government.

The use of the radio frequency spectrum and satellite orbit as referred to in paragraphs (1) and (2) must be carried out according to the designation and not cause harmful interference.

In the event that the use of a radio frequency spectrum is not optimal and/or there is a greater public interest, the Central Government may revoke the Business License or approval for the use of a radio frequency spectrum.

The Central Government may determine the joint use of the radio frequency spectrum.

The holder of a Business License related to the use of the radio frequency spectrum as referred to in paragraph (1) for the operation of telecommunications may perform:

a. cooperation in the use of radio frequency spectrum for the application of new technology; and/or

b. transfer of use of radio frequency spectrum with other telecommunications operators.

The cooperation on the use and/or transfer of the use of the radio frequency spectrum as referred to in paragraph (6) must first obtain approval from the Central Government.

The guidance, supervision, and control of the use of the radio frequency spectrum and satellite orbit as referred to in paragraphs (1) and (2) shall be carried out by the Central Government.

Further provisions regarding Business Licensing related to the use of a radio frequency spectrum and satellite orbit as referred to in paragraph (1), approval for the use of a radio frequency spectrum and satellite orbit as referred to in paragraph (2), joint use of a radio frequency spectrum, cooperation in the use of a radio frequency spectrum , and the transfer of the use of the radio frequency spectrum as referred to in paragraph (5) and paragraph (6) shall be regulated in a Government Regulation.

Pasal 34

Users of a radio frequency spectrum are required to pay a usage fee, the amount of which is based on the type and width of the frequency band used.

The use of satellite orbits is required to pay a fee for the right to use the satellite orbits.

Provisions regarding fees as referred to in paragraph (1) and paragraph (2) shall be regulated by a Government Regulation.

The holder of a Business License and approval for the use of a radio frequency spectrum as referred to in Pasal 33 paragraph (1) and paragraph (2) must pay a fee for the right to use a radio frequency spectrum, the amount of which is based on the use of the type and width of the radio frequency band.

Further provisions regarding the fee for the right to use a radio frequency spectrum as referred to in paragraph (1) shall be regulated in a Government Regulation.

PASAL 34A

The Central Government and Regional Governments provide facilitation and/or convenience to telecommunications operators to develop telecommunications infrastructure in a transparent, accountable, and efficient manner.

			In the operation of telecommunications, the Central Government and Regional Governments may participate in providing shared facilities for passive telecommunications infrastructure for joint use by telecommunications operators at affordable costs.
			Further provisions regarding the role of the Central Government and Regional Government as referred to in paragraph (1) and paragraph (2) shall be regulated in a Government Regulation.
			PASAL 34B
			Business Actors possessing passive infrastructure that can be used for telecommunications purposes are obligated to open access to the said passive infrastructure utilization to telecommunications operators.
			Business actors who have infrastructure other than those referred to in paragraph (1) in the telecommunications and/or broadcasting sector may open access to the utilization of the said infrastructure to telecommunications operators and/or broadcasting operators.
			The use of passive infrastructure as referred to in paragraph (1) is carried out based on the cooperation of the parties in a fair, reasonable, and non-discriminatory manner
			Utilization of infrastructure as referred to in paragraph (2) is carried out based on the cooperation of the parties.
			Further provisions regarding the utilization of infrastructure as referred to in paragraph (1), paragraph (2), paragraph (3), and paragraph (4) shall be regulated in a Government Regulation.
Pasal 45	Whoever violates the provisions of Pasal 16 paragraph (1), Pasal 18 paragraph (2), Pasal 19, Pasal 21, Pasal 25 paragraph (2), Pasal 26 paragraph (1), Pasal 29 paragraph (1), Pasal 29 paragraph (2), Pasal 33 paragraph (1), Pasal 33 paragraph (2), Pasal 34 paragraph (1), or Pasal 34 paragraph (2) is subject to administrative sanctions.		Violation of the provisions of Pasal 16 paragraph (1), Pasal 18 paragraph (2), Pasal 19, Pasal 20, Pasal 21, Pasal 25 paragraph (2), Pasal 26 paragraph (1), Pasal 29 paragraph (1), Pasal 29 paragraph (2), Pasal 32 paragraph (1), Pasal 33 paragraph (1), Pasal 33 paragraph (2), Pasal 33 paragraph (3), Pasal 33 paragraph (71, or Pasal 34 paragraph (1) shall be subject to administrative sanctions.
			The administrative sanctions as referred to in paragraph (1) can be in the form of:
			written warning.
			temporary suspension of activities.
			administrative fines; and/or
			revocation of Business License.
			Further provisions regarding the criteria, types, amount of fines, and procedures for imposing administrative sanctions as referred to in paragraphs (1) and (2) shall be regulated in a Government Regulation..
Pasal 46	The administrative sanction as referred to in Pasal 45 is in the form of license revocation.		Pasal 46 deleted
	The revocation of the permit as referred to in paragraph (1) shall be carried out after being given a written warning.		
Pasal 47	Whoever violates the provisions as referred to in Pasal 11 paragraph (1), shall be sentenced to a maximum imprisonment of 6 (six) years or a maximum fine of Rp. 600,000,000.00 (six hundred million rupiah).		Whoever violates the provisions as referred to in Pasal 11 paragraph (1) shall be sentenced to a maximum imprisonment of 10 (ten) years and/or a maximum fine of Rp. 1,500,000,000.00 (one billion five hundred million rupiah).
Pasal 48	Telecommunications network operators violating the provisions as referred to in Pasal 19 shall be subject to a maximum imprisonment of 1 (one) year and or a maximum fine of Rp. 100,000,000.00 (one hundred million rupiah).		Pasal 48 deleted

Source: (Pemerintah Republik Indonesia, 2020)

From several amendments to these pasals, pasals relating to the implementation of MVNO in Indonesia are in pasal 11, pasal 28, pasal 32, pasal 34, and pasal 34B. Based on pasal 11, licensing for telecommunications operations in Indonesia must initially obtain a permit from the Minister. With this Undang-Undang Cipta Kerja, telecommunications operations in Indonesia must meet business permits from the central government. So that in its implementation, MVNO must first have a business permit from the central government. In addition, in pasal 28 of Undang-Undang Cipta Kerja No. 11 Tahun 2021, it is stated that the central government can

determine the upper and lower limits of the operation of telecommunications networks or services. So that MVNO as a network operator and a service in selling its services, must follow these regulations. The use of devices by MVNO, especially the Full MVNO business model, which provides active devices, must meet the technical standards applicable in Indonesia by pasal 32 of Undang-Undang Cipta Kerja No. 11 Tahun 2021. The technical standards cover aspects of electricity, electronics, safety, and health. The equipment tested to meet technical standards will have a certificate and a label related to the identity of the business actor, certificate number, and a warning sign that prohibits making changes so that the equipment does not meet the technical standards that have been set.

MVNO as an operator that does not have a frequency spectrum license must lease a frequency spectrum to MNO. It is one of the obstacles to implementing MVNO in Indonesia because it is not allowed. However, with Undang-Undang Cipta Kerja No. 11 Tahun 2021 Pasal 33, it is possible to implement it because it is explained that the radio frequency spectrum can be used simultaneously. Based on Peraturan Pemerintah No. 46 of 2021 tentang Pos, Telekomunikasi, dan Penyiaran pasal 50 paragraph (4), the purpose of using a shared frequency spectrum is to optimize the use of a radio frequency spectrum, cost efficiency of developing telecommunications infrastructure using a frequency spectrum, expanding regional coverage, increasing service quality, presenting new telecommunication services, making telecommunication service prices more affordable, and fulfilling national interests.

Pasal 34 of Undang-Undang Cipta Kerja No. 11 Tahun 2021 explains that passive infrastructure can be used jointly, both among network operators and telecommunications service providers. The addition of this pasal can support the implementation of MVNO in Indonesia because based on the MVNO topology, the business model with telecommunications infrastructure is only the Full MVNO business model. Therefore, MVNO must cooperate with MNO to provide a telecommunications network. Cooperation between MNOs and MVNOs enables sharing of infrastructure.

C. Cooperation between MVNO and MNO

Cooperation in the telecommunications sector has been regulated in Undang-Undang No. 36 Tahun 1999 tentang Telekomunikasi. Pasal 2 states that cooperation must be carried out on the principles of benefit, fairness, equity, legal certainty, security, partnership, ethics, and self-confidence. Pasal 10 regulates the prohibition of monopolistic practices. So the telecommunications operators are prohibited from carrying out activities that result in monopolistic practices and unfair business competition. Based on this pasal, the cooperation between MVNO and MNO must comply with applicable regulations. Between MVNO and MNO must provide mutual benefits to each other be fair and non-discriminatory. Peraturan Pemerintah No. 46 tahun 2021 Pasal 23 paragraphs (1), (2), and (3) also states that the condition for service providers to be able to lease telecommunications networks to telecommunications network operators is that by leasing the network, it must be based on a fair, and non-discriminatory agreement. The pasals in the regulation can be used as a primary reference for cooperation between MVNO and MNO.

V. CONCLUSION AND RECOMMEDATION

Conclusions that can be drawn from the analysis that has been carried out include:

a. The license granted to the MVNO will depend on each business model.
b. The Full MVNO, Light MVNO, and Brand Reseller business models have different licenses due to different ownership of infrastructure.
c. Full MVNO's business model can be categorized as a telecommunication network operator.
d. The Light MVNO and Brand Reseller business models can be categorized as providing telecommunications services.
e. The changes to the telecommunications law in law number 11 of 2021 regarding job creation further support the implementation of MVNO in Indonesia.
f. Cooperation between MVNO and MNO must be carried out following applicable regulations.

Suggestions that can be made for further research are:

There is an additional study regarding the more profound division related to the MVNO category in the operation of telecommunication networks. After the amendment, there is a additional study regarding the final derivative regulations

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Public Consumption Analysis Of Special Region of Yogyakarta With Panel Data 2015-2019

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Abstract
Household consumption is a major component of gross regional domestic product. The higher the income of a household, the higher the level of consumption. And if the level of consumption is getting lower then it is caused by lower household income as well. This study aims to determine the effect of the variable total population, minimun wage, education, and gross regional domestic product. The analytical method used is the panel data regression analysis method. The sample of this research was conducted in Bantul, Gunung Kidul, Kulon Progo, Sleman and Yogyakarta city. This study uses quantitative research using secondary data obtained from the Central Statistics Agency (BPS) of the Special Region of Yogyakarta and Bappeda of the Special Region of Yogyakarta. The results of this study showed that total population variable partially had no significant effect on the consumption variable, while the minimun wage, education, and gross regional domestic product partially had significant positive effect on the consumption variable. The variables of total population, minimum wage, education, and gross regional domestic product simultaneously have an effect on the consumption variable.

Keywords—Public Consumption; Total Population; Minimum Wage; Education; Gross Regional Domestic Product

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I. INTRODUCTION

Consumption is household spending on goods and services with the aim of meeting their needs. The goods referred to are durable goods, such as cars and household appliances, while non-durable goods, such as food and clothing, with the exception of the purchase of a new house. While services include intangible goods, such as haircuts/barbers, health services, and education (Mankiw, 2012).

Household consumption is the main component of gross regional domestic product (GRDP). The relationship between consumption and income is called consumption desire or Propensity to Consume, while all expenditures made by households to buy all needs in the form of durable goods and services are called consumption expenditures. The higher the income of a household, the higher the level of consumption and vice versa. Household consumption in the expenditure of gross regional domestic product (GRDP) is about 60% of the total consumption each year. This is because household consumption is greater than the consumption of other needs, so that household consumption becomes interesting to study (Sayuti, 1989).

Likewise for the special province of Yogyakarta (DIY). Based on statistical data in DIY in 2015-2019, it was explained that household consumption expenditure from 2015 to 2019 continued to experience a significant increase, and caused the growth of gross regional domestic product (GRDP) to experience a significant increase. Based on various publications, consumption expenditure is quite large, which is more than half of the total GRDP. Consumption expenditure is more than other expenditures. This is understandable considering that consumption is the main thing that is non-negotiable because in general consumption is the need to meet the needs of daily life, especially basic needs, namely food, clothing, housing, education and health needs.

II. LITERATURE REVIEW

A. Consumption

Consumption can be defined as the share of household income used to finance the purchase of various services and other needs. In fact, the amount of consumption varies according to the rise and fall of family income. Thus it can be said that consumption is always related to the level of income, if the level of income increases then consumption will increase, on the contrary if income decreases then consumption will decrease (Partadireja, 1995).

B. Function of Consumption

The consumption function is a curve that describes the nature of the relationship between the level of household consumption in the economy and the national income (disposable income) of the economy (Dumairy, 1996).

The consumption function is:

$$C = a + bY$$

Information :

C = Consumption rate

a = Household consumption when national income is 0

Y = National income level

The consumption tendency can be divided into two, namely the marginal tendency to consume and the average consumption tendency (Mankiw, 2003).

C. Consumption Hypothesis

There are several hypotheses regarding consumption, including the following (Suparmoko, 1991):

A. Absolute Income Hypothesis.This hypothesis determines consumption with absolute income level, so that the relationship between income and consumption is a function of short-term consumption. Therefore the curve always intersects the vertical axis.

B. Relative Income Hypothesis. If the individual's income level increases, consumption will increase in proportion to the increase in income. Meanwhile, if the income level falls, consumption will not decrease proportionally

C. Permanent Income Hypothesis. The permanent income hypothesis states that current consumption depends on current income and income that can be predicted in the future.

D. Life Cycle Hypothesis. Someone tends to receive low income at a young age, high at middle age, and low again at old age, so the savings ratio will fluctuate in line with their age development, i.e. young people will have negative savings, middle-aged people save and repay loans. in their youth, and old people take the savings they made in middle age.

D. Factors Influencing Consumption

a. Total population

According to Badan Pusat Statistik (BPS) what is meant by population is all people who live in the geographical area of the Republic of Indonesia for 6 months or more and or those who live for less than 6 months but aim to settle down.

b. Minimum wage

According to Law no. 13 of 2003 Minimum Wage is a minimum standard used by entrepreneurs or industry players to provide wages to workers in their business or work environment.

c. Education

Law No. 20 of 2003 explains that education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves, society and the state.

d. Gross Regional Domestic Product (GRDP)

Gross Regional Domestic Product (GRDP) is the total value added of goods and services produced from all economic activities in an area. GRDP calculation uses two kinds of prices, namely current prices and constant prices.

E. Previous Research

Ismail, (2018) in a study entitled "The Influence of Population on Rice Consumption in Asparaga District, Gorontalo Regency". The analytical method used is simple regression to see the effect of population on rice

consumption. The results showed that the population in Asparaga District, Gorontalo Regency each year has a very positive effect on the amount of rice consumption.

Yanti and Murtala, (2019) in a study entitled "The Effect of Income, Number of Family Members and Education Level on Household Consumption in Muara Dua District, Lhokseumawe City". The analytical tool used in this study uses multiple linear regression. The results showed that the education level variable had a positive effect on the amount of household consumption.

Humaedi, (2020) in his research entitled "The Influence of Wages on Employee Consumption (study at PT. Dino Custom Mixing District of Tangerang - Banten). This study uses a quantitative method, namely the method with numbers. The quantitative method used for this research is a questionnaire filled out by respondents using a Likert Scale measurement. Based on the test results indicate that wages affect the consumption of employees at PT. Dino Custom Mixing.

Nurbayan and Juliansyah, (2018) entitled "The Influence of Per capita Income, GDP, and Total Population on the Consumption Level of the Aceh Tamiang Regency in 2003-2016". This research uses multiple log-linear regression analysis method. Based on the results of the research, the GRDP variable affects the level of consumption

Rohman and Effendi, (2019) entitled "The Influence of Population, Inflation and Economic Growth on Public Consumption in Magelang City". The analytical method used in this study is multiple linear regression analysis with the Ordinary Least Square (OLS) approach. The results show that the population does not have a significant effect on people's consumption.

Jung, McFarlane and Das (2021) in their research entitled "The effect of minimum wages on consumption in Canada". The analytical method used in this research is the auto regressive distributed lag (ADRL) approach. The results of this study indicate that the minimum wage has a positive effect on consumption in Canada.

Inglesi-Lotz and Morales (2017) in their research entitled "The effect of education on a country's energy consumption: Evidence from developed and developing countries". The analytical method used in this research is panel data. The results of the study show that education has a positive effect on energy consumption in various developed and developing countries.

Su (2011) in his research entitled "The Effect Of Population Density, Road Network Density, And Congestion On Household Gasoline Consumption In US Urban Areas". The analytical method used in this study uses parametric statistical tests. The results of this study suggest that the population variable has a negative effect on gasoline consumption in urban areas of the United States.

Alonso (2020) in his research entitled "The Impact of the Minimum Wage on Nondurable Consumption". The analytical method used is panel data regression analysis. The results of this study suggest that the minimum wage has a positive effect on long-term consumption.

Barnidge et al (2015) in their research entitled "The Effect Of Education Plus Access On Perceived Fruit And Vegetable Consumption In A Rural African American Community Intervention". The analytical method used in this study uses a participatory action research (PAR) approach. The results showed that the education variable had an effect on the consumption of vegetables and fruit in the African-American rural community intervention.

III. RESEARCH METHODOLOGY

A. Research Method

This study uses panel data regression analysis. Analyzing panel data using the Eviews 9 program. This study uses quantitative research using secondary data. The data used is a combination of time series and cross section. In other words, panel data is data obtained from cross-sectional data which is observed repeatedly on the same individual unit (object) at different times (Juanda, 2021). The panel data estimation equations used in general are:

$$CM_{it} = \beta_0 + \beta_1 PQ_{it} + \beta_2 TPEN_{it} + \beta_3 UMP_{it} + \beta_4 PDRB_{it} + \varepsilon \qquad (1)$$

Description:

CM	= Public Consumption Rate (Million)
PQ	= Total Population (Soul)
UMP	= Minimum Wage (Million)
TPEN	= Education Level
PDRB	= PDRB (billion rupiah)
β_0	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4$	= Regression coefficient of independent variables
e	= Error term
i	= County or city
t	= Year

The calculation of the regression model has 3 approaches to analyze panel data, including:

B. Common-Constant Method

The Common-Constant method or can be called Pooled Least Square (PLS) is a model obtained by combining or collecting all cross section data and time series data. This data model is then estimated using ordinary least squares (OLS) (Pangestika, 2015). According to Gujarati et al., (2012) the big problem with this PLS model is that it does not differentiate between various airlines or the response of the explanatory variable to the total cost is the same for each airline at all times. The panel data regression model can be formulated as follows:

$$CM_{it} = \beta_0 + \beta_1 PQ_{1it} + \beta_2 UMP_{2it} + \beta_3 TPEN_{3it} + \beta_4 PDRB_{4it} + \varepsilon_{it} \qquad (2)$$

Description:

CM	= Public Consumption Rate (Million)
PQ	= Total Population (Soul)
UMP	= Minimum Wage (Million)
TPEN	= Education Level
PDRB	= PDRB (billion rupiah)
β_0	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4$	= Regression coefficient of independent variables
e	= Error term
i	= County or city
t	= Year

C. Fixed Effect Method

The Fixed Effect Model method, according to Juanda, (2021), is a method that intercepts regression between individuals because each individual is considered to have its own characteristics. The FEM method explains that an object has a constant that remains in magnitude for various periods of time. To distinguish one object from another, a dummy variable is used. Therefore, this model is often referred to as Least Squares Dummy Variables (LSDV). The LSDV model equation is as follows:

$$CM_{it} = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \alpha_5 D_{5i} + \alpha_6 D_{6i} + \alpha_7 D_{7i} + \beta_1 PQ_{1it} + \beta_2 UMP_{2it} + \beta_3 TPEN_{3it} + \beta_4 PDRB_{4it} \quad (3)$$

Description:

CM   = Public Consumption Rate (Million)

PQ   = Total Population (Soul)

UMP   = Minimum Wage (Million)

TPEN   = Education Level

PDRB   = PDRB (billion rupiah)

β0   = Constant

D   = Pseudo variable

i   = Shows City/District

t   = Shows the time series 2011-2015

α$_{1,2,...}$ = Intercept

β$_{1,2...}$ = Indicates the direction and influence of each (Slope)

μ   = Disturbance factor or not observable

D. Random Effect Method

According to Astuti, (2010) stated that the REM method is used to overcome the weakness of the fixed effect method which uses dummy variables, so that the model experiences uncertainty. Without using quasi-variables, the random effects method uses residuals that are thought to have a relationship between time and between objects. The REM model equation is as follows:

$$CM_{it} = \beta_1 PQ_{1it} + \beta_2 UMP_{2it} + \beta_3 TPEN_{3it} + \beta_4 PDRB_{4it} \quad (4)$$

Description:

CM   = Public Consumption Rate (Million)

PQ   = Total Population (Soul)

UMP   = Minimum Wage (Million)

TPEN   = Education Level

PDRB   = PDRB (billion rupiah)

i   = Shows City/District.

t   = Shows the time series 2011-2015

β0i   = Intercept coefficient or random constant

β   = Indicates the direction and influence of each one

μ   = Disturbance factor or can not be observed

To determine the most appropriate model for estimating the panel data regression parameters, there are three tests that can be carried out, namely:

E. Chow Test (Likelihood Test Ratio)

The Chow test is a test used to find out whether the FEM model is better than the PLS model by looking at the significance of the FEM model which can be done with the F statistical test. For the formulation of the hypothesis, H₀, the model chosen is Polled Least Square (PLS), and HA, the model that is used. Selected Fixed Effect Model (FEM). The test criteria are H₀ accepted if p-value > and H₀ is rejected if p-value . In conclusion,

if the p-value > 0.05, then H_0 is accepted so that the selected model is polled least square. While the p-value 0.05, then H_0 is rejected so that the model chosen is Fixed Effect Model.

F. Hausman Test

To find out whether the fixed effect model is better than the random effect model, the Hausman test is used. The Hausman test statistic follows a chi-square statistical distribution with as many degrees of freedom as the number of independent variables (p). Formulation of the hypothesis, H_0 then the model selected Random Effect Model (REM), and H_A then the model selected Fixed Effect Model (FEM). The test criteria are H_0 accepted if p-value > and H_0 is rejected if p-value . In conclusion, if the p-value > 0.05, then H_0 is accepted so that the model chosen is the Random Effect Model. While the p-value 0.05, then H_0 is rejected so that the model chosen is Fixed Effect Model.

To see an accurate value estimate in the panel data regression function, it is necessary to carry out a goodness of fit test including the F statistic test, R2 determinant test, and t test.

G. F Statistic Test

According to Kuncoro, (2013) the F statistical test basically shows whether all the independent variables included in the model have a joint effect on the dependent variable. F test is used to test the existence of a model. The formulation of the hypothesis, $H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$; the model does not exist and HA : 0 ; existing models. The test criteria H_0 is rejected if the statistical significance is F and H_0 is accepted if the statistical significance is F > . In conclusion, if the significance of F 0.05 then H_0 is rejected which means the model does not exist, and H_0 is accepted if the significance of F > 0.05 then H_0 is accepted which means the model exists.

H. Determination of Adjusted R-Square (R2)

According to Kuncoro, (2013) the coefficient of determination (R^2) is to measure how far the model's ability to explain variations in the dependent variable is. In general, the coefficient of determination for cross-site data is relatively low because of the large variation between each observation, while for time series data it usually has a high coefficient of determination. The coefficient of determination test aims to see the percentage of variation (diversity) of the dependent variable that can be explained by the variation of the independent variables in the model. The value of the coefficient of determination is used to measure the contribution or contribution of the independent variables to the dependent variable. The value of the coefficient of determination ranges from zero to one. The closer to one the model is said to be better because it shows the more precise or suitable a regression line and the greater the variation of the independent variable can explain the variation of the dependent variable.

I. T Test

Test the validity of the effect of the selected model using the t test. The partial regression coefficient test (t test) was conducted to determine whether or not the influence of the independent variables in the model was significant or not. The formulation of the hypothesis, $H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$, the i-th independent variable has no significant effect and $H_A : \beta_2 \neq \beta_4$ 0, the i-th independent variable has a significant effect. The test criteria H_0 is rejected if the statistical significance of ti and H_0 is accepted if the statistical significance of ti > . In conclusion, if the statistical significance of ti 0.10 then H_0 is rejected, which means the i-th independent variable has a significant effect. And H_0 is accepted if the statistical significance ti > 0.10 then H_0 is accepted, which means the i-th independent variable has no significant effect.

J. Operational Definitions Of Research Variables

Consumption is expenditure activities carried out by consumers to fulfill their needs of goods and services in order to fulfill the needs or satisfaction of consumers themselves. The unit of the Consumption Level variable is in rupiah.

According to the Central Statistics Agency (BPS) population is all people who live in the geographical area of the Special Region of Yogyakarta for 6 months or more and or those who live less than 6 months but aim to settle down. The data used is the population in 2015 – 2019 (in soul units).

Education is a form of investment in human resources in the life of the nation and state in order to create quality human resources. Education must be prioritized in balance with physical capital investment because education is the basic capital to create quality children of the nation so that education is categorized as a long-term investment. The data used in this study is the average length of school for 2015 – 2019 (in years).

According to the Central Statistics Agency (BPS) Wage/salary is a reward in the form of money received from employers to workers for work that has been or will be carried out and determined according to an agreement, or legislation. Compensation will be paid on the basis of an employment agreement between the employer and the worker, including allowances for both the worker himself and his family. While the minimum wage is the lowest wage (excluding overtime pay) paid to employees by type of work or position. The data used in this study is the minimum wage for the Special Region of Yogyakarta in 2015-2019 (in rupiah).

Gross Regional Domestic Product (GRDP) is a process of activity that develops in the economy which results in an increase in goods and services produced for the prosperity of society (Todaro, 2011). The data used in this study is the Gross Regional Domestic Product (GRDP) at the current prices of the Special Region of Yogyakarta in 2015-2019 (in million rupiah).

IV. RESULT / FINDING

Based on the results of the Chow test and Hausman test, the estimated accuracy of the model can be seen in the following table:

Table 1. Chow Test Results And Hausman Test

Model Testing	Prob.	P-value (5%)	Selected Model
Chow Test	0,000000	0.05	FEM
Hausman Test	0,000000	0,05	FEM

Source: Data processed by the author with Eviews, 2022

Based on the results of the Chow test from table 1 that the probability value is 0.000000 < 0.05, then H₀ is rejected and H₁ is accepted so that the model chosen is Fixed Effect Model. Furthermore, according to the results of the Hausman test from table 1, it shows that the probability value is $0.000000 < 0.05$, so H_0 is rejected so that the model chosen is the Fixed Effect Model.

Hypothesis testing can be seen based on the results of the t test, F test, and R^2 test, the results of the test can be seen in the following tables:

Table 2. tTest Results

Variable	Prob.	P-value (Significance 10%)	Description
PQ	0,1545	$P > 0,10$	Not Significant
UMP	0,0613	$P < 0,10$	Significant
TPEN	0,0015	$P < 0,10$	Significant
PDRB	0,0858	$P < 0,10$	Significant

Source: Data processed by the author with Eviews, 2022

Based on the results of the t-test from table 2, it shows that if the statistical significance is 0.10 then H₀ is rejected, which means the to-i independent variable has a significant effect. And H₀ is accepted if the statistical significance of $t_i > 0.10$ which means the to-i independent variable has no significant effect. From the table it can be seen that the population variable has no significant effect, while the minimum wage, education, and GRDP variables have a significant effect.

Table 3. F Test Results

Variable	Prob (F-Statistic)	Criteria	Conclusion
PQ, UMP, TPEN, PDRB	0,000000	$P < 0,10$	Take effect

Source: Data processed by the author with Eviews, 2022

Based on the results of the F test from table 3, it shows that the probability value (F-Statistic) is 0.000000 < 0.10, it means that all variables such as population, minimum wage, education, and GRDP together have an effect on public consumption level.

Table 4. Coefficient of Determination Test Results (R2)

R-square	Adjusted R-square	S.E. of Regression
0,991463	0,987194	43973,13

Source: Data processed by the author with Eviews, 2022

Based on the results of the coefficient of determination test (R2), it shows that the variables of population, minimum wage, education, and GRDP affect the level of consumption by 99.14%, while the remaining 0.86% is influenced by variables outside the model.

V. DISCUSSION

The estimated Public Consumption Rate can be influenced by total population, minimum wage, education level, and PDRB. Based on the results of panel data regression analysis assisted by the Eviews version 9 analysis tool, hypothesis testing has been carried out. The following are the results of the research with the proposed hypothesis:

B. *The Effect of total population to public consumption*

Based on the results of research on the total population variable in testing, the value of Prob is obtained. of 0,1545 more than 0,10 (P > 0,10). This shows that H_1 is rejected, where the total population variable has no significant effect on public consumption. The high value of the total population variable is not a measure of the size of public consumption rate. In other words, the increase in population is not only a factor causing the increase in the level of public consumption but is also found in other variables.

C. *The Effect of minimum wage to public consumption*

Based on the results of research on the minimum wage variable in testing, the value of Prob is obtained. of 0,0613 less than 0,10 (P < 0,10). This shows that H_2 is accepted, where the minimum wage variable has a significant effect on public consumption. Therefore, minimum wage can affect the value of the public consumption. This means that the greater the value of the minimum wage, the greater the influence on the public consumption.

D. *The Effect of education level to public consumption*

Based on the results of research on the education level variable in testing, the value of Prob is obtained. of 0,0015 less than 0,10 (P < 0,10). This shows that H_3 is accepted, where the education level variable has a significant effect on public consumption. Therefore, education level can affect the value of the public consumption. This means that the greater the value of the education level, the greater the influence on the public consumption.

E. *The Effect of PDRB to public consumption*

Based on the results of research on the PDRB variable in testing, the value of Prob is obtained. of 0,0858 less than 0,10 (P < 0,10). This shows that H_4 is accepted, where the PDRB variable has a significant effect on public consumption. Therefore, PDRB can affect the value of the public consumption. This means that the greater the value of the PDRB, the greater the influence on the public consumption.

VI. CONCLUSION AND RECOMMENDATION

Based on this research, it shows that the population variable has no effect on the level of public consumption. While the variables of minimum wage, education and GRDP have a significant positive effect on the level of public consumption. variables of population, minimum wage, education and PDRB together or simultaneously affect the level of public consumption.

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The Influence Analysis of Economic Growth towards Zakat, Poverty level and Unemployment in Indonesia for the period 2018-2020

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Abstract

Economic growth is seen as the most important part of economic policy as it is an indicator of improving people's welfare. Thus, this study aims to analyze the effect of economic growth on zakat, poverty rate, and unemployment in Indonesia for the period 2018-2020. Indonesia is a developing country that makes absolute poverty and a number of other economic problems still occur. the rate of economic growth will increase when unemployment and poverty are no longer complex and multidimensional problems. and issues that cause high curiosity to the income gap factor distribution of zakat funds in Indonesia. using quantitative approach with linear regression model using secondary data obtained from BPS, BAZNAS and scientific literature. zakat funds have a negative and significant effect on economic growth, poverty has a significant negative effect on economic growth, unemployment has a positive but not significant effect. simultaneously, the variables zakat (X1), unemployment (X2), and poverty (X3) have a significant effect of 86.28% on economic growth (Y). The remaining 13.72% is influenced by variables or other factors that are not included in the model.

Keywords— Economic growth; Zakat; Poverty; Unemployment

I. INTRODUCTION

Indonesia is one of the developing countries that compete internationally and want to become a developed country. In realizing this desire, the Indonesian government must carry out development in all aspects such as economic aspects and non-economic aspects. In the implementation of development there will be a relationship between the government and the community directly which will result in a reciprocal relationship between the government and all levels of society. Economic growth is one of the indicators used to assess the success rate of development carried out by a region, especially in the economic field, this growth is a summary of the growth rate of various economic sectors that describes the level of economic change that occurred during the 2018-2020 period. Economic growth shows the extent to which economic activity can generate additional income or welfare in a given period. Economic growth in an area that continues to show improvement illustrates that the region's economy is developing well (Purnama, 2014).

Zakat in language means blessing, growing, Holy, good san clean something. While the understanding of zakat in syara ' is a certain count of property and the like which obliges his people to issue it to the poor and others with special conditions (Alifia, 2020). Zakat is one of the instruments in Islam in the field of property distribution. So that the treasure will always rotate and circulate. Therefore, one of the goals of zakat is to prevent the accumulation of property. Zakat has many benefits for the economy both from macro and micro aspects, such as encouraging inclusive economic growth. Zakat will increase the consumption of basic goods and services and will change the use of luxury goods and services to the staple ones. The distribution of zakat to the poor and the needy leads to the increase of their income due to the low level of their wealth and income. The income and share of the zakat may be used for the consumption of essential goods. On the other hand, zakat will reduce the wealth and income of the rich. The loss of the rich's wealth and income may reduce the consumption of luxury goods and services (Suprayitno, 2020). Zakat payment will foster an inclusive economic growth which does not only cause the economy to grow but also reduce the unemployment, poverty, gap and does not harm the environment. (Khasandy et al., 2019).

Poverty is not only related to income level but also from social aspect, environment and even empowerment and participation level. (Arif Novriansyah, 2018) stated that "poverty should not be considered only as low income, but should be considered as capability handicap". According to the theory, if people work and then get income that is used to meet their basic needs, it can be said that there are no poor people. Thus, if the unemployment rate decreases, it will cause the poverty rate to decrease (Widiastuti & Kosasih, 2021). Poverty is not just a global problem. Indonesia as a developing country has also experienced this problem since its independence until today.(Saleh, 2002).

According to (Purnama, 2014) unemployed or unemployed people are those who do not have a job and are actively looking for work. A region is often faced with a large number of unemployed and labor force growth is not comparable to the relatively small number of jobs. This, making the problem of poverty more serious. Unemployed or unemployed people are those who do not have a job and are actively looking for work. Unemployment by the definition of BPS is (1) those who do not work and are looking for work; (2) those who do not work and prepare for business; (3) those who do not work and do not seek work because they feel it is impossible to get a job; and (4) those who do not work and do not seek work because they have been accepted to work, but have not started working. (Ridho & Indah, 2020).

Based on the description above, there is a formulation of the problem, namely how the mechanism of economic growth affects zakat management funds, poverty levels, and unemployment rate in Indonesia so as to determine the direction of government policy.

II. LITERATURE REVIEW

A. Economic Growth

Economic growth is an increase in gross national product in a country (Ridho & Indah, 2020). According to the growth theory proposed by Robert Solow and Trevor Swan, better known as the Solow - Swan growth theory, economic growth is determined by the availability of production factors and the level of technological progress. The factors of production according to Solow-Swan consist of population, labor, and capital accumulation (Kuncoro et al., 2022). According (Syofya, 2018) explained that in macroeconomic analysis, economic growth has two different terms of understanding. On the one hand, economic growth is used to describe an economy that has experienced economic development and reached a higher level of prosperity. On the other hand, economic growth aims to describe the economic problems faced by a country or a region in the long term.

B. Factors That Determine Economic Growth

According to (Purnama, 2010) the main factor in the economic growth of every nation. That is :

a. Capital accumulation, including all new forms or types of investment invested in land, physical equipment, and capital or human resources
b. Population growth
c. Technological advances

And there are four factors that determine economic growth :

a. Land and other natural wealth
b. Number and quality of population and labor
c. Capital goods and technological level
d. Social systems and attitudes of society

C. The Relationship Between Economic Growth And The Distribution Of Zakat Funds

The relationship of zakat in economic growth is generally that zakat funds received by mustahik will increase its purchasing power. This increase will encourage increased production of goods and services, and encourage increased production capacity which will ultimately aggregatally promote national economic growth. According to (Anik & Prastiwi, 2019) zakat in the perspective of Islamic economics as a property that has been determined by the government or authorized officials to the general public or individuals who are binding, final, without receiving certain rewards carried out by the government in accordance with the ability of the owner of the property. As it is known that the potential of zakat in Indonesia is very large. In 2015, based on research conducted by the National Amil Zakat Agency (BAZNAS), the potential of zakat in Indonesia reached Rp 286 trillion (BAZNAS, 2018: 3). Because by giving the poor and other rights contained in our property, there will be a circulation of money that results in the development of the function of money in economic life in society.

D. The Relationship Between Economic Growth And Poverty

According (Purnama, 2014) states that economic growth without the addition of employment opportunities will lead to inequality in the distribution of the addition of income (ceteris paribus), which will further create a condition of economic growth with an increase in poverty. The relationship between economic growth and poverty is a complex and controversial relationship. In general, economic growth is a precondition for poverty reduction. (Jayadi & Brata, 2016) By increasing economic growth and income equity, the poor have decreased.

E. The Relationship Of Economic Growth With Unemployment

Economic growth and unemployment have a close relationship because the working population contributes to the production of goods and services, while unemployment does not contribute. Quality economic growth is expected to solve the problems of unemployment and poverty. (Purnama, 2014). According to the theory, if people work and then earn income that is used to meet their basic needs, then it can be said that there are no poor people. Thus, if the unemployment rate decreases, it will lead to a decrease in the poverty rate (Widiastuti & Kosasih, 2021).

F. Recent Research

Research on Zakat in creating an increase in national income has been carried out by Anik and Prastiwi (2019) with the title "Zakat action in increasing economic growth through equity distribution. The results showed that zakat tools are very important in the effort to provide economic potential of the people. Alternative solutions and strategies offered by Islam are none other than the system of management (distribution and utilization) of zakat productive and creative. With the management as intended, it is expected to empower the poor to become Aghniya (the rich) and make mustahiq into muzakki. Even the habit of donating in Indonesia has undergone a fundamental change (Athoillah, 2018)

Research Novriansyah (2018) entitled The effect of unemployment and poverty on economic growth in Gotontalo province states that unemployment and poverty affect economic growth in Gorontalo province. The results showed that the level of poverty in the province of South Sumatra is quite fluctuating, but in general it is seen that the poverty rate in the province of South Sumatra is much higher than the national poverty rate.

Research on the effect of economic growth on poverty has previously been conducted by Romi and Umiyati (2018), entitled "The effect of economic growth and Minimum wage on poverty in Jambi city". By using multiple linear regression analysis tools in the form of semilogs. The results showed that partially economic growth has no significant effect on poverty.

III. RESEARCH METHODOLOGY

The type of research carried out related to the preparation of this research is quantitative, whose research procedures produce data and numbers that will be presented in the form of a percentage of the results of the analysis, data on the analysis of the effect of economic growth on Zakat funds, poverty levels, and unemployment. Type of data in this study is the type of secondary data, according to (Permatasari, 2020) secondary data is data owned by sources that are ready to be used and can provide information in determining decisions even though it must be processed first. The data used are taken from the publication of the Central Statistics Agency, among others, data on economic growth, poverty rate, and the level of indemnity as well as for zakat distribution data obtained from the financial statements published by Baznas Indonesia, the data analysis techniques used are time series data using IBM SPSS 22 tools or applications. In the GDP data obtained quarterly secondary data on GDP above the base price so that it must be interpolated using the Quadratic Match Sum method in Eviews 10 to obtain monthly GDP data. Linear regression Model used in this study as follows :

$Yt = \beta 0 + \beta 1 X1t + \beta 2\ X2t + \beta 3 X3t + \varepsilon t$

di mana:

Y	= Economic Growth
β0	= Constanta
β1β2β3	= Coefficient regress
X1	= Zakat
X2	= Unemployment
X3	= Poverty
E	= error
t	= time series data

A. *Economic Growth (Y)*

According to (Maryanti, 2009) economic growth is the development of activities in the economy that cause the goods and services produced in the community to increase and the prosperity of the community to increase. In the analysis of a country's economic growth is calculated from the rate of Gross Domestic Product (GDP) as the total production (outout) produced by a country in a period that can be obtained from quarterly data so that it must be interpolated by quadratic method

B. *Zakat (X1)*

Wealth that has reached nisab and haul that must be issued by Muslims as a purifier of property and soul. The zakat in this study is recorded in BAZNAS

C. *Unemployment (X2)*

Unemployment is the labor force but has not worked or has not found a permanent job. Unemployment is usually caused because there are still few job vacancies Provided that are not comparable to the number of the labor force. The Central Statistics Agency (BPS), states that the unemployment is a labor force that has not worked and is looking for pekerajaan or is preparing a business or residents who already have a job but have not started (www.bps.go.id).

D. *Poverty (X3)*

Poverty is the inability to meet the minimum standards of food and non-food needs. This study used time series, poverty line data from 2018-2020 in Indonesia

IV. RESULT / FINDING

A. *Multiple Linear Regression Analysis*

Table 1. Multiple linear regression analysis

Model	Unstandardized Standardized		Standardized Coefficients
	B	Std. Error	Beta
Constant	86.282	37.449	
Zakat X1	-.341	.638	-.089
Unemployment X2	83.836	2.624	1.339
Poverty X3	-.822	.998	-.857

Source : Data Processed from SPSS V.22

Can be applied in obtaining the equation of this research :

$Y = 86.282 - 0.341 X_1 + 83.836 X_2 - 0.822 X_3 + \varepsilon$

Description:

a. The value of the constant obtained is equal to 86,282. It shows that the variables of zakat, unemployment and poverty if the situation is fixed or constant, the value of the economic growth variable is 86,282%.

b. The coefficient of zakat variable is -0.341. This proves that in every increase of 1 unit of zakat variable means that it shows an increase in economic growth worth -0.341 %. If there is a decrease of 1 unit in the sharia stock variable, it shows a decrease in economic growth of -0.341 %.

c. Coefficient of unemployment variable is worth 83,836. It shows that in every increase of 1 unit of variable unemployment it shows an increase in economic growth of 83,836%. If there is a decrease of 1 unit in the sukuk variable, it shows a decrease in economic growth of 83,836%.

d. Coefficient of poverty variable is 0.822. This shows that in every increase of 1 unit of poverty variable means that it shows an increase in economic growth worth -0.822 %. If there is a decrease of 1 unit in the sharia stock variable, it shows a decrease in economic growth of -0.822 %.

B. *Classical Assumption Test*
Normality test

Table 2. Normality test One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		36
Normal Parameters[a,b]	Mean	-.0001899
	Std. Deviation	38474033187.63829000
Most Extrene Differences	Absolute	.133
	Positive	.122
	Negative	-.133
Test Statistic		.133
Asymn. Sig. (2-tailed)		.105[c]

Source : Data Processed from SPSS V.22

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Table (4.2) shows that Sig data is 0.105 which is 0.105 > 0.05 until the data does a normal distribution. The results of this test through the use of Kolmogorov-Smirnov stated if the results obtained by the variable zakat, unemployment and poverty berate residual normal distribution

Multicollinearity test

The use of multicollinearity test in this study is VIF test, where if the value of VIF in a variable more than 10 means there is a problem or problem of multicollinearity in the variable

Table 3. Multicollinearity test

Variable	VIF	Critetia	Conclusion
X1	1.226	< 10.00	Does not cause multicollinearity
X2	6.891	< 10.00	Does not cause multicollinearity
X3	7.798	< 10.00	Does not cause multicollinearity

Source : Data Processed from SPSS V.22

Heteroskedasticity tast

Heteroskedasticity test is a data test to find whether in a regression analysis model experiencing multi- variant of the data used. Heteroscedasticity occurs when the residual type shown varies from several observations, not occurring heteroscedasticity is a condition of a viable regression model. The hetetoskedasticity test can be known from the significance value or from the scaterplott graph.

Figure 1. shows that the pattern of dots is seen not clearly in the scatterplot image and the dots are distributed above or below the number 0 with random and spread. The conclusion is that the regression model does not experience heteroskedasticity

Fig 1. Heteroskedasticity test
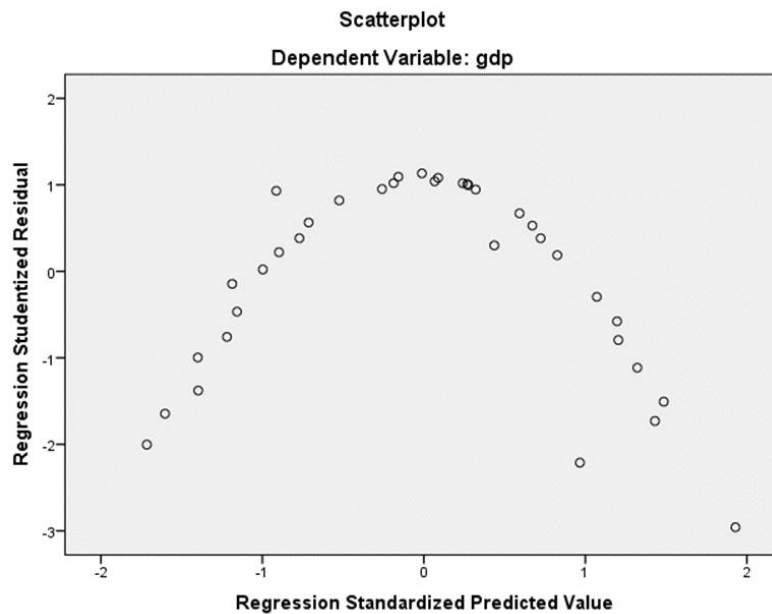
Source: data processed from SPSS V.22

C. Hypothesis Test

T tast

Is one of the validity tests used to determine the magnitude of the effect of independent variables independently.

Tabel 4. Hypothesis Test (t test)

Variable	sig. T	Critetia	Conclusion
X1	0.534	$\leq 0,01$	X1 significant effect on $\alpha = 0,01$
X2	1.339	$\leq 0,01$	*X2 significant effect*
X3	-0.857	$\leq 0,01$	*X3 significant effect*

Source : Data Processed from SPSS V.22

F tast

Test F is a hypothesis test used in order to test the influence of variables together. The Model can be said to exist if all independent variables simultaneously have an influence on the dependent variable. In this study, the formulation of the hypothesis model existence test is
H0: $\beta1 = \beta2 = \beta3 = 0$, the regression coefficient is simultaneously zero or the model does not exist;
HA: $\beta1 \neq 0 \vee \beta2 \neq 0 \vee \beta3 \neq 0$, regression coefficients are not simultaneously zero- valued or models exist. H0 will be accepted if prob value. or sig. empirical statistics F $\geq \alpha$.; H0 will be rejected if prob value. or sig. empirical statistics F $\leq \alpha$. From the regression model known value prob. or sig. the

statistical empirical F in the model estimate has a value of 0.0000 < 0.01, so H0 is rejected. In conclusion the model used in research exist

Coefficient of determination test

Coefficient of determination (R2) shows the predictive power of the estimated model. From the results of regression estimation obtained value R2 equal to 0.874, meaning 87.4% variation of economic growth variable (Y) can be explained by zakat variable(X1), unemployment(X2), and poverty(X3). The remaining 12.6% is influenced by variables or other factors that are not included in the model.

V.   DISCUSSION

A.   *The Effect Of Zakat On Economic Growth*

In this study Zakat has a significant negative effect on economic growth.Conceptually, the development of the zakat system can be considered as a complement to government programs in poverty alleviation. A certain degree of synchronization with government programs is expected. However, the current regulatory framework for the zakat sector must be improved so that the operation of the zakat system can be carried out more effectively. The results of this study are not in line with Widya Permatasari's research (2020) which states that Zakat has a positive and significant effect on economic growth, then Rachma sari Anggraini's research (2016) which shows that the variable zakat, infak, and alms (ZIS) has a positive and significant effect on economic growth in indonesia, then research by Purwanti Dewi (2020) explains that zakat,infak,alms has a positive effect on economic growth. The absence of results due to differences in the period of data collection.

B.   *The Effect Of Poverty On Economic Growth*

In this study, poverty has a significant negative effect on economic growth. Poverty is caused by a person's inadequacy in carrying out his daily life to a better level. Poverty is an emergency problem if it is not solved quickly, as more and more people are poor, then the pace of the economy can decrease or slow down. This is also evidenced by research conducted by by Achmad (2018) on Poverty Analysis of Indonesia's economic growth. shows the results that poverty has a significant negative effect on economic growth, then research Nadia Ika Purnama (2010) states that economic growth has a negative and significant influence on the level of poverty in North Sumatra province, then research Zurlinda, Purwaka Hari Prihanto, Jaya Kusuma Edy (2020) economic growth has a negative influence on the number of poor people in Tebo regency

C. *The Effect Of Unemployment On Economic Growth*

Unemployment can make economic growth decline as people's purchasing power falls, resulting in a lethargy for entrepreneurs to invest (Utami, 2020). In this study, unemployment has a significant positive effect on economic growth. This study is not in line with the research Of Nadia Ika Purnama (2015) that economic growth has a positive but insignificant influence on the unemployment rate in Medan. then the research conducted by Rovia (2006) which discusses the effect of unemployment and inflation on economic growth in Trenggalek Regency the results showed that unemployment has a significant effect on the rate of economic growth in Trenggalek Regency. The existence of non-conformance results due to different regions

VI.   CONCLUSION AND RECOMMENDATION

a.   Simultaneously, the variables zakat (X1), unemployment (X2), and poverty (X3) significant effect of 86.28% on economic growth (Y). The remaining amount of 13.72% influenced by variables or other factors that are not included in the model

b.   some zakat has been shown to have a negative and significant effect on economic growth in 2018- 2020.

c.   partial unemployment proved to have a positive and significant effect on economic growth in 2018-2020. Then the variable penggangur significant effect on economic growth.

d.   partial poverty has been shown to have a negative and significant influence on economic growth in 2018-2020

e.   Further research is expected to be able to add variables or periods of research data to specify the scope that will be used as better research material.

f.   Governments should design policies to strengthen collection mechanisms and develop transparent and easy-to-use Zakat distribution methods to benefit people in need

g.   The government prepares the management of zakat nationally accompanied by regulations that overshadow the management of zakat. In addition, there are institutions that are needed to support the zakat management system, including the Directorate of zakat with better performance, audit institutions, and social entrepreneurship institutions.

h.   The government needs to provide a budget for training programs to workers in order to have good skills or soft-skills so that they can work with good incomes so that poverty rates can decrease.

i.   It is hoped that local governments can prioritize job creation in labor-intensive sectors of the economy so that unemployment decreases and the number of poor people will decrease.

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Analysis Of Personal Information Disclosure To Mobile Wallet Applications Using Privacy Calculus Theory

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Abstract

This study investigates factors affecting individual's information privacy disclosure in the context of mobile wallet applications in Indonesia by adopting privacy calculus theory number of mobile wallet applications users are increasing and to use advanced features of these applications, providing personal information is inevitable regardless the phenomenon of information leakage occurred these past few years. There are limited studies on the actual behavior of consumer in disclosing their information. To supplement the literature, this study will adopt privacy calculus in the context of mobile wallet..: The proposed model is using self-administered survey distributed online with instrument based on previous privacy calculus literature. Data collected from 294 individuals who use mobile wallet application is processed using PLS-SEM.: The result indicates that people still disclose their personal information to obtain benefit even though there are perceived risks occurs. Immediate gratification shows the biggest influence in customers' personal information disclosure. The findings provide insight to the mobile wallet application companies to better understand the behavior of their users in disclosing personal information. Given the importance of customer data, these finding may help these actors to tailor their offers and minimize privacy risk to customers

Keywords— Mobile wallet; Privacy Calculus Theory; Perceived Benefits; Perceived Privacy Risks

I. INTRODUCTION

Internet users in Indonesia continue to increase from year to year and based on (Bayu, 2020) reaching 196.7 million in 2020, or 73.7% of the total population and 4.3% when compared to the total internet users worldwide (Kemp, 2020). The internet is used for various purposes such as accessing social media, conversation applications, banking, entertainment, and online shopping (Nirmala, 2020). One of the impacts of this high number of internet users is that digital financial services are growing positively. The total number of mobile wallet users in Indonesia in 2020 was recorded at 63.6 million (Inc., 2021). Based on a survey titled Boku: 2021 Mobile Wallets Report, Ovo, Shopeepay, LinkAja, Gopay and Dana are the five mobile wallets in Indonesia with the highest transaction growth in 2020. Bank Indonesia does not specifically define a mobile wallet, only several providers such as PT Visionet Internasional. (OVO) and PT Dompet Anak Bangsa (Gopay) are registered in the payment system of Bank Indonesia. (Bank Indonesia, 2020).

To get access to this mobile wallet, consumers are required to provide personal information such as name and e-mail address even to upload an image of identification such as an identity card if they want to access certain features. The collection of consumer personal information will assist companies in providing goods or services to increase consumer satisfaction (Aguirre et al., 2015; Thomas et al. 2020 in Aiello et al., 2020). Today, companies collect more information from consumers than ever to understand and serve consumers better (Seiders et al., 2005; Simonson 2005 in Mothersbaugh et al., 2012). Providing consumer identities into online lending and borrowing electronic agreements is regulated in Law no. 77/POJK.01/2016 concerning information technology-based lending and borrowing services article 20. In this law, it is stated that companies are required to ensure that the authentication, verification, and validation processes are carried out properly. Although this law regulates lending and borrowing funds electronically, this article is apparently adopted by fintech companies, including mobile wallet providers, so that the phenomenon of uploading ID cards to applications is becoming common in the community as a way of user authentication. In other words, information uploaded by consumers will ease the business to verify the authenticity of internet-based application users. However, this causes the consumer's personal information to be in the hands of the service provider company and creates the risk of information breaches (Kim et al., 2019).

One of the biggest risks arising from the large amount of personal data uploaded online is a privacy violation. There are at least three reports regarding privacy violations in Indonesia. In 2020, news circulated that 91 million user data of an e-commerce spread in May and July (APJJI, 2021). In May 2021, another news circulated that

data on 279 million Indonesians was leaked and sold (Association of Indonesian Internet Service Providers, 2021). The Ministry of Home Affairs stated that ID card data itself was not confidential data but certain parties were not allowed to collect and sell data on ID cards (Ariyanti, 2018). However, currently data on ID cards can be used by irresponsible parties to apply for online loans from illegal companies (Ariyanti, 2018). Indonesian people's concerns regarding this phenomenon can be seen in June 2021 which echoed in one of the social media which revealed how easy it is for someone to use another person's identity to apply for an online loan (Astutik, 2021). This phenomenon obstructs the business from collecting their consumers' information. Given the importance of consumers' data disclosure for companies, we argue that analysis of factors influencing consumers in disclosing their personal data becomes important.

There are several theories used by researchers to study online privacy behavior, however, privacy palculus theory is a general approach to study the combined effect of opposing forces on the perception and behavior of privacy (Li, 2012), this theory explains the trade-off between perceived privacy risk and perceived benefit of person in the disclosure of his personal information (Kim et al., 2019). From the perspective of this theory, economic benefits, personalization or convenience and social benefits tend to negate the disadvantages of perceived risk (Wilson & Valacich, 2012 in Barth & de Jong, 2017). Privacy calculus theory has been used by previous research to study the reasons consumers disclose personal information to hotel mobile applications and internet of things services (Kim et al., 2019). Another study conducted by Cheng et al.(2021) regarding the disclosure of personal information shows that immediate gratification has a positive effect on the perceived benefits of being willing to disclose personal information of online-based ride-sharing consumers. Privacy calculus is the most useful theoretical framework in discussing contemporary issues in privacy (Culnan & Bies, 2003 in Moroson & DeFranco, 2015). In addition, extensive empirical validation (Smith, et al, 2011 in Moroson & DeFranco, 2015) makes this theory is used as the main framework in this study.

Perceived benefits have a positive influence on the willingness to disclose personal data, inversely proportional to perceived privacy risk, which shows a negative effect (Kim et al., 2019). The benefits referred to in this context are the personalization of products or services that can be felt by consumers if they disclose the information needed by the company. Research conducted by Barth & de Jong (2017), explains that in conditions faced with choices, individuals usually choose small benefits in the short term rather than larger benefits in the long term, this benefit is called immediate gratification. In Indonesia, several mobile wallet applications require consumers to upload selfies with their ID cards as a verification requirement to access advanced features of the application, such as the pay later feature and transfer funds to other users in the same application.

In view of the above, this study was conducted to analyze the disclosure of personal data to the mobile wallet application from the perspective of privacy calculus theory.

II. LITERATURE REWIEW

A. Antecedents Of Perceived Privacy Risks

According to Dinev et al. (2006) and Malhotra, Kim and Agarwal (2004) on privacy calculus theory, perceived privacy risk is the extent to which people believe in the potential loss associated with disclosing personal data. Furthermore, in the study of Gutierrez et al. (2019) perceived privacy risks are defined as the uncertainty, discomfort and/or concern that users feel when they cannot anticipate the consequences of disclosing personal information. Dinev and Hart (2006) and Xu et al. (2011) define privacy risk as the likelihood and severity of losing one's personal information because of the party's opportunistic behavior (Jozani et al., 2020). Research by Glover and Benbasat (2010), explains the risk of misuse of information identified as one of the concerns of consumers in connection with e-commerce transactions (Bugshan & Attar, 2020).

An important aspect of personal information is the level of sensitivity of it (Mothersbaugh et al., 2012). Information sensitivity is defined as information from a person's profile that has the potential to undermine privacy if disclosed to untrustworthy parties or hostile individuals (McKnight et al., 2011). Based on the typology of information sensitivity conducted by Milne et al. (2017), perceived risk related to financial data is categorized into monetary risk where examples of risks that arise from misuse of this information are credit card fraud, theft of account information to sales and sharing of personal information to third parties.Some examples of potential harm caused by disclosing personal information include psychological (e.g. loss of self-concept due to shame), physical (eg loss of life or health), or material (e.g. financial or assets loss) (Mothersbaugh et al., 2012). Information sensitivity has an important role in determining attitudes towards the disclosure of personal information and consumers are more worried about sharing this information on websites because information

leakage can cause financial losses (Kim et al., 2019). B In the context of this study, personal information stated in ID card is sensitive data because if it falls into the hands of an irresponsible party, it will have the potential to cause material and immaterial losses, therefore, the first hypothesis proposed in this study is:

H1   : Information sensitivity has positive effect to perceived privacy risk

Privacy awareness, defined as the extent to which a person is aware of a company's privacy practices, is an important factor of perceived privacy risk (Cheng et al., 2021). This factor allows a person to make decisions in disclosing personal information. Therefore, it can be assumed that someone with a high awareness of privacy can protect his personal data and space (Pötzsch, 2009). These people will feel higher privacy risks compared to people who have lower privacy awareness (Cheng et al., 2021). By increasing users' awareness of the personal data that companies hold, they can become more aware of the potential threats to their data (Parker & Flowerday, 2021). This explanation forms the basis of the second hypothesis therefore, we argue that:

H2   :Privacy awareness has positive effect to perceived privacy risk

The next construct is previous online privacy invasion which is someone's negative experience from disclosing personal data online. Consumers who have experienced invasion of privacy information have higher concerns about perceived privacy risk compared to people who have not experienced it (Cheng et al., 2021). These experiences range from spam emails to identity theft and consumers who have experienced them do not feel like disclosing their personal data online (Awad & Krishnan, 2006). With the leaking of data for 279 million Indonesians and being traded in 2021 (Kontan.id, 2021), the Indonesian people have experienced an invasion of their personal data. Thus, the proposed hypothesis is:

H3   : Previous online privacy invasion has positive effect to perceived privacy risk

Mobile payment security refers to the security that individuals feel when using a mobile terminal for payments (Cheng et al., 2021). The volume of mobile payment transactions in Indonesia was USD 16.4 billion in 2019 (www.marketingcarf.getcraft.com,2020) and to USD 28 billion in 2020 (databoks.com, 2021). Compared to cash transactions, mobile payments are more secure and convenient and this payment method guarantees information privacy such as protection of payment information so that a higher mobile payment security indicates a lower risk of disclosing personal information (Cheng, et al, 2021). Thus, the proposed hypothesis is as follows

H4   **:** Mobile payment security has a negative effect on perceived privacy risk

Previous studies have emphasized the importance of information disclosure requirements for organizations and it has become common for users to provide information (for example, location and payment account details) on internet platforms to access services (Cheng, et al, 2021). In the mobile wallet application, at least an email address and name are needed to be able to access the service. As previously explained, to access some advanced features, this application even asks consumers to upload selfies with their ID cards. The more information a mobile wallet application requests, the more concerned consumers will be about the potential for information leakage (Cheng, et al, 2021). Thus, the proposed hypothesis is as follows:

H5   **:** Personal information disclosure requirements have a positive effect on perceived privacy risk

Another factor mentioned in Cheng et al.(2021) is the negative media coverage where the exposure indicates the reputation of the company, which affects people's assessment of an entity, and can influence individual risk perceptions. Repeated media exposure can affect familiarity with an object, and the amount of information available can reduce the perception of risk. In Indonesia, news about the misuse of personal data related to online loans has been widely covered by the media and has caused consumer concerns about their personal information (Kompas.com). Thus, the we argue that this factor is relevant to be raised in research in Indonesia with the hypothesis proposed as follows:

H6   **:** Negative media coverage has positive effect to perceived privacy risk

Trust was used as an antecedent of perceived privacy risks in previous studies (Malhotra et al., 2004; McKnight et al., 2011; Kim et al., 2019). Trust reflects a willingness to be in vulnerability based on positive things (Zhou, 2013). Yu et al. (2016) define trust in the context of online payments as a user's willingness to make payments over a mobile network and expect the payment platform to fulfill its obligations, regardless of the user's ability to monitor the actions of the service provider. If a person believes a website is reliable, functional and useful, he will be more likely to disclose information on that site (McKnight et al., 2011). Trust

is negatively associated with perceived privacy risk (Kim et al., 2019). Based on previous research, this research will propose the following hypothesis:

H7 : Trust has positive effect to perceived privacy risk

B. Antecedents Of Perceived Benefit

Smith et al. (2011) explain perceived benefits as related to financial rewards, personalization, and social adjustment benefits (Kim et al., 2019). The results of research by Keith et al., (2013) show that perceived benefits increase a person's intention to disclose personal information. Network externalities are perceived benefit factors used in Kim et al's research (2019) and are defined a the value or effect that users obtain from a product or service will bring about more value to consumers with the increase of users, complementary products, or service (Katz & Saphiro, 1985 in Hsu & Lin, 2016). Hsu and Lin (2016) divide network externalities into two, namely direct and indirect network externalities.

Direct network externalities emphasize the benefits obtained by adding new users (Zhang et al., 2017) which in the research of Kim et al. (2019) is divided into two, namely the number of IoT services, namely the number of points of internet-based application services and perceived critical mass defined as the large number of application users. The use of social networking sites is an example presented in this study, where the addition of new users provides existing users with greater opportunities to communicate and share, thereby increasing the utility of existing users. Similar to previous research, mobile wallets will also provide greater benefits if they have a number of users, both from the seller's and buyer's side, so that the two factors, perceived critical mass and number of IoT services, are adapted as antecedents and modified to suit the purpose of this research into numbers of application services with the following hypothesis:

H8 : Number of application services has positive effect to perceived benefit

H9 : Perceived critical mass has positive effect to perceived benefit

Indirect networks benefits are obtained by network users but are not directly generated from other users of this network (Lin et al., 2011). The study conducted by Kim et al. (2019) examines two factors from indirect network externalities, namely perceived compatibility and perceived complementary where the results of this study indicate that perceived compatibility affects perceived benefits significantly. Compatibility is defined as the extent to which a particular technology is perceived as consistent with the values, needs and experiences of the people who adopt that technology (Lin et al., 2011). The results of the study by Oliveia et al (2016) in Othman et al. (2020) explained that people believe that making virtual payments will bring them benefits. On the other hand, if people refuse to use a mobile wallet, they will not use it (Othman et al., 2020). Based on the findings of previous studies, the hypotheses proposed in this study are:

H10 :Perceived compatibility has positive effect to perceived benefit

Interestingly, the results of a study conducted by Kim et al. (2019) shows that perceived complementary does not significantly affect perceived benefit, which means that additional attributes of the service do not increase the utility of consumers. This finding is different from previous research conducted by Hsu & Lin (2016) where an increase in perceived complementary makes IoT services more useful. Perceived complimentary imply that when a product or service complimented to the main offered in greater supply or at a lower price, the value and demand for the main product will increase. In this study, complementary products or services from the mobile wallet application are used as an antecedent of perceived benefit because there are complementary services from the applications, such as GoTagihan from GoJek which allows users to pay household bills such as electricity cashless using GoPay. Thus, we argue that:

H11 : Perceived complimentary has positive effect to perceived benefit

Self-control problems cause individuals to tend to make decisions based on small and immediate benefits (Cheng et al., 2021). This factor is called immediate gratification in previous research, with a discount as one of the examples presented. It is elaborated that immediate gratification will stimulate people (Barth & de Jong, 2017). Based on our knowledge, this factor has only been used in the research of Cheng et al. (2021) where the research results show a positive influence on perceived benefits. Based on a survey conducted by Databoks in 2021, 69% of respondents who use mobile wallets adopt this technology due to discounts. vice). The perceptions of immediate benefits are directly associated with the perceptions of benefits (Cheng et al., 2021). Based on previous research and survey results in Indonesia, the authors propose the following hypotheses:

H12 : Immediate gratification has positive effect to perceived benefit

C. Privacy Calculus Theory

Houston and Gassenheimer (1987) in Moroson and DeFranco (2015) stated privacy calculus is based on exchange theory where this theoretical framework is the most adopted approach to study the combined effect of opposing forces on privacy perceptions and behavior. This theory states that a person's intention to disclose personal information is based on a calculus of behavior in which potentially conflicting factors are weighed in order to obtain a result, consumers carry out a risk-benefit analysis and decide whether to provide personal information based on the final results of the analysis. Lee, 2012). Research by Culnan and Armstrong (1999) and Laufer and Wolfe (1977) in Jozani et al. (2020) describes privacy calculus theory as a theory that examines the trade-off between costs and benefits that arise from disclosing information.

Privacy calculus serves as the summation of personal beliefs about the positive and negative outcomes expected from disclosure of information (Li, 2012). Furthermore, Wottrich et al. (2018) stated that people base their intention to disclose personal information on privacy calculus, where they consider potentially competitive factors, such as the costs and benefits of trading, taking into account the likely outcomes, trying to maximize positive outcomes and minimize negative outcomes. Angst and Agarwal, 2009; Li et al., 2011; Min and Kim, 2014 in Najjar et al., 2020) describe privacy calculus as a cognitive process in which some level of privacy can be sacrificed if the future benefits of an option outweigh the potential costs. This model considers two opposing components, namely risk and benefit (Dinev and Hart, 2006 in Moroson and DeFranco, 2015). The risks of disclosing personal information stem from consumer privacy concerns (Xu et al, 2008) but consumers also consider the benefits of disclosing personal data such as better service quality and service personalization (Culan and Bies, 2003). When making judgments, consumers do not perceive privacy as an absolute social value, but rather as a commodity characterized by economic value (Bennet, 1995 in Moroson and & DeFranco, 2015).

The results of previous studies show consistent results, where perceived privacy risk will reduce consumer intentions in disclosing personal data and is inversely perceived benefits would have a positive effect both in the context of IoT services and IT-enabled ride sharing (Cheng et al., 2021). Based on previous research, the hypothesis proposed in this study is

H13   : Perceived privacy risk has negative effect to intention to disclose personal information

H14   : Perceived benefit has positive effect to intention to disclose personal information

There are inconsistencies in the results of research on consumer intentions and behavior towards the disclosure of personal data (Cheng et al., 2021). However, the research conducted by Cheng (2021) is in line with the research conducted by Keith et al. (2013) where the results of both empirical studies show that people who have the intention to disclose personal data will have a positive effect on their behavior in disclosing personal data. Based on the two results of this study, the final hypothesis proposed is:

H15   : Intention to disclose information has positive effect to disclosure of personal information
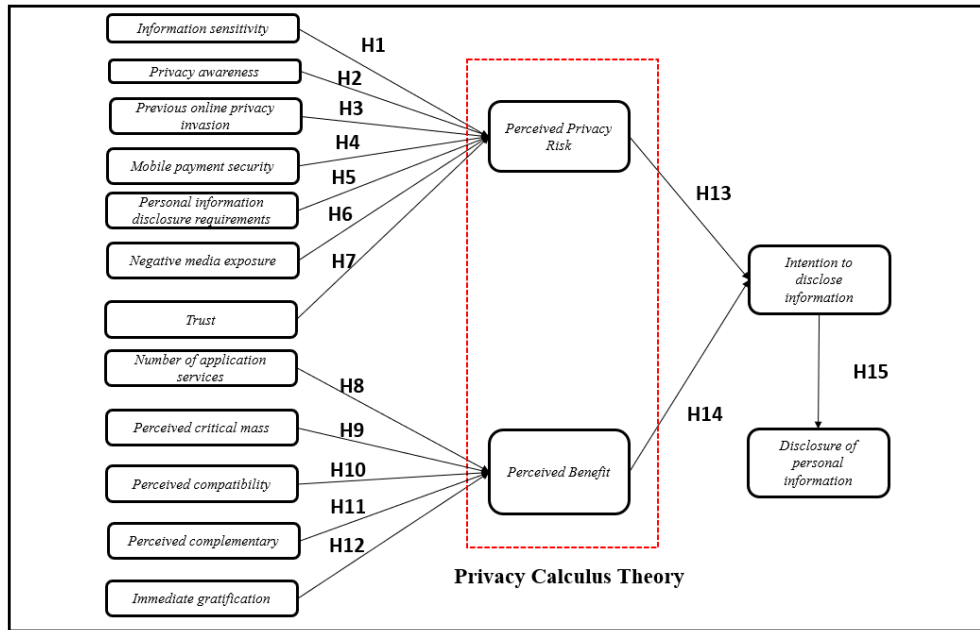
Fig. 1. Conceptual Model

III. RESEARCH METHODOLOGY

To test the hypothesis, the measuring instrument used is a questionnaire adapted and modified from previous studies. This study will use a Likert scale from 1 to 6, where 1 indicates the respondent "strongly disagrees" and 6 "strongly agrees" with the statement given. There are sixteen constructs that will be studied to measure the factors that influence the disclosure of personal information to the mobile wallet application.

Table 1. Definition of constructs

Constructs	Definition
Information sensitivity	Belief that certain information is possible result in loss of privacy if disclosed to others (McKnight, Lankton & Tripp, 2011 in Kim et al., 2019)
Privacy awareness	The extent to which one has knowledge of the organization's privacy practices (Cheng, et al., 2021)
Previous online privacy invasion	Negative experiences of online disclosure of information (Cheng, et al., 2021)
Mobile Payment Security	The security that individuals feel when using a mobile terminal for payments
Personal information disclosure requirements	Information that users must provide to use the mobile wallet application
Negative media coverage	Negative news about the application
Trust	Willingness to take risks (Meyer et al, 1995 in Ozdemir et al, 2017)
Number of application services	Individual beliefs about the number of application services (Hsu & Lin, 2016)
Perceived critical mass	User expectations of how much other people will use a technology (Kim, et al, 2019)
Perceived Compatibility	How far is the application considered consistent with the existing values, needs and past experiences of the adopters of the application (Hsu & Lin, 2016)

Perceived Complementary	Accessibility of products with characteristics that complement individual products (Lin et al., 2011)
Immediate gratification	Small and immediate benefits that directly affect decision making (Cheng, et al., 2021)
Perceived Privacy Risk	The extent to which people believe there are potential harms associated with disclosing personal information (Kim et al., 2019)
Perceived benefit	Financial rewards, personalization, and social adjustment benefits in exchange for personal information (Kim et al., 2019)
Intention to disclose information	Intention in disclosing personal data to mobile wallet application
Disclosure of personal information	Disclosure of personal data to the mobile wallet application

A quantitative approach is adopted by means of self-administered questionnaires. The data is analyzed using Partial Least Square Structural Equation Modelling (PLS-SEM). The unit of analysis of this study is a mobile wallet application user with criteria that must be met by the respondent, namely 17 years old and have used a mobile wallet application.

Partial least squares structural equation model (PLS-SEM) method. This method was used because PLS-SEM can explain the variance in the dependent variable when examining the model (Hair Jr et al., 2016). Researchers can use PLS-SEM when the analysis is concerned with testing the theoretical framework from a predictive perspective and when the structural model is complex and includes many constructs, indicators and/or relationships of the research model (Hair et al., 2016), the first step in evaluating the results of PLS-SEM. SEM involves measurement models. If the measurement model meets all the necessary criteria, the researcher then needs to evaluate the structural model.

The first evaluation of the measurement model is to test the loading indicator, where the recommended loading value is above 0.7. The next step is to assess the reliability of internal consistency (internal consistency reliability) using Cronbach's alpha and composite reliability (CR) with a recommended value greater than 0.7. Another evaluation on the measurement model is the average variant extracted (AVE) to analyze convergent validity, this value is at least 0.5. Fornell-Larcker criterion and cross-loading values were used to measure discriminant analysis.

After the measurement model assessment shows satisfactory results, the next step is to test the structural model. The first step is conducting collinearity test by measuring the value of the inner VIF, with the recommended value between 0.2 and 5. Testing the significance and relevance of the structural model relationship that represents the hypothetical relationship between constructs. The values used in this test are t-values and p-values with a significance level of 5% which are commonly used in marketing research. Thus, the relationship between constructs can be said to be significant if the p-values in the bootstrap are < 0.05. This study uses one-tailed tests because the hypothesis already has a certain direction, so that the reference value of t-values is > 1.65. Next is to see determinant coefficient (R^2 value) to see the predictive power of a research model with a value of 0.75, 0.5, or 0.25 defined as strong, moderate, or weak.

IV. RESULT / FINDING

Table 2 elaborates the characteristics of 294 respondents in this research.

Table 2. Respondents characteristic

Respondents characteristic (n = 294)	Frequency	Percentage
Gender		
Male	117	39,8%
Female	177	60,2%
Age		
17 - 20 year old	24	8,2%

21 - 25 year old	62	21,1%
26 - 30 year old	129	43,9%
31 - 40 year old	70	23,8%
> 40 year old	9	3,1%
Education		
High School	85	28,9%
Diploma	21	7,1%
Bachelor Degree	138	46,9%
Master Degree	49	16,7%
Doctoral Degree	1	0,3%
Frequency in using mobile wallet application		
Less than 4 times a month	29	9,9%
4 - 8 times a month	105	35,7%
9 - 15 times a month	95	32,3%
> 15 times a month	65	22,1%
Domicile		
Jabodetabek	177	60,2%
Outside Jabodetabek	117	39,8%
Mobile wallet application that is frequently used		
Shopeepay	185	19,1%
LinkAja	234	24,2%
Gopay	90	9,3%
Dana	216	22,3%
Ovo	237	24,5%
Others	5	0,5%

Hypothesis testing was carried out using the Structural Equation Model (SEM) method. The initial step in this analysis is to evaluate the measurements model to evaluate the validity and reliability of the measured construct (Hair Jr et al., 2016). The results of the validity and reliability tests on the main data can be seen in the following table.

Table 3. Validity and reliability tests

Construct	Code	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR)	AVE
Information sensitivity	IS1	0,750			
	IS2	0,666			
	IS3	0,712	0,771	0,844	0,521
	IS4	0,733			
	IS5	0,745			
Privacy awareness	PA1	0,796			
	PA2	0,740	0,668	0,810	0,587
	PA3	0,762			

Construct	Code	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR)	AVE
Previous online privacy invasion	PO1	0,862			
	PO2	0,880	0,798	0,882	0,714
	PO3	0,790			
Mobile Payment Security	MPS1	0,627			
	MPS2	0,685	0,735	0,828	0,549
	MPS3	0,788			
	MPS4	0,845			
Personal information disclosure requirements	REQ1	0,720			
	REQ2	0,880	0,841	0,889	0,669
	REQ3	0,906			
	REQ4	0,749			
Negative media coverage	NC1	0,800	0,825	0,896	0,743
Trust	TR1	-0,011			
	TR2	0,554	0,659	0,521	0,368
	TR3	0,893			
Number of application services	NAS1	0,773			
	NAS2	0,756			
	NAS3	0,765	0,841	0,887	0,612
	NAS4	0,767			
	NAS5	0,848			
Perceived critical mass	PCM1	0,821			
	PCM2	0,788	0,836	0,890	0,670
	PCM3	0,791			
	PCM4	0,872			
Perceived Compatibility	PCO1	0,776			
	PCO2	0,769	0,746	0,856	0,667
	PCO3	0,898			
Perceived Complementary	PC1	0,778			
	PC2	0,717	0,686	0,828	0,617
	PC3	0,856			
Immediate gratification	IG1	0,846	0,844	0,906	0,763
	IG2	0,852			

Construct	Code	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR)	AVE
	IG3	0,920			
	PPR1	0,786			
	PPR2	0,779			
Perceived Privacy Risk	PPR3	0,856	0,875	0,909	0,667
	PPR4	0,857			
	PPR5	0,803			
	PB1	0,800			
Perceived benefit	PB2	0,873	0,783	0,874	0,698
	PB3	0,832			
	ID1	0,799			
Intention to disclose information	ID2	0,775	0,777	0,871	0,694
	ID3	0,918			
Disclosure of personal information	DPI1	0,826	0,806	0,885	0,720

In reliability testing using Cronbach's alpha and composite reliability (CR), there are several constructs where Cronbach's alpha value is below the threshold (0.7), namely privacy awareness (0.668), trust (0.659), and perceived complementary (0.686). When viewed from the value of composite reliability (CR) with recommended value is greater than 0.7, only trust has a value below the threshold, 0.521. When analyzing and assessing reliability, the true value of reliability is usually between Cronbach's alpha and composite reliability (Hair Jr et al., 2016). Thus, a construct with Cronbach's alpha value below 0.7 but has a CR value higher than the threshold can be said to be reliable.

There are several indicators that have outer loadings values below 0.7. In general, indicators with an outer loading value between 0.4 and 0.7 can be considered for deletion if the removal of these indicators increases the composite reliability value above the threshold but indicators with a value below 0.4 should always be removed from the construct (Hair Jr et al., 2016). Therefore, the TR1 indicator will be removed from the construct, while the indicator with a value between 0.4 and 0.7 will be maintained considering that the composite reliability value is above the recommended value. This removal of indicator causes the increment of Cronbach's alpha to 0.689, CR to 0.796, and AVE to 0,674.

To test discriminant validity, the approach used in this study is the cross-loadings approach and the Fornell-Larcker criterion where this approach is still a standard tool for testing discriminant validity (Hair Jr et al., 2016). The Fornell-Larcker criterion compares the square root of the AVE value with the correlation of the latent variable where specifically the square root of each AVE construct is greater than the highest correlation with other constructs, these two approaches are the most frequently used in testing discriminant validity (Hair Jr. et al., 2016). A model has a good discriminant validity value if the correlation between constructs and their indicators is higher than the correlation with indicators from other block constructs. In this study, the discriminant validity requirements using the Fornell-Larcker criterion and cross-loadings have been met.

Table 4. Validity and reliability tests with Fornell-Larcker criterion

Construct	DPI	ID	IG	IS	MPS	NAS	NC	PA	PB	PC	PCM	PCO	PO	PPR	REQ	TR
DPI	**0,849**															
ID	0,818	**0,833**														

IG	0,182	0,224	**0,873**												
IS	-0,080	-0,120	-0,030	**0,722**											
MPS	0,201	0,351	0,323	-0,050	**0,741**										
NAS	0,289	0,196	0,431	-0,030	0,140	**0,783**									
NC	0,074	0,005	-0,070	0,380	-0,040	-0,030	**0,862**								
PA	0,151	0,046	0,316	0,165	0,000	0,542	0,113	**0,766**							
PB	0,365	0,408	0,521	-0,010	0,270	0,434	0,095	0,328	**0,835**						
PC	0,303	0,221	0,565	0,007	0,184	0,735	-0,040	0,599	0,481	**0,786**					
PCM	0,263	0,156	0,443	0,032	0,053	0,753	0,039	0,524	0,430	0,715	**0,819**				
PCO	0,261	0,212	0,502	-0,050	0,324	0,553	-0,060	0,368	0,456	0,704	0,578	**0,816**			
PO	0,103	0,032	-0,010	0,331	-0,060	0,068	0,340	0,175	0,124	0,126	0,167	0,070	**0,845**		
PPR	0,011	-0,060	0,038	0,488	-0,140	0,051	0,423	0,232	0,155	0,056	0,111	0,034	0,323	**0,817**	
REQ	0,347	0,390	0,064	0,199	0,255	0,067	0,277	0,009	0,218	-0,010	0,018	-0,020	0,153	0,162	**0,818**
TR	0,238	0,257	0,351	-0,060	0,472	0,314	-0,050	0,149	0,364	0,351	0,236	0,367	0,043	-0,060	0,123	**0,821**

In evaluating structural model, the value of the variance inflation factor (VIF) is below 5, indicating there is no collinearity problem in this research model. The value of R^2 depends on the complexity of the model and the research discipline. In marketing research, the R^2 value of 0.75 is described as strong, 0.50 moderate and 0.25 weak. (Hair Jr et al., 2016).

Table 5. Inner VIF value

Construct	DPI	ID	PB	PPR
DPI				
ID	1			
IG			1,52	
IS				1,27
MPS				1,39
NAS			2,83	
NC				1,31
PA				1,08
PB		1,03		
PC			3,45	
PCM			2,71	
PCO			2,09	
PO				1,23
PPR		1,03		

Construct	DPI	ID	PB	PPR
REQ				1,2
TR				1,34

Table 6. Structural Model Analysis

Construct	R2	p-Value
DPI	0,669	0,000
ID	0,181	0,002
PB	0,348	0,000
PPR	0,346	0,000

Information sensitivity (β = 0.330; t-value = 5.124; p-value = 0,000), privacy awareness (β = 0.134; t-value = 3.013; p-value = 0,001), previous online privacy invasion (β = 0.097; t-value = 1.908; p-value = 0.028), mobile payment security (β = -0.124; t-value = 2.024; p-value = 0,022), and negative media coverage (β = 0.231; t-value = 3.908; p-value = 0,000) have influences to perceived privacy risk. Hence H1, H2, H3, H4 and H6 are supported. However, H5 and H7 are not supported in this study. Personal information disclosure requirements (β = 0.047; t-value = 0.838; p-value = 0.201) and trust (β = 0.005; t-value = 0.073; p-value = 0.471) do not show effect to perceived privacy risk.

Furthermore, perceived compatibility (β = 0.144; t-value = 2.052; p-value = 0,020) and immediate gratification (β = 0.336; t-value = 4.872; p-value = 0,000) show positive influence to perceived benefit. Therefore, H10 and H12 are supported. Different to prediction, number of application services (β = 0.114; t-value = 1.351; p-value = 0.088), perceived critical mass (β = 0.074; t-value = 0.898; p-value = 0.185), and perceived complementary (β = 0.053; t-value = 0.624; p-value = 0.266) show no effect to perceived benefit. Hence, H8, H9, and H11 are not supported.

Statistic results of perceived privacy risk (β = -0.123; t-value = 1.740; p-value = 0.041) shows negative effect to intention to disclose information. Same as perceived benefit (β = 0.427; t-value = 29.017; p-value = 0.000) that shows positive effect to this construct. The same relationship occurs from intention to disclose information (β = 0.818; t-value = 5.973; p-value = 0.000) to disclosure of information. Therefore, H13, H14 and H15 are supported.
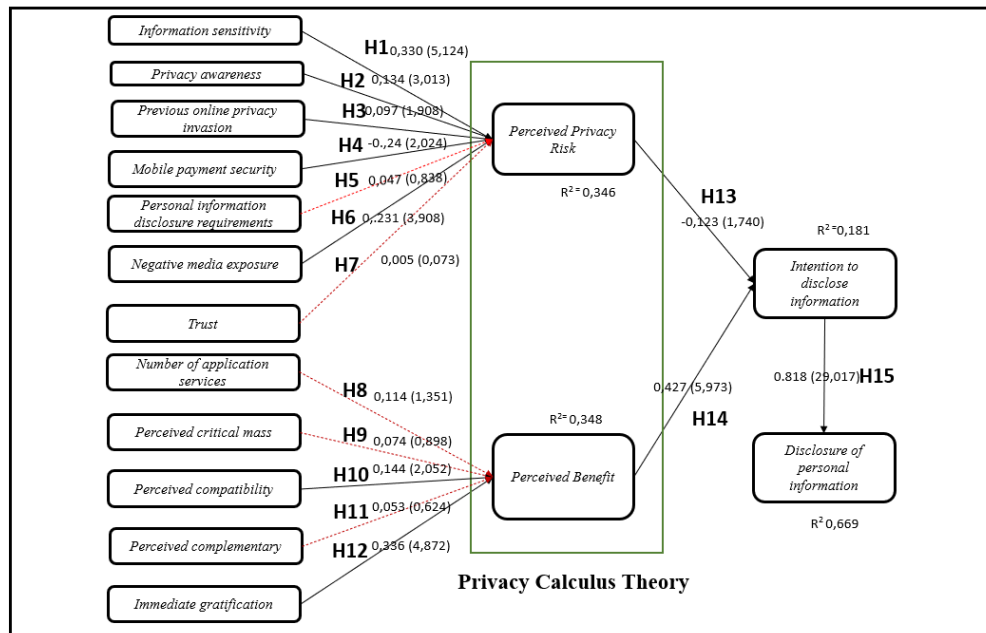
Fig. 2. Results for the proposed hypothesis

V. DISCUSSION

Firstly, the analysis shows that some antecedents of perceived privacy risk have effect on intention to disclose information. Information sensitivity shows positive effect on intention to disclose information. This shows that the more sensitive the information that consumers must provide to the mobile wallet application, the higher the perceived privacy risk. Customers are reluctant to provide sensitive personal information such as financial information that can be used to personalize the services offered (Kim et al., 2019). It is also revealed in this study that privacy awareness, previous online privacy invasion, and negative media exposure show positive effects to intention to disclose information, while mobile payment security has negative effect. On the other hand, the insignificant result of personal information disclosure requirements might be caused that it has become common among smartphone users' mobile applications to disclose their information and there are disadvantages for consumers if they do not provide it (Cheng et al., 2021). Furthermore, trust does not show effect to intention to disclose information. This finding differs from the results of previous studies, where the results show that trust in empirical studies in e-commerce (Malhotra et al., 2004), online contexts (Zimmer et al., 2010) and internet of things (IoT) (Kim et al. 2019) has a negative effect on perceived privacy risk. One of the reasons that might explain the difference in these findings is that respondents in this study felt that the existence of a mobile wallet application was very helpful for digital transactions, especially the applications mentioned in this research instrument were the mobile wallet application with the most users in Indonesia based on the Boku 2021 survey, so that the effect of trust does not affect perceived risk. Another thing that might explain this finding is based on the associationist view, trust and perceived risk are independent variables of attitude. It means, both can be represented independently rather than inferring perceived risk from trust (or vice versa) (Richard Eiser et al., 2002).

Secondly, perceived compatibility shows positive influence on intention to disclose information. This finding implies that users who feel that using a mobile wallet service is in accordance with their values and beliefs, are more prone to adopting the service (Hsu & Lin, 2016). In addition to that, this empirical study finds that immediate gratification will stimulate people and when faced with a choice, people usually prefer small benefits in a short period of time compared to larger benefits in the future (Barth & de Jong, 2017). Unexpectedly, number of application services, perceived critical mass, and perceived complementary do not affect the perceived benefit. This implies that the value of the services offered has not increased with the increase in the number of users. The possible reason behind this finding is the high use of cash payments. Although Hsu & Lin (2016) explained that popular and inexpensive complementary applications increase the value of a product or service, this empirical research proves that this is not found in the context of mobile wallets. An explanation that might support this result is that there are many other payment methods that have been adopted by users of the mobile

wallet application, so that complementary services such as paying electricity bills, taxes, and topping up pulses do not affect consumers' perceptions of the benefits of mobile wallets.

Finally, the privacy calculus theory predicts negative relationship which are supported in overall samples. This finding implies that the higher the perceived risk, the lower the consumer's intention to disclose personal information (Cheng et al., 2021). Furthermore, there is a potential benefit, people are willing to provide their personal information despite the higher privacy risks and perceived benefits also implying a stronger desire to disclose personal data (Kim et al., 2019). The relationship between information disclosure intention and disclosure behavior is inconsistent in the literature (Cheng et al., 2021). However, this study shows that there is positive relationship between intention and actual behavior on disclosing personal information (Cheng et al., 2021).

VI. Conclusion and Recommendation

The results of this study indicate that there is a positive effect of perceived benefit and a negative influence of perceived privacy risk on the intention to disclose personal information. This empirical research also proves that there is a positive effect of intention to disclose on the disclosure of personal information. This find supplements the literature on the privacy calculus theory framework by applying to the context of mobile wallets in Indonesia with twelve factors which are divided into seven factors of perceived privacy risk and five factors of perceived benefit. The results of this study support the basic theory of privacy calculus which states that a person's intention in disclosing personal data is a privacy calculus in which potentially opposing factors are weighed in order to obtain a result, consumers conduct a risk-benefit analysis and decide whether to provide personal information based on the final results. analysis (Li, 2012). In addition, some researchers argue that there is a paradox between the actual intention and behavior in disclosing personal data (Cheng et al., 2021). In this empirical study, the results of the analysis indicate that there is a positive relationship between intentions and actual behavior in disclosing personal data.

This research also has implications for managerial and corporate policy makers. Given that companies need data from consumers to provide personalized services, it is important to look at what factors influence the disclosure of consumer personal data to a platform, in the context of this study, a mobile wallet application. Companies that are aware that information sensitivity, privacy awareness, and previous online privacy invasion are correlated with perceived privacy risk can make clear regulations on consumer privacy protection in mobile wallet applications. To overcome negative media exposure, companies are expected to have crisis planning and emergency communication. Furthermore, based on empirical results, mobile payment security is negatively associated with perceived privacy risk, so companies must ensure that every transaction on a mobile wallet application is guaranteed safe.

The factor that has the greatest influence on the perceived benefit is instant gratification. This finding can be taken into consideration by the company to be able to increase the instant benefits that can be felt by its users. Examples of benefits that can be considered are providing additional discounts to consumers who have a certain level of application usage frequency or discounts from repeat purchases at one of the consumer's favorite merchants. The results of this empirical study, as a whole, prove that perceived benefit is a factor that influences the disclosure of one's personal data to the mobile wallet application. Thus, companies can consider increasing the benefits that consumers feel from using this application.

This research is inseparable from the limitations that can be used as improvements for further research. This research was only conducted in the context of mobile wallet application users so the results might be different if used in other contexts such as e-commerce. More than sixty per cents respondents in this study are domiciled in Greater Jakarta, so that further research can expand the reach of research respondents to other areas, especially outside Java. Thus, it can be seen whether there is a cultural influence in the disclosure of personal data.

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Analysis of Factors Affecting Non-Oil Gas Exports in Indonesia 2017-2021

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Abstract

A country's exports have an important role in increasing economic growth. Exports encourage the development of the domestic product market through the production process. Each country has the potential of natural resources that can be exported to expand the international trade market so as to attract investors to invest in the leading sector. Indonesia has 34 provinces with various sector in each region, especially in the non-oil and gas sector such as agriculture, mining and industry. Non-oil and gas exports in Indonesia from 2017-2021 continue to fluctuate where this is influenced by various factors. Therefore, this study aims to determine the factors that influence non-oil and gas exports in Indonesia and to anayze wich provinces have a dominant influence on non-oil and gas exports. The research used a panel data regression analysis tools consisting of time series data for 4 years and cross section data 34 provinces. Based the results of research, it is known that inflation has a significant effect on non-oil and gas exports. While foreign investment and Gross Regional Domestic product (GRDP) simultaneously have no significant effect on non-oil and gas exports in Indonesia. It can be concluded that partially inflation, foreign investment and GRDP have a significant effect on non-oil and gas exports.

Keywords— non-oil and gas exports; inflation; foreign investment; GRDP

I. INTRODUCTION

A country's exports have an important role in increasing economic growth. Exports can supply the country's budget through revenues and foreign currency that can be used to improve infrastructure and create an attractive investment climate (Mohsen, 2015). In addition, exports also have an important role in developing the domestic product market. The role is related to the efforts made by the government to encourage an increase in the amount of output and the use of more modern technologies in the production process.

Indonesia is an archipelagic country with 34 provinces that have abundant natural resources. DG of plantitaion dalam (Aisyah & Renggani, 2021) states that the oil and gas reserves are considerable as well as agricultural and plantation products. In an effort to diversify exports to commodities other than oil and gas, the Indonesian government focuses more on exporting agricultural products such as cocoa, coffee, palm oil, natural rubber and white pepper. The non-oil and gas sector which is the leading sector is in the agricultural, mining and industrial sectors. The use of technology that has not been maximized has an effect on the products produced so that they are not able to compete with the products of other countries. In export activities, there are several things that affect the value of exports. In the chart below, the development of the value of non-oil and gas exports and the factors that affect them will be attached.

Fig 1.Non-Oil and Gas Exports in Indonesia in 2017 – 2021
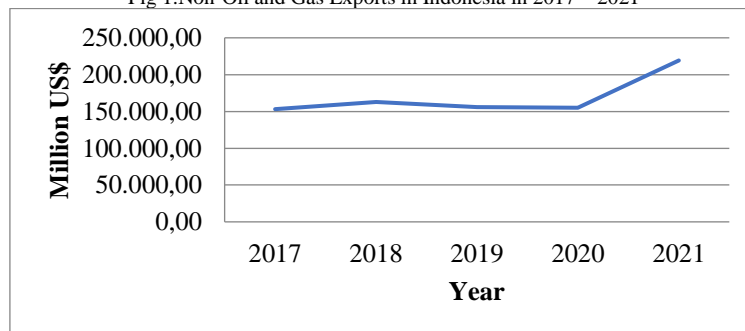
Source : Indonesian Ministry of Trade

Table 1. Realization of Indonesian Foreign Direct Investment in 2017 - 2021

No	Year	Realization of FDI (Million US$)
1	2017	32.239,00
2	2018	29.307,00
3	2019	28.208,90
4	2020	28.666,30
5	2021	31.093,10

Source: Indonesian Central Statistics Agency

In chart 1.2 it can be seen that the realization of foreign investment during the period 2017 to 2019 continues to decline. The realization rate of FDI in 2019 has the lowest value of 28.208,90 million US$. Then starting in 2020, it has begun to increase again until in 2021 there was a very significant increase of 31.093,10 million US$.

Gross Domestic Product (GDP) is one of the indicators used to look at economic growth. GDP is the output of goods and services produced by units of production within the territorial boundaries of a country for a year. Meanwhile, to find out the income of a region can be seen through the GRDP (Gross Regional Domestic Product). One of the components that contribute to GDP is total exports. In macroeconomic theory, the relationship between exports and national income is an identity equation because exports are part of the national income level (Hutagulung, 2020). The following will be attached a graph of Gross Domestic Product (GDP) in Indonesia.

Table 2. Gross Domestic Product (GDP) in Indonesia 2017 - 2021

No	Year	GDP (Billion Rupiah)
1	2017	9.912.928,10
2	2018	10.425.851,90
3	2019	10.949.155,40
4	2020	10.723.054,80
5	2021	11.118.868,50

Source: Indonesian Central Statistics Agency

II. LITERATURE REVIEW

A. Export

Export is the activity of selling goods/services from the customs area in accordance with applicable laws and regulations. The customs area is the entire national territory of a country, where import duties and exit duties are levied on all goods that cross the boundaries of that territory, except for certain parts of the territory that are expressly (by law) declared as territories outside the customs territory. The export of a country usually consists of goods and services produced within its own country . however, it does not rule out the possibility of exporting goods that are imported or some goods in imports and some goods in re-export (Purnamawati & Fatmawati, 2013)

In export trade transactions, an exporter has a lot to do with various agencies / institutions that support the implementation of these export transactions. In general, the grouping of export goods is as follows (Purnamawati & Fatmawati, 2013):

a. Goods regulated by the export trade system, is a grouping of goods whose export can only be carried out by a company that has obtained recognition as a registered exporter from the minister of industry and trade. A registered exporter is a corporate or individual entity that has received recognition from the Minister of Industry and Trade to export certain goods according to applicable decisions. Items that are regulated by the commercial system include coffee, text and plywood.

b. Goods supervised by export, are goods whose export can only be carried out by a company that obtains approval from the Minister of Trade or an appointed official taking into account the proposal of a technical supervisory agency. Goods that are supervised by exports include: fertilizers, oil and gas, palm kernel, milkfish fry and so on.

c. Goods that are prohibited from export, are goods that must not be exported as stipulated by the Minister of Trade in accordance with the needs and development of the national economy and interests in general. The types of goods that are prohibited for export include: fishery products in a living state, wild animals and natural plants that are protected and ancient goods of cultural value.

d. Goods that are free of export, are goods that do not belong to the regulated, supervised and prohibited group of goods for their export. Thus its export can be carried out by any company or individual that already has predetermined requirements.

The general provisions of exports in Indonesia have been stated in the decree of the Minister of Industry and Trade No.558/MPP/Kep/12/1998. The annex to this decision has been amended several times. Last time with the decree of the Minister of Industry and Trade No. 118/MPP/Kep/2003.

B. Inflation

Inflation is an economic symptom that indicates a sustained rise in the general price level. The condition of inflation is that there is a general and continuous increase in prices (Hasyim, 2017). Inflation can have an effect on a country's exports can increase because capital from debt or loans to produce goods and services increases. This is in accordance with the opinion (Ball, 2005), i.e. when the inflation rate is high, it will encourage loans and loans will be repaid at a smaller value for money. Judging from the source of the cause, inflation can be classified into three, namely:

a. Demand inflation, this group of inflation is called demand pull inflation. This inflation arises when there is an increase in prices in overall demand. In other words, inflation occurs in a state of rapidly developing economies. High job opportunities generate high incomes, thus encouraging expenditures that exceed the economic ability to produce goods and services. This overspending gives rise to inflation (Hasyim, 2017).

b. Supply inflation, another term for this inflation is cost pull inflation. This inflation is due to an increase in production costs. Prices and wages rise before the full level of resource use is reached. Labor insists on demanding wage increases even though there are still many workers who are not working. A highly skilled workforce will offer its workforce at a high price. High wages and production costs will encourage producers to sell their produce at high prices which in turn urges other prices to also rise (Hartono, 2006).

c. Mixed inflation, is inflation caused by the mixture and the pull of demand and the impulse of costs. The result of mixed inflation itself is the increase in unemployment due to pressure on labor offers urging to increase wages or monopolistic / oligopoly actions within companies in the economy so that there is an income gap or what is known as a deflationary gap.

C. Foreign Investment

Investment or investment is an investment given by individuals or companies or organizations both domestically and abroad. In accordance with Law No.25 of 2007 concerning Investment is Foreign Investment and Domestic Investment. Based on economic law decisions or business law, investment technology is divided into foreign direct investment by local investors and foreign investors and investment made indirectly by foreign indirect investment carried out in the capital market (Untung, 2010). Direct investment is a form of direct investment where the investor is directly involved actively in business processing activities and is directly responsible in the event of a loss. Foreign investment in the form of direct investment, especially regarding the establishment / formation of a new company, is somewhat different because the project in question must not only meet formal requirements but also material requirements. On condition that the formil is intended in the sisni that it must be fulfilled the provisions of the regulations of the State concerned, while the material condition is in the sense that the project will be able to meet the economic usefulness of the state (Sunny, 1976).

Indirect investment is a short-term investment that includes transaction activities in the capital market and in the money market. This investment is called short-term investment because in general, buying and selling shares

and or currencies in a relatively large period of time depends on fluctuations in the value of shares and or currencies to be traded (Suprancana, 2006). Law No.1 of 1967 states that the definition of foreign investment in this Law only includes direct foreign investment carried out according to or based on the provisions of this Law and which is used to run a company in Indonesia, in the sense that the owner of the capital directly bears the risk in the investment.

D. Gross Regional Domestic Product (GRDP)

Gross Regional Domestic Product (GRDP) is the amount of gross added value arising from all sectors of the region's economy. The purpose of calculating this GRDP is to provide information that can describe regional economic performance, assist in regional policymaking or planning, and evaluate development results (DJPB, 2020). According to the Central Statistics Agency, Gross Regional Domestic Product (GRDP) is one of the important indicators to find out the economic condition in a region in a certain period, both on the basis of prevailing prices and on the basis of constant prices.

GRDP on the basis of prevailing prices describes the added value of goods and services calculated using the price in the current year. GRDP according to the prevailing price is used to determine the ability of economic resources, shifts, and the economic structure of a region. GRDP on the basis of constant prices indicates the added value of such goods and services which is calculated using the price in force in one year as the base year. Constant price GRDP is used to determine the real economic growth from year to year or economic growth that is not influenced by price factors. According to the Central Statistics Agency, the calculation of GRDP conceptually uses three kinds of approaches.

a. Production Approach, Gross Regional Domestic Product is the amount of added value to goods and services produced by various units of production on the territory of a region over a certain period of time (usually one year). The production units in this presentation are grouped into 17 business fields (sectors), namely: agriculture; forestry and fisheries; mining and quarrying; processing industry; procurement of electricity and gas; water procurement, waste management, waste and recycling; construction; large and retail trade, repair of cars and motorcycles; transportation and warehousing; accommodation preparation and drinking; information and communication; financial services and insurance; real estate; corporate services; administration of government, defense and compulsory social security; educational services; health services and social activities; other services.

b. Spending Approach, Gross Regional Domestic Product is the amount of value of goods and services (Output) products produced within an area to be used as final consumption by households, Non-profit Institutions serving Households, and the government coupled with investment (gross fixed capital formation and inventory changes), as well as net exports (representing exports minus imports).

c. Revenue Approach, Gross Regional Domestic Product is the amount of recompense received by production factors that participate in the process of prosukdi in an area within a certain period of time (usually one year). The repayment in question is wages and salaries, land rent, interest on capital and profits, all of which have not been deducted from income tax and other direct taxes. In this definition, GRDP includes also depreciation and net indirect taxes (indirect taxes minus subsidies).

III. RESEARCH METHODOLOGY

To determine the effect of inflation, foreign direct investment (FDI), and gross regional domestic product on non-oil and gas exports in Indonesia, this study uses panel data. This study used panel data regression analysis which consisted of time series data for five years and cross section data for 34 provinces in Indonesia which resulted in 170 observations. So that the econometric model of this study is:

$$LogEXP_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 LogFDI_{it} + \beta_3 LogGRDP_{it} + \varepsilon_{it}$$

EXP is total Indonesian Non-oil Exports in million dollars, Inf is Inflation in percentage, GRDP is Gross Regional Domestic Product in million dollars, FDI is Foreign Direct Investment in million dollars, log is logarithm based operator ε, β_0 is the intercept, $\beta_1 \ldots \beta_3$ are the slope coefficient of the model, *i* is cross section and *t* represent the time series.

IV. RESULT / FINDING

This study analyzes the factors affecting non-oil and gas exports in Indonesia. The independent variables used are three variables, namely inflation, foreign investment and gross regional domestic product. This study used a panel data regression analysis tool with model estimation through three approaches, namely Cammon Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). The following will be presented the results of the panel data regression estimates in Table 4-1.

Table 3. CEM, FEM, REM Regression Results

Variable	CEM		FEM		REM	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-5,4656	0,0000	-26,953	0,0727	-6,2701	0,0018
INF	9,0547	0,0330	2,3374	0,4317	3,2472	0,2673
LOG(FDI)	0,3301	0,0003	0,0953	0,4511	0,1902	0,0624
LOG(GRDP)	0,8832	0,0000	2,8102	0,0255	1,0322	0,0000
R-Squared	0,53729		0,84618		0,27508	
F-Statistic	64,2524		20,3243		20,9978	
Prob(F-statistic)	0,00000		0,00000		0,00000	
DW-Stat	0,81885		2,22842		1,72045	

Model Selection Test

(1) Chow Test
Cross Section F(33,133) = 8,093734; Prob.F(33,133) = 0,0000
(2) Hausman Test
Cross section random $\chi^2(3)$ = 11,372652; Prob. $\chi^2(3)$ = 0,0099

Source: Processed E-Views

Based on the model above, it is necessary to do some testing to determine the best estimation model. Here are the results of the model tests that have been carried out. In the chow test, the hipotesis (H_0) states that the selected model is the Common Effect Model while the alternative hypothesis (H_A) states that the selected model is the Fixed Effect Model. In table 4-1 it can be seen that the value of Prob.F (0,0000) < α (0,05) then H_0 is rejected so that the selected model is FEM (Fixed Effect Model).

In the chow test the selected model is FEM then the next test is the hausman test. Hipotesis (H_0) the hausman test states that the selected model is the Random Effect Model while the alternative hypothesis (H_A) states that the selected model is the Fixed Effect Model. In table 4-3 it can be seen that the value of Prob.F (0,0285) < α (0,05) then H_0 is rejected so that the selected model is FEM (Fixed Effect Model). Based on the chow test and hausman test, the selected model is FEM (Fixed Effect Model).

There are three tests carried out in this study, namely the Simultaneous Significance Test (Statistical F Test), Partial Significance Test (Statistical Test t), and Coefficient of Determination (R^2). Based on table 4.1, it can be seen that the Value of Prob (F-statistic) in the Fixed Effect Model estimate with Prob (0,0111) < α (0,05) which means H_0 is rejected. So it can be concluded that together the variables of Foreign Investment, Domestic Investment, and Employment have a significant influence on the dependent variable.

The test criteria for the statistical test t is that if the prob > α then H_0 is accepted, but if the prob ≤ α then H_0 is rejected. The results of the statistical test t for all independent variables in the Fixed Effect Model (FEM) can be seen in table 4.2.

Table 4. Partial Significance Test Results (Statistical Test t)

Variable	Prob t-statistic	Criteria	Conclusion

		> 0,10	
INFLATION	0,4317		No significant effect
LOG(FDI)	0,4511	> 0,10	No significant effect
LOG(GRDP)	0,0255	< 0,05	Significant at $\alpha = 5\%$

Source: Processed E-Views

The coefficient of determination is used to find out how much the variance of the dependent variable can be explained by the independent variable. Table 4.1 shows the regression results of fixed effect models, obtained values R-Squared (R^2) of 0,84618 which means that 84,62% of the variation in the non-oil and gas export variable can be explained by the variables of inflation, foreign investment and gross domestic product. The remainin 15,38% is influenced by variables or other factors that are not included in the model.

V. DISCUSSION

Based on the chow test and hausman test, the selected model is FEM (Fixed Effect Model). Here are the complete results of the Fixed Effect Model estimation model in table 4.3.

Table 5. Fixed Effect Model Estimation Model

$$LogEXP_{it} = -26,953 + 2,3374 LogINF_{it} + 0,0953 LogFDI_{it} + 2,8102 LogGRDP_{it} + \varepsilon_{it}$$

(0,4317)   (0,4511)   (0,0255)***

$R^2 = 0,84618$; F-Stat = 20,3242; Prob(F-statistic) = 0,0000

Source: Processed *E-Views*

Description: * = significant at α (0,01); ** = significant at α (0,05); *** = significant at α (0,10). The number in parentheses is a t-statistical probability.

In table 5.1, it can be seen that the independent variable in the FEM model that has a significant influence on non-oil and gas exports is GRDP. Meanwhile, what does not have a significant influence on non-oil and gas exports is inflation and foreign investment.

The GRDP variable has a regression coefficient of 2,8102 with a probability value of 0,0255 where the value is smaller than α (0,05), so it can be concluded that the GRDP has a positive and significant effect on non-oil and gas exports, which means that if the GRDP increases by 1%, non-oil and gas exports increase by 2,8102%. According to (Sukirno, 2004) states that the determinants of exports is the country's ability to produce goods that can later compete in foreign markets. With the increase in GRDP in each region, it will also increase the amount of production of goods produced so that the export of these products will also increase, and vice versa. The results of this study are in accordance with research conducted by Aisyah (2021) which states that GDP has a positive and significant effect on exports. There are other studies that support this research, namely the research conducted by (Ashari, Sudarusman, & Presetyo, 2020) that GRDP has a positive and significant effect on non-oil and gas exports.

The inflation variable has a regression coefficient of 2,3374 with a probability value of 0,4317 where the value is greater than the α (0,10), so it can be concluded that inflation has no significant effect on non-oil and gas exports. The findings of this study are consistent with the results of the research conducted (Ashari et al., 2020). The foreign investment variable has a regression coefficient of 0,0953 with a probability value 0,4511 where the value is greater than the α (0,1), so it can be concluded that foreign investment has no significant effect on non-oil and gas exports. The results of this study are supported by research (Editiawarman & Idris, 2020) which states that foreign direct investment has no significant and positive effect on Indonesia's non-oil and gas exports to the United States.

For the constant value of the 34 provinces in Indonesia, the highest is North Maluku Province. This can be seen from the value of non oil and gas exports in North Maluku Province which continues to increase significantly from 2017-2021. In contrast to other provinces, the development of export value is not too high and even tends to fluctuate. From the demand side, economic growth stems from the high acceleration in the

component of foreign exports. The increase in inventory also affects the economic growth of the Nort Maluku because it is supported by the activities of the mining sector and the manufacturing industry. (BI, 2021).

VI. Conclusion and Recommendation

Based on the results of research and testing that has been described regarding the analysis of the effect of inflation, foreign investment and GRDP on non-oil and gas exports in Indonesia in 2017-2021, several conclusions can be drawn as follows:

a. Based on the results of data processing, the Fixed Effect Model (FEM) was selected as the best estimator model.
b. The coefficient of determination (R^2) of the Fixed Effect Model (FEM) of 84,62% variation in non-oil and gas export variables can be explained by the variables of inflation, foreign investment and GRDP. The remaining 15,38% is influenced by variables or other factors that are not included in the model.
c. Through test F Statistics proves that simultaneously the variables of inflation, foreign investment and GRDP have an influence on non-oil and gas exports in Indonesia.
d. Through the Statistical Test, it can be seen that partially the GRDP variable has a significant effect on non-oil and gas exports in Indonesia with a coefficient of 2,8102. Meanwhile, inflation and foreign investment have no significant effect.

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Te Resilience of The Agricultural Sector in Central Kalimantan

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Abstract

In Indonesia, rice has become a primary food especially in Central Kalimantan Regency/City. Food needs such as rice are the essential basic needs for the community and need to be fulfilled before other needs. The reduction in harvested area and rice production cause shortages in food availability especially rice. This study examines the effect of harvested area, agricultural sector labor, regional minimum wages, and education on district/city rice production in Central Kalimantan Province from 2018 to 2021. This study employed panel data regression to estimate secondary data from 14 districts/cities of Central Kalimantan Province for a 4-year research period from 2018 to 2021. The results showed that only harvested areas negatively affected rice production, while agricultural sector labor, regional minimum wages, and education did not affect rice production in Central Kalimantan districts/cities from 2018 to 2021.

Keywords: labor, harvested area, education, rice production, regional minimum wage.

I. INTRODUCTION

The agricultural sector is vital to Indonesia's development and the national economy. Most of Indonesia's population makes a living as farmers. The agricultural sector is vital to provide food, industrial raw materials, business opportunities, and farmer's income source. One of the agricultural commodities that are needed by the community is rice. It is because rice is needed by the community as their primary food. There are several reasons for the importance of sustainable rice production: rice is a primary food for the Indonesian and is an important commodity to maintain food security in rice farming, which has become a part of the lives of Indonesian farmers. Thus, creating significant employment opportunities and the contribution of business but rice to household income are quite large (Hamdan, 2013).

Central Kalimantan is an area for the development of various food crops. One of the crops is rice commodity which mainly cultivated by farmers in Central Kalimantan. According to Purwaningsih (2017), labor is one of the main inputs in farming. Agricultural labor is classified into human, livestock, and mechanical or machine labor. Labor can be obtained within the family or from outside the family. The workforce is further divided into male, female, and child workers. Labor restrictions on children are under aged 14 years old.

Based on BPS data for the last four years (2018-2021) the workforce in the agricultural sector in Kalimantan continues to tend to increase every year. In 2018 499.137 people were working in the agricultural sector. There is an increase by 504.701 people in 2019. However, in 2020 the workforce decreased by 1.791 people to 502.910 people. In 2021, the workforce will increase by 2730 people to 505640 people. The data can be seen in Table 1.1.

The rice production is expected to incrase by the increase in labor. Thus, that the agricultural sector can become one of the leading sectors that able to fulfill the community's need for food which continues to increase. The data can be seen in Table 1.2 that rice production during the last four years has fluctuated but tends to increase.

Table 1. The Development of Workforce in Agricultural Sector in Central Kalimantan 2018-2021

Year	Rice Production (ton)
2018	499137
2019	504701
2020	502910
2021	505640

Source : Statistic of Central Kalimantan

Table 1. provide that in 2018 the rice harvested area in Central Kalimantan Province was 202.142 ha, with a total rice production of 223647.26 tons. Thus, the rice commodity is identified as the most significant food crop commodity in Indonesia. However, in 2021, rice production in Central Kalimantan experience a significant decline of 55507.96 tons from 455952,00 in 2020 to 400444.04 tons in 2021. This makes Central Kalimantan has the lowest rice production in Indonesia in 2021. The low rice production in Central Kalimantan is not affected by the agricultural sector workforce. It is because in 2020 the agricultural sector workforce was increase, while rice production was declined. Another factor is the problem of micro water management (irrigation) and the use of superior varieties, which are still few in Central Kalimantan.

Table 2. The Development of Rice Production in Central Kalimantan from 2018 to 2021

Year	Rice Production (ton)
2018	223647,26
2019	443561,33
2020	455952,00
2021	400444,04

Source: Beurau of Statistic of Central Kalimantan

Greling (2012) revealed that farmers and agricultural industry organizations often emphasize the importance of the agricultural sector in the South African economy. In reality, however, the agricultural sector has accounted for less than 3% of the economy since 2005. The results show that the agricultural sector has not been able to meet the demand for the leading food consumed domestically since 2000. However, this does not result in an expected rapid increase in foodstuffs and general inflation. Second, agricultural exports do not play a significant role in growth but balance economic development. Third, the sector has been releasing labor to the entire economy since 1962 that meets the economic development literature. Fourth, the agricultural sector has been making net capital transfers throughout the economy since the mid-2000s. Finally, the agricultural sector has the most substantial linkages representing about 7% of the economy in 2010.

Central Kalimantan Province has various potentials and problems related to food security, especially rice production, where the level of rice production fluctuates yearly. Meanwhile, the needs of food from year to year continue to increase. This affected by various factors, one of which is the workforce in the agricultural sector, which continues to increase and affects the rice production level in Central Kalimantan. The effect of inputs (harvested area, labor, wages, and education) can affect the level of rice production in Central Kalimantan. This study aimed to determine the effect of the harvested area, labor, wages, and education on rice production in the districts/cities of Central Kalimantan during the 2018-2020.

II. LITERATURE REVIEW

A. Production Theory

According to Sukirno (2011), there is a very close relationship between the production factors and the production result in the production process. Habib (2013) stated that the production theory describes the relationship between the production factors and the production level. The production theory can be expressed in terms of the production function and the production level. The factors of production are known as inputs, and the amount of production is called output.

According to Murdiantoro (Setyaningsih & Padang, 2018), in farming activities, production factors are needed, consisting of four components: capital, land, labor, and expertise. In some literature, some experts list only three factors of production: land, capital, and labor. Each factor has a different function and is interrelated with each other. If one of the factors is unavailable, then the production process or farming will not work, especially the three factors such as land, capital, and labor.

The production factor of land (land) consists of several other natural factors such as water, air, temperature, sunlight, and others. The existence of soil production factors is seen in its narrow area and other aspects such as

soil type, land use, topography, low height, and others. In addition to land production factors, agriculture is also affected by capital factors. The higher capital per business unit will boost capital-intensive or intensive business. Labor also has an important role in agricultural production in economics. Labor is a tool of human physical and brain power, which cannot be separated from humans and is aimed at production efforts. According to some agricultural economists, workers aged 15-64 years are potential residents who can work to produce goods or services (Setyaningsih & Padang, 2018).

B. Rice Production

Rice is the primary food source for the Indonesian population, most of which is cultivated as lowland rice. In general, lowland rice varieties in conditions of narrow spacing will experience a decrease in growth quality, such as fewer tillers, shorter panicle length, and of course, a reduced number of grains per panicle compared to wide spacing (Andrias et al., 2017).

Land area, seeds, fertilizers, and labor factors affect the production and production efficiency of rice farming. The level of rice production is strongly affected by various factors, such as technology, pre-harvest and post-harvest handling, human resources, land, fertilizers, and others (Puronomo & Utami, 2018).

C. Harvested Area and Rice Production

Agricultural land determines agricultural commodities. A large area of land will produce more products. Each region has its unit to determine the land area. The unit for calculating land area is divided into 4; internationally, it uses ha/hectare; nationally, it uses ha/m2. Provincially it is often used shoulder, tombak, or chain. As for local, goods such as handicrafts are usually used (Nurmala, 2012).

The harvested area in Indonesia continues to increase, although the area of rice fields in Indonesia tends to decrease. It happens because the harvested area is the result of multiplying the area of land with the intensity of the plant. Where the wider the paddy field, the more the harvest area increases, indicating that the intensity of the crop is more dominant in the development of the harvested area (Hasan, 2010).

Hartina et al. (2018), using multiple regression analysis OLS (Ordinary Least Square), found that land area has a significant influence on rice production in Sanggi-Sanggi Village, Palangga District, South Konawe Regency with a regression coefficient of 0.466 and empirical significance (ρ) t is 0.020 (<0.10). While the wages of labor and education have no effect on rice production with empirical significance (ρ) t of 0.565 (> 0.10) and 0.682 (> 0.10), respectively.

D. The Effect of Education on Rice Production

Education is one of the most important factors to improve the quality of human resources and is very decisive in processing their farming business because education will affect how farmers think (Onibala et al., 2017).

The level of education of farmers will affect how they think about managing their farming business. It affect their ability to manage a farm and accept innovations. Education also has a positive relationship with a person's aspirations which will ultimately determine a person's decision. Farmers with higher education are usually more dynamic, fast, and precise in making decisions from each alternative business than farmers with low education. This is because they have more experience in agriculture (Yusmel et al., 2019).

A study by Machmuddin et al. (2019) employed multiple regression analysis OLS (Ordinary Least Square) found that education and the land area had a positive and significant effect on organic rice production with regression coefficient values of 50,500 each and 9.796 and the empirical significance (r) t was 0.003 (< 0.10) and 0.000 (< 0.10), respectively in 2015 in Tasikmalaya regency. Meanwhile, the age and experience of the farmer's business do not affect organic rice production, with an empirical significance (ρ) t of 0.231 (> 0.10) and 0.154 (> 0.10), respectively.

E. The Effect of Wage on Rice Production

Wages are payments of money obtained as a form of services provided and provided by workers to entrepreneurs (Sukirno, 2011). According to the Manpower Law No. 13 of 2000, Chapter I, Article 1, Paragraph 30, wages are the rights of workers/laborers that are received and expressed in the form of money as a reward from the entrepreneur/employer to the worker/laborer which is determined and paid according to a work agreement, regulations and services that have been or will be performed.

The size of the wages given by the company to its workers will affect the production level. When a person feels satisfied with the wages received, his production at work will increase. Sufficient wages, in this case, are

wages that are enough to be used in everyday life. So that when the level of income is sufficient, it will lead to concentration, leading to increased production (Kurniawan, 2010).

A study by Hassan & Kornher, (2021) using the standard error correction model (VECM) found that wages had a significant and significant effect on rice production in Bangladesh during the period 1994-2014 with a regression coefficient value of 0.063, and an empirical significance value (ρ) t of 0.011 (< 0.10).

F. The Effect of Labour on Rice Production

According to BPS (2021), labor is a population aged 15 years and over who is working, who has a job but temporarily does not work, and someone who does not have a job and is looking for work is categorized as working. Self-employed, trying to be assisted by temporary workers/family, and casual workers.

According to Purwaningsih (2017), labor is one of the main inputs in farming. Agricultural labor is classified into human, livestock, and mechanical or machine labor. Labor can be obtained within the family or from outside the family. The workforce is further divided into male, female, and child workers. Labor restrictions on children are age under 14 years old.

Previous studies, including Tou (2017) using multiple regression analysis OLS (Ordinary Least Square), found that land area and labor significantly affected rice production in Angkaes, Weliman District, Malacca Regency November 2015 - May 2016 with the respective regression coefficient values. - 0.335 and 0.194 respectively. The empirical significance (ρ) t is 0.046 (< 0.10) and 0.007 (< 0.10) respectively. While education has no effect on rice production with an empirical significance value (ρ) t of 0.692 (> 0.10).

G. Previous Literature

In Aceh Province during the period 2021-2025, Fitri et al. (2021), using OLS (Ordinary Least Square) multiple regression analysis, found that land area has a significant effect on rice production with a regression coefficient value of 0.335, as well as an empirical significance value (ρ) t is 0.000 (< 0.10).

A study by Syahril (2021) found that the harvested area significantly affected the increase in rice production in the city of Yogyakarta during the 1993-2015 by using Vector Autoregression (VAR) regression analysis. In contrast, at the first period it got 0% then in the second period it rose high to 12% and was stable at 5th period to 10th period ranged from 11% in the last targeted period.

Rosyadi & Purnomo (2012) in Sukoharjo Regency in 2008, using descriptive analysis, found that the performance of food production, especially grain of rice, has increased significantly from year to year. However, the increase in production has not been able to offset the growth in rice consumption which grew higher than rice production growth. This shows that from the aspect of food availability, food security in the research area is still very low because it cannot provide food for all people in the research area.

Hasmarini & Purnomo (2016) used survey research methods involving farmers (farmer groups) as members of the Village Community Food Barn (LPMD). The rapid rural appraisal technique was chosen in the form of quantitative and qualitative analysis. Preliminary survey is conducted in the Baturetono and Wonogiri areas during the 2010 period. The results show that the active role of stakeholders (A-B-G-C) is significant in supporting farmer institutions (granaries). Economic and social aspects are also proven to have an important role in increasing the empowerment of farming communities. This model is a social engine for rural communities and local institutions, especially to achieve regional food security.

Min et al. (2021), using multiple regression analysis OLS (Ordinary Least Square), found that land area, labor, and education had a significant effect on rice production in China from 2005 to 2020, with each regression coefficient of 0.646; 0.004 and -0.092, and the empirical significance value (ρ) t is 0.035 (< 0.10); 0.012 (< 0.10) and 0.061 (< 0.10) respectively.

A study by Guo et al. (2021) in China during from 2014 to 2018 by using logit regression analysis, found that wages had a negative and significant effect on rice production with a regression coefficient value of -0.1642 and an empirical significance value (ρ) t of 0.0248 (< 0.10). While education has no effect on rice production with an empirical significance value (ρ) t of 0.1904 (> 0.10). Meanwhile, a study by Rahaman et al. (2021) in Bangladesh in 2021 using Cobb-Douglas regression analysis found that education had no effect on rice production with a regression coefficient value of 0.342 and an empirical significance value (ρ) t of 0.245 ($> 0, 10$).

Yamane (2021) using descriptive analysis, found that in the small-scale Awach scheme, low yields and small cultivation area yielded a profit per household of only about half that of the large-scale Ahero scheme IN Kenya from 2017 to 2018. The high cost of wages in Awach puts pressure on rice farm management because, although family labor is used for rice cultivation, additional labor is required for transplanting and weeding, which incurs costs. Sales of rice cover this in the previous year or livestock sales. In both areas, most of the wage workers are people who live in the same area. In Ahero's case, the scheme's scale is large, and the hired workers are unknown. However, in Awach, there is a high level of neighbor recruitment; thus, labor wages can also be understood as a source of income for people in the area.

Abidin et al. (2022) by using the ADF test (Augmented Dicky-Fuller) found that labor had a positive and significant effect on rice production in Malaysia during the period 1991-to 2020 with a regression coefficient value of 0.341, and an empirical significance value (ρ) t is 0.000 (< 0.10).

In Brazil and Cuba, Garcia et al. (2021), using the SENSU model, found that Brazil showed greater sustainability based on better availability of environmental resources for rice cultivation, relatively lower environmental burden, and a better economy. And productive performance, a worse job, wage policies, and higher satisfaction of social demand for rice. On the other hand, Cuba exhibits environmental resource deficits, higher relative environmental burdens, lower economic and productive performance, better labor and wage policies, and unmet social demand for rice.

Shaikh et al. (2016), using regression analysis of Ordinary Least Squares (OLS), found that capital and land area affected Rice Productivity in Jaffarabad District, Balochistan, during the period 2008-2012, with regression coefficients of 2.799 and 0.189, respectively, as well as significance empirical (p) t of 0.04 (< 0.05) and 0.00 (< 0.01). The relationship pattern used in these two variables with Rice Productivity is linear.

Izuchukwu (2011), using panel data regression analysis, found that labor affected Rice Productivity in Nigeria during the period 1986-2007, with a regression coefficient of 0.113 and an empirical significance (p) t of 0.00 (< 0.01). The relationship pattern used on these variables with Rice Productivity is linear.

Hassan & Kornher (2021), using the standard error correction model (VECM), found that wages had a significant and significant effect on rice production in Bangladesh during the period 1994-to 2014 with a regression coefficient value of 0.063 and an empirical significance value (ρ) t of 0.011 (< 0.10).

Previous studies, including Tou (2017) using multiple regression analysis OLS (Ordinary Least Square), found that land area and labor significantly affected rice production in Angkaes, Weliman District, Malacca Regency November 2015 - May 2016 with the respective regression coefficient values. - 0.335 and 0.194 respectively, and the empirical significance (ρ) t is 0.046 (< 0.10) and 0.007 (< 0.10), respectively. While education has no effect on rice production with an empirical significance value (ρ) t of 0.692 (> 0.10).

During the 2015 period in Tasikmalaya Regency, Machmuddin et al. (2019), using multiple regression analysis OLS (Ordinary Least Square), found that education and the land area had a positive and significant effect on organic rice production with regression coefficient values of 50,500 each. and 9.796 and the empirical significance (r) t was 0.003 (< 0.10) and 0.000 (< 0.10), respectively. Meanwhile, the age and experience of the farmer's business do not affect organic rice production, with an empirical significance (ρ) t of 0.231 (> 0.10) and 0.154 (> 0.10), respectively.

III. RESEARCH METHODOLOGY

This study utilize secondary data obtained indirectly, in this case, through library research. The data is sourced from the Central Statistics Agency (BPS). To complete the secondary data processing, related information was also collected through various literature, newspapers, and articles downloaded through the internet. This secondary data is in the form of time series and cross-section data. Time series data is collected periodically based on the sequence of time, such as in hours, days, weeks, months, quarters, and years. Time series data is taken from 2018-to 2021. Meanwhile, the cross-section data uses 14 districts/cities in Central Kalimantan.

This study uses panel data regression analysis during the period 2018-2021 in 14 districts/cities of Central Kalimantan, with the following econometric model:

$$PP_{it} = \beta_0 + \beta_1 LP_{it} + \beta_2 EDU_{it} + \beta_3 UPAH_{it} + \beta_4 TKP_{it} + \varepsilon_{it}$$

where :

PP	= Rice production (ton)
LP	= Harvested area (Ha)
EDU	= Education (year)
UPAH	= Wage (rupiah)
TKP	= Agricultural labor (jiwa)
β_0	= Constanta
$\beta_1.....\beta_4$	= Coefficient
ε_t	= Residual
i	= Regency/ city (i)
t	= year (t)

IV. DISCUSSION

Hypothesis testing is done in order to interpret the regression results correctly. The estimation results of Panel Data Regression using Pooled Ordinary Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches can be seen in Table 1.3.

A. *Estimated Model Selection Test*

The Chow test and Hausman test will be used to select the best-estimated model – Pooled Least Square (PLS), Fixed Effect Model (FEM), or Random Effect Model (REM). If it turns out that in the Chow test, Pooled Least Square (PLS) is chosen and the Hausman test is Random Effect Model (REM), then an additional test must be carried out, namely the Lagrange Multiplier (LM) test, to choose the best-estimated model between Pooled Least Square (PLS) and Random Effect Model (REM).

Table 3. Panel Regression Estimation Result- *Cross section*

Variable	Coefficient		
	PLS	FEM	REM
C	-75757,19	-857078,0	-75757,19
LP	1,598667	-3,710140	1,598667
TKP	0,552158	0,836704	0,552158
UMR	0,008313	0,007519	0,008313
HLS	3382,926	69223,53	3382,926
R^2	0,601962	0,845823	0,601962
Adjusted. R^2	0,570744	0,776849	0,570744
Statistik *F*	19,28215	12,26295	19,28215
Prob. Statistik *F*	0,000000	0,000000	0,000000

Model Selection Test

(1) Chow
Cross- Section F(13,38) = 4,623416; Prob. F(13,38) = 0,0001

(2) Hausman
Cross-Section random χ^2 (4) = 57,962282; Prob. χ^2 = 0,0000

Source: Appendix.

B. *Uji Chow*

The Chow test is used to determine the estimated PLS or FEM model. The H0 of the Chow test: the estimated model is Pooled Least Squares (PLS), and the HA: the estimated model is the Fixed Effect Model (FEM). H0 is accepted if the p-value (p-value), probability, or empirical statistical significance F >; H0 is rejected if the p-value (p-value), probability, or empirical statistical significance F <. The results of the Chow test can be seen in Table 3.

From Table 1.3, it can be seen that the p-value (p-value), probability, or empirical significance of the F statistic is 0.0001 (<0.01), so H0 is rejected. In conclusion, the estimated model is FEM.

C. Hausman Test

Hausman test is employed to select the FEM or REM estimated model. H0 Hausman test: the estimated model is the Random Effect Model (REM), and the HA: the estimated model is the Fixed Effect Model (FEM). H0 is accepted if the p-value (p-value), probability or empirical statistical significance 2 > ; and H0 is rejected if the p-value (p-value), probability or empirical statistical significance 2 < . Hausman test results can be seen in Table 1.3.

From Table 1.3, it can be seen that the p-value (p-value), probability, or empirical statistical significance of 2 is 0.0000 (<0.01), so H0 is rejected. In conclusion, the estimated model is the Fixed Effect Model (FEM).

In advance, the Fixed Effect Model (FEM) was chosen as the best-estimated model from the Chow test and Hausman test. The complete estimation results of the FEM model are presented in Table 1.4.

Table 1.4 Model Estimasi Fixed Effect Model (FEM)

$\widehat{PP_{it}}$ = -857078,0 – 3,710140LP_{it} + 0,836704TKP_{it} + 0,007519 UMR_{it}+ 69223,53HLS_{it}
(0,0003)*   (0,4843)   (0,6818)   (0,1602)
R2 = 0,845823; DW = 1,778835; F. = 12,26295 ; Prob. F = 0,000000

Source: Appendix 1. Explanation: *Significant at α = 0,01; ** Significant at α = 0,05; *** Significant at α = 0,10; The number in brackets is the probability of the statistical value t.

D. Fixed-Effect Estimated Model Existence Test

The model exists when at least one independent variable affects the dependent variable (not all regression coefficients are zero). The existence of the model is the F test. Because the best-estimated model FEM (Fixed Effect Model), there are five independent variables, then the formulation of the hypothesis is H_0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ (regression coefficient of the four variables is zero, or the model does not exist); H_A: $\beta_1 \neq 0 \vee \beta_2 \neq 0 \vee \beta_3 \neq 0 \vee \beta_4 \neq 0 \vee \beta_5 \neq 0$ (at least one regression coefficient is not equal to zero or the model exists). H0 will be accepted if the p-value (p-value), probability, or empirical statistical significance F >; H0 will be rejected if the p-value (p-value), probability, or empirical statistical significance F <.

From Table 1.4, it can be seen that the probability value of p-value (p-value) or empirical significance of the F statistic is 0.0000 (< 0.01). Thus, H0 is rejected. In conclusion, the FEM model is preffered.

E. The Interpretation of Coefficient Determination (R2)

The coefficient of determination (R2) indicates the predictability of the estimated model. From Table 1.4, it can be seen that the R2 value in the Fixed Effect Model (FEM) is 0.845823. It means that 84.6% of the variation in rice production variables can be explained by the variables of harvested area, agricultural sector labor, regional minimum wages, and education. The remaining 15.4% is affected by other variables or factors that does not included in the model.

F. Validity Test of Effect of Independent Variables Estimated Model FEM

The effect validity test examines the significance of the effect of the independent variables individually or partially. Test the validity of the effect using the t-test. H0 t-test is _i=0, the ith independent variable in the estimated model has no significant effect; The HA is _I≠0: the ith independent variable in the estimated model has a significant effect. H0 will be accepted if the probability value of p-value (p-value) or empirical statistical significance t >; H0 will be rejected if the probability value of p(value) or statistically significant empirical t <. The results of the effect validity test can be seen in Table 1.5.

Table 5. Result of Validity Test of Effect of Independent Variable

Variable	Sig.t	Criteria	Conclusion
LP	0,0003	< 0,01	Significant at α = 0,01
TKP	0,4843	> 0,10	Not Significant
UMR	0,6818	> 0,10	Not Significant
HLS	0,1602	> 0,10	Not Significant

Source: Appendix, processed.

G. The Effect of Harvest Area on Rice Production

The results showed that the harvested area affect rice production negatively with a regression coefficient of -3.710140 and a practical significance (ρ) t of 0.0003 (< 0.01). It means that increasing the harvested area by 1 ha will reduce rice production by 3.710140 tons. The study results differ from the hypothesis, which states that the harvested area will increase rice production. The negative effect of harvested area on rice production is because the conversion of productive land functions to non-agricultural uses is increasing and threatening food security in Central Kalimantan Province. Land conversion is often felt with the dynamics of development characterized by the transformation of economic and demographic structures. Thus, the availability of productive land used for growing rice is decreasing daily. On the other hand, the land cultivated per farmer is getting smaller, and the land quality is also getting lower. Excessive land exploitation has an impact on the decline in rice production in Central Kalimantan.   This study is in line with research conducted by Nizar & Ariyanto (2016), who found that harvested area had a negative effect on rice production in Riau Province from the period 2005- to 2013. A different study found by Fitri et al. (2021) found that harvested area increases rice production in Aceh Province from 2021-to 2025.

H. The Effect of Agricultural Labour on Rice Production

The results showed that farmer labor did not affect rice production with an empirical significance (ρ) t of 0.4843 (> 0.10). It means that the increase or the decrease of the workforce will not affect rice production. This is not in line with the hypothesis that labor is one of the main inputs in increasing production output in farming. The insignificant effect of agricultural labor on rice production is related to the decreasing area of rice field. Thus, when the workforce increases, this still does not affect rice production. The results are in line with research conducted by Heriyana et al. (2021). The study found that labor did not affect sticky rice production in Panyiaran Village, Cikong District, Tasikmalaya Regency in 2021. Onibala et al. (2017) found different things, the result explained that labor affected rice production in Koya Village, South Tondano District in 2017.

I. The Effect of Regional Minimum Wage on Rice Production

The results showed that the Regency Minimum Wage did not affect rice production with an empirical significance (ρ) t of 0.6818 (> 0.10). If the UMR goes up or down, it will not affect rice production. This is not in line with the initial hypothesis that when a worker is satisfied with the wages received, the production at work will increase. Wages do not affect rice production because wages only reach the minimum wage. Thus, they cannot meet other daily needs. Low wages cause workers to shift from the agricultural sector to the industrial sector, although this does not affect rice production because most workers come from farming families.

The results of this study in line with Ningsih & Indrajaya (2015) that wages did not affect the production of the silver handicraft industry in Sukawati District, Gianyar Regency in 2015.

J. The Effect of Education on Rice Production

The results showed that education did not affect rice production with an empirical significance (ρ) t of 0.1602 (> 0.10). This means that education will not affect rice production. A person's education, in general, will affect their thinking. With education, a person will have broader knowledge, quickly develop ideas and adopt technology and have a more dynamic attitude towards new things, especially in the face of more effective changes. However, the study results show that education does not affect rice production. This is because, in formal education, one only learns about general knowledge, not about agricultural information. Thus, the high level of formal education does not determine the level of rice production.

These results in line with research by Neonbota & Kune (2016), which found that education, did not affect rice production in Haekto Village, East Noemuti District in 2016. While Suharyanto (2015) found different results that education affected rice production in Bali Province during 2015.

V. CONCLUSION

The estimation result from the Chow and Hausman test in this study revealed that the Fixed Effect Model is preffered. The F test shows that the model exists with an empirical statistical significance of F of 0.0000 (< 0.01). The coefficient of determination (R2) is 0.845823. It means that 84.6% of the variation in rice production variables can be explained by harvested area, agricultural sector labor, regional minimum wages, and education.

The 15.4% is affected by other variables or factorsthat not included in the model. Based on the results of the effect validity test, only harvested area affects rice production. The rest variables such as agricultural labor, regional minimum wages, and education have no effect on district/city rice production in Central Kalimantan Province from 2018 to 2021. Nizar & Ariyanto (2016) suggest using agricultural production inputs in a balanced way to make the results be proportional to the level of production. For future research, it is hoped that other more complex and measurable variables can be used in explaining the factors of income inequality, considering that the independent variables used in this study are still not fully able to explain the factors of income inequality in a more wide area. In addition, further researchers are expected to be able to use complex and systematic analytical tools in explaining the factors of income in an area in the short and long term.

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E-Wallet Adoption of Indonesians Millennial Generation: The Roles of Perceived Benefits as Mediating Variable

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Abstract

Technological progress is very fast and turbulent, especially for the millennial generation in Indonesia. This study generally aims to examine the behavioral model of e-wallet adoption. Specifically, this study aims to analyze the effect of ease of use and comfort of use on e wallet adoption in the millennial generation in Indonesia. In addition, it aims to analyze the role of perceived benefits as a mediator of the effect of ease of use and convenience of use on e-wallet adoption. Respondents in this study were 215 students, through an online survey. The sampling technique used non-probability sampling with purposive sampling method. Test the validity and reliability using smart PLS analysis on the outer model. Hypothesis testing using the smartPLS inner model output. The results of data analysis indicate that this research instrument has good validity and reliability. Ease of use and convenience of use have a direct effect on the behavior of Indonesian millennial generation e-wallet adoption. The perception of benefits has been proven to be a partial mediator in the Indonesian millennial generation e-wallet adoption behavior model. This novelty study shows that the adoption behavior of Indonesian millennial youth in adopting e-wallet is not only paying attention to the benefits of e-wallet services, but e-wallet adoption behavior is seen as a necessity in this era of digital technology.

Keywords— Comfort of use; E-wallet Adoption; Ease of use; Indonesian Millennial Generation; Perceived Benefits

I. INTRODUCTION

In the era of the pandemic COVID-19, there have been many changes in the lifestyle of the Indonesian people. Among them are shopping habits that carry out transactions with the system directly to the source of the seller and usually payment is made in cash. However, with the COVID-19 pandemic, many companies are offering ways of paying for their products through electronic money applications (Boggie et al., 2021). In addition, the policies carried out by the Indonesian government during this pandemic include the existence of large-scale social restrictions (PSBB), this is an indicator that causes limited social movement from one area to another. So that sellers and buyers try as much as possible to make transactions, but do not meet face-to-face closely to reduce confirmation of the corona virus (Kuswati & Saleha, 2018). That way, there are several companies that have implemented health protocols. One of them is by implementing payments using electronic money applications(Tangke et al., 2016).

The Bank considers that the use of e-wallet is more efficient and practical so that the current type of e-wallet payment can encourage Bank Indonesia to cooperate between banks and institutions related to non-cash payments with the aim of reducing non-cash payment transactions to the public to reduce cash circulation in Indonesia. and create a less cash society (Kussudyarsana, 2016). The use of E-Wallet is in great demand among young people or millennials. According to research from Ipsos Indonesia's Director of Customer Experience, 68% of E-Wallet users are young people because their productivity level is much more active than other groups. This makes students begin to take advantage of technological developments, especially in Fintech (financial technology) in conducting shopping transactions. The promos offered are the main motivation for students to use e-wallet. The more they use the e-wallet application, the more ease of use and comfort of use they feel, so the decision to adoption e-wallet and loyalty to use it is not only because of attractive promo offers. (Nadhilah et al., 2021).

Research on e-wallet by Olivia & Marchyta, (2022), The study shows that perceived ease of use has a positive effect on continuance intentions, meaning that if perceived ease of use increases, it will lead to higher continuance intentions. E-wallet customers will be more interested in continuing to use e-wallet if they feel that e-wallet is easy to learn, easy to use to fulfill their desires, and easy to be proficient in using easy to use for

transaction purposes. But the perceived of benefits not have a significant effect on the intention to continue using e-wallet. While the second research on e-wallet by Afolo & Dewi, (2022) with the results of the study showing that the perceived benefits, the perception ease of use, and the perception of trust partially have a positive and significant effect on the interest of e-wallet users. From some of these descriptions, it is necessary to conduct research related to ease of use and comfort of use by adding a mediating variable of perceived benefits to the adoption of the use of e-wallet (Kuswati & Irmawati, 2018).

The purpose of this study is to analyze the effect of ease of use and comfort of use on the adoption of e-wallet usage in the millennial generation, to analyze the effect of ease of use and comfort of use on perceived benefits, to analyze and discuss the effect of perceived benefits on e-wallet adoption in the millennial generation, to analyze and discusses whether perceived benefits mediate ease of use towards e-wallet adoption decisions in the millennial generation, and whether to analyze and discuss perceived benefits mediating comfort of use towards e-wallet adoption in millennials.

II. LITERATURE REVIEW

A. TAM

In recent years, there have been extensive research studies on the factors influencing mobile payments or E-wallet usage in various countries including China, India, Japan, and Korea. Among them, the two most popularly used models are: (i) Technology Acceptance Model (TAM) and (ii) Unified Theory of Acceptance and Use of Technology (UTAUT). TAM is a concept to help researchers to better understand users' intentions in adopting new information systems in their daily lives. It is also a theoretical framework specifically designed to help analyze and predict the propensity of users to accept new information technologies. User perceived usefulness and perceived ease of use are two core constructs in TAM (Daştan & Gürler, 2016). However, it also suffers from limitations as it often neglects the social aspects involved in the adoption of new technologies such as social influence (Isrososiawan et al., 2019).

B. UTAUT

Venkatesh dkk. (2003) fixed the TAM model and named the new model as UTAUT. UTAUT is a technology acceptance model developed by performing various stages to track individual experiences with new technologies. This enhanced model integrates important elements with respect to the acceptance of new information technologies. A total of Eight theories of technology adoption, reviewed and compared in detail. This new model acts as an important managerial tool for discovering and formulating plans for the introduction of new technologies. It has 70% accuracy in estimating the adoption of new information technology. Under UTAUT, generally use three dots and use the situation to determine and determine intentions for new information technologies. The three key constructs are: (i) expected performance, (ii) expected effort and (iii) social influence. Previous studies hypothesized that these three factors have a motivational effect on intention and use behavior in adopting technology. In addition, behavioral intention and usage behavior are moderated by various combinations of gender, age, and experience (Teng Tenk et al., 2020) .

C. Adoption E-Wallet

The development of an increasingly sophisticated era makes people prefer to use e-wallet to make transactions rather than direct payments because e-wallet is more practical. The use decision based on the statement by Fandy Tjiptono (2014: 21) is a stage where the customer knows the problem, searches for information about certain goods or brands and evaluates how good there are several alternatives themselves to be able to provide solutions to the problem. , which is then focused on the purchase decision. Based on the theory by Kotler & Keller (2016: 235) "Usage decision making carried out by customers also has differences that are adjusted to the behavior of usage decisions on consumers" (Wiradimaja & Rikumahu, 2019).

Based on the explanation above, the researcher formulates a hypothesis:

H1 : Ease of use has a positive and significant impact on e-wallet adoption

H2 : Comfort of use has a positive and significant effect on e-wallet adoption

D. Ease Of Use

Perception ease of use is a level where the use of technology can be accepted by someone (Purba et al., 2020)). In using an e-wallet, the ease of use showing things that must be considered in a company, because it gives users interest in meeting their needs. Perceived of benefits is also important in consumers using e-wallet, because consumers feel the benefits of e-wallet applications so they will use them more often in transactions (Isa & Istikomah, 2020). Sun and Zhang (2015) in Abrilia & Sudarwanto, (2020) explained that from the dimensions of perception of ease, namely ease to learn (easy to learn), ease to use (easy to use), clear and understandable (clear and easy to understand), and become skillful (becoming skilled). Davis & Wang in Afolo & Dewi, (2022) defines perceived convenience as a measure of the extent to which future users perceive a system as barrier-free. Dirnaeni et al., (2021) Perception ease of use is a person's belief that using technology can be done easily without requiring excessive effort.

Based on the explanation above, the researcher formulates a hypothesis

H3 : Ease of use has a positive and significant effect on perceived benefits

E. Comfort Of Use

Comfort of use has been identified as an important determinant of why consumers decide to buy or use. RodriguezTorrico, San-Martin, & Jose-Cabezudo, (2019) defines comfrot of use as a consumer's perception of the time and effort saved by using a service. Users can get unprecedented comfrot and efficiency through mobile devices without traveling to financial institutions. The concept of convenience was first used by Copeland (1923) to show a measure of the time and effort that consumers spend in buying products (Kazemi et al., 2015). The concept of comfrot of use is an important element in the field of marketing. Realizing the importance of service comfrot of use, business people, in this case sellers/service providers, have begun to focus on providing services that can maximize the speed and ease of the consumer buying process. (Agnesya Aridinta & Widijoko, n.d.).

Based on the explanation above, the researcher formulates a hypothesis

H4 : Comfort of use has a positive and significant effect on perceived benefits

F. Perceived Benefits

According to Faradila & Soesanto, (2016) explained that perceived benefits is defined as how a new system can provide usefulness to its users. Perceived benefit is a measure of the extent to which the use of technology is believed to bring benefits to its users. The existence of a perception of benefits can affect someone's purchase or use interest. For example, when a consumer has tried to make a transaction via DANA, they will be able to feel the benefits of the DANA, and eventually consumers will tend to be interested in using it again.

Based on the explanation above, the researcher formulates a hypothesis

H5 : Perceived benefits partially has a positive effect on the effect ease of use and comfort on e-wallet adoption
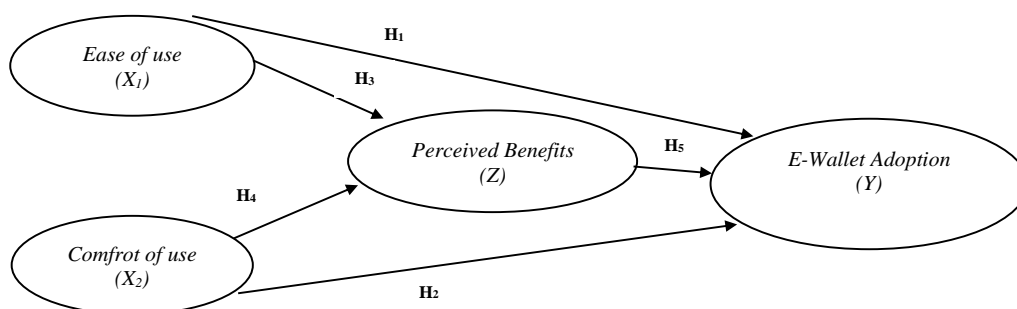
Fig 1. Framework (Source: Modification of Olivia & Marchyta, (2022), Afolo & Dewi, (2022)

III. RESEARCH METHODOLOGY

The type of research used in the study using quantitative methods. The population in this study were private and public students in Central Java. The sampling technique, non probability sampling and used purposive sampling. This research uses primary data using a closed questionnaire. The questionnaire was created using google form with a likert scale format. The data analysis technique in this study used partial least squares (PLS) with the SMARTPLS software. All variables have a positive and significant effect on e-wallet adoption and perceived benefits partially mediate the relationship between ease and convenience on e-wallet adoption.

The sampling technique used is purposive sampling where this technique is used to determine the research sample with certain considerations or criteria with the aim that the data obtained is representative data (Sugiyono, 2010). Not all samples have criteria that are in accordance with the authors specified, so the sample that is able to become respondents are private and public students in Central Java, aged 17-25 years, using e-wallet (OVO, Dana, Gopay and Shopeepay).

The samples size in this study were 215 respondents. This study uses primary data in its preparation. Data obtained through respondents' answers using a closed questionnaire. The data collection method used in this research is the distribution of questionnaires via google form. The questionnaire was made using a Likert scale format with a scale that is often used in the preparation of the questionnaire is the interval scale.

The PLS-SEM analysis is used as a tool to predict and explore complex models with less stringent data requirements (Sekaran & Bougie, 2017). The data analysis technique in this study uses Partial Least Square (PLS) with the help of SMARTPLS Software. The advantages of using partial least squares are that the number of samples required in the analysis is relatively small, the SMARTPLS approach is considered more powerful because it is not based on assumptions, SMARTPLS is able to test SEM models with various forms of scale such as ratios, Likert and others (Approach, 2016). PLS-SEM analysis consists of two, namely the Outer model and the Inner model (Ghozali dan Latan, 2014).

IV. RESULT / FINDING

A. Description

This study aims to explain the effect of ease of use and comfort of use on the decision to use E-wallet with perceived benefits as a mediating variable for students in Central Java. To conduct this research, researchers took as many as 215 respondents. The analysis process is carried out using the Smart PLS 3.0 application. Based on the data obtained from the characteristics of respondents by age, it shows that the majority of respondents are aged 21-23 years with a percentage of 59.3%. Then the gender who filled out the most respondents was male as much as 55.1%, the type of e-wallet that was widely used was Shoppepay as much as 51.4%, and for filling out the most questionnaires, namely from the University of Muhammadiyah Surakarta as much as 51.1% with a total respondent 110.

Table 1 Description of Respondens

AGE		
Age	Frequency	Persentase
17-20	60	28,2 %
21-23	128	59,3 %
24-25	27	12,5 %
Total	215	100 %
Gender		
Male	118	55,1 %
Famele	97	44,9 %
Total	215	100 %
The type of e-wallet used		
Dana	54	25 %
Gopay	20	9,3 %
Shopeepay	111	51,4 %
Linkaja	7	3,2 %
OVO	15	7,4 %
Etc.	8	3,7 %
Total	215	100 %
Origin of Institution/University		
UMS	110	51,1%
UKSW	16	7,4%
IAIN Salatiga	14	6,5%

UNS	8	3,8%
STIE	8	3,8%
Etc.	59	27,4%
Total	215	100 %

Source : Processed of primary data, 2022

B. Data analyst

Outer Model Analysis (Measurement Model Evalution)

1. Convergen Validity

Based on the results of data processing using Smart PLS, it is known that each indicator of the research variables has a value of outer loading > 0.7. However, according to (Chin, (1998), Kussudyarsana, Setyawan, Kuswati, (2019)) the measurement scale for the loading value of 0.5 to 0.6 is considered sufficient to meet the requirements of convergent validity. The data above shows that there is no indicator variable whose outer loading value is below 0.5, so all indicators are declared feasible or valid for research use and can be used for further analysis.

In addition to looking at the outer loading value, convergent validity can also be assessed by looking at the AVE (Average Variance Extracted) value > 0.5 so that it can be said to be valid with convergent validity (Fornell and Larcker, 1981). The following is the AVE value of each of these research variables:

Table 2 Score *Average Variance Extracted*

Variable	AVE (Average Variance Extracted)	Description
Ease os use (X1)	0.571	Valid
Comfort of use (X2)	0.658	Valid
Perceived Benefits (Z)	0.700	Valid
E-wallet adoption (Y)	0.595	Valid

Source : Processed primary data, 2022

Based on the table above, each variable in this study shows an AVE (Average Variance Extrancted) value, which is > 0.5. Each variable in this study has a main value for ease of use of 0.571, comfort of use 0.658, perceived benefits of 0.700, and the decision to use E-wallet of 0.595. This shows that each variable in this study can be said to be valid with discriminant validity.

Table 3 *Crossloading in Descriminant Validity*

Indicator	Ease of use (X1)	Comfort of use (X2)	Perceived benefits (Z)	E-wallet adoption (Y)
X1.1	**0,775**	0,548	0,465	0,589
X1.2	**0,766**	0,563	0,438	0,495
X1.3	**0,773**	0,560	0,517	0,492
X1.4	**0,659**	0,437	0,427	0,479
X1.5	**0,796**	0,561	0,640	0,489
X2.1	0,562	**0,792**	0,524	0,544
X2.2	0,542	**0,795**	0,471	0,576
X2.3	0,526	**0,808**	0,543	0,570
X2.4	0,607	**0,828**	0,616	0,572
X2.5	0,627	**0,831**	0,662	0,604
Y1	0,488	0,529	**0,825**	0,500
Y2	0,556	0,580	**0,839**	0,521
Y3	0,542	0,609	**0,810**	0,590
Y4	0,626	0,615	**0,871**	0,574
Z1	0,560	0,545	0,488	**0,766**
Z2	0,541	0,584	0,509	**0,802**
Z3	0,509	0,476	0,451	**0,717**
Z4	0,530	0,605	0,602	**0,778**
Z5	0,449	0,499	0,455	**0,790**

Processed primary data, 2022

Based on the data presented in the table above, it can be seen that each indicator in the research variables has the largest cross loading value on the variables it forms compared to the cross loading values on other

variables. Based on the results obtained, it can be stated that the indicators used in this study have good discriminant validity in compiling their respective variables.

2. Reliability Testing And Cronbach Alpha

Table 4. Composite Reliability and Cronbachs Alpha

Variabel	Composite Reliability	Cronbachs Alpha
Ease of use (X1)	0.869	0.811
Comfort of use (X2)	0.906	0.870
Perceived benefits (Z)	0.880	0.857
E-Wallet adoption (Y)	0.903	0.830

Source : Processed primary data, 2022

From the Table 4, it can be shown that the composite reliability value of all research variables is > 0.7. The ease of use value is 0.869, comfort of use is 0.906, perceived benefits is 0.880, and E-wallet adoption is 0.903. This shows that each variable has met composite reliability so it can be concluded that all variables have a high level of reliability.

Based on the table above, it shows that the cronbach alpha value of all variables in this study is above > 0.6, which means that the cronbach alpha value has met the requirements so that all constructs can be said to be reliable.

From the table above, the results of the Collinearity Statistics (VIF) to see the multicollinearity test with the results of the ease of use variable on perceived benefits are 2,279. Then the value of the comfrot of use variable on perceived benefits is 2,492. And for the value of the perceived benefit variable on the E-wallet adoption is 2,007. Each variable has a cut off value > 0.1 or equal to the VIF value < 5 then it does not violate the multicollinearity test.

B. Inner Model Analysis

1. Goodness of fit

Based on the table above, the R-Square is used to see the magnitude of the influence of the ease of use and comfrot of use variables on the E-wallet adoption, with a value of 0.570 or 57%, it can be said that this relationship is a moderate or moderate relationship. Then the R-Square is also used to see the magnitude of the influence of the ease of use and comfort of use variables on the perception of benefits, namely with a value of 0.560 or 56%, it can be said that this relationship is a moderate or moderate relationship. The following is the result of calculating the Q-Square value:

$$Q\text{-}Square = 1 - [(1 - R^2 1) \text{ x } (1 - R^2 2)]$$

$$= 1 - [(1 - 0{,}570) \text{ x } (1 - 0{,}560)]$$

$$= 1 - (0{,}43 \text{ x } 0{,}44)$$

$$= 1 - 0{,}1892$$

$$= 0{,}8108$$

Based on the results of the research above, the Q-Square value is 0.8108. This value explains the diversity of the research data can be explained by the research model of 81.08%, while the remaining 18.92% is explained by other factors that are outside the research model. have a good goodness of fit.

2. Hypothesis Testimg

Table 5. Path Coefisien (Direct and Indirect Effect)

	Hypothesis	Original Sample	t-Statistics	P Values	Description
Direct Effect					

Ease of use (X1) -> E-Wallet Adoption(Y)	H1	0,259	3,194	0,001	Positive Significant
Comfort of use (X2) -> E-wallet Adoption (Y)	H2	0,346	4,306	0,000	Positive Significant
Ease of use (X1) -> Perceived Benefits (Z)	H3	0,352	4,447	0,000	Positive Significant
Comfort of use (X2) -> Perceived Benefits (Z)	H4	0,462	5,627	0,000	Positive Significant
Perceived Benefits (Z) -> E-Wallet Adoption Y)	H5	0,232	2,487	0,013	Positive Significant
Indirect Effect					
Ease of use (X1) -> Perceived Benefits (Z) -> E-wallet Adoption (Y)		0,080	2,162	0,031	Positive Significant
Comfort of use (X2) -> Perceived Benefits (Z) -> E-Wallet Adoption (Y)		0,107	2,204	0,028	Positive Significant

Source : Processed primary data, 2022

The fifth hypothesis examines whether perceived benefits mediate partial the relationship between ease of use and comfort of use to the E-wallet adoption, the results of testing the hypothesis above use 2 tails. Based on the table above, it shows that the t-statistic value for ease of use is 2.162, which means > 1.96 with a p value of 0.031, which means <0.05. And the comfort of use variable has a t-statistic value of 2.204 which means > 1.96 with a p value of 0.028 which means <0.05. So it can be concluded that all relationships between ease of use and comfort of use variables on the E-wallet adoption can be mediated by perceived benefits.

V. Discussion

This study discusses the results of the analysis of the effect of ease of use and comfort of use on decisions to use E-wallet which is partial mediated by perceived benefits for milennial youth of Indonesian. The sample in this study amounted to 215 respondents who were students in Central Java, Indonesia. In this study, we tested the data with smartPLS 3.0 software. The results of the hypothesis test are as follows, Based on the above results, ease of use and comfrot of use have a positive and significant effect on decisions to use E-wallet, so that the first hypothesis is supported. above, comfort of use has a positive and significant effect on perceived benefits, so the fourth hypothesis is supported. Perceptions of benefits partial mediate the relationship between ease of use and comfort of use on the decision to use E-wallet, all relationships between the variables of ease of use and comfort of use on the decision to use E-wallet can be partial mediated by perceived benefits.

VI. Conclusion and Recommendation

A. Conclusion

This study aims to analyze the effect of ease of use, comfort of use on e-wallet adoption with perceived benefits as a mediating variable. This research uses TAM and UTAUT models. TAM is a concept to help researchers to better understand users' intentions in adopting new information systems in their daily lives. It is also a theoretical framework specifically designed to help analyze and predict the propensity of users to accept new information technologies. UTAUT is a technology acceptance model developed by performing various stages to track individual experiences with new technologies. This enhanced model integrates important elements with respect to the acceptance of new information technologies. A total of eight theories of technology adoption were evaluated, reviewed and compared in detail. This new model acts as an important managerial tool for evaluating and formulating plans for the introduction of new technologies. All variables have a positive and

significant effect on e-wallet adoption and perceived benefits partially mediate the relationship between ease of use and comfort of use on e-wallet adoption.

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Analysis of the Effect of Infrastructure Development on Economic Growth in East Nusa Tenggara

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Abstract

Economic growth is one of the success factors of economic development, defined as an activity in the economy that makes the production of goods and services in society increase and will increase the prosperity of the community. The availability of infrastructure is one of the important supporting factors as the driving force behind economic growth. Investment in economic and social infrastructure is absolutely necessary in order to assist and integrate all economic activities to run smoothly and productively. The purpose of this study is to analyze the influence of infrastructure such as roads, transportation, electricity, education, health and communication on economic growth in East Nusa Tenggara. The research was conducted using secondary data from 2016 to 2020. The Model used was multiple linear regression using panel data with Fixed Effect Analysis. The results of this study indicate that the education and communication infrastructure has a positive and significant effect on economic growth. The implication is that in an effort to increase economic growth, the government must prioritize development of economic and social infrastructure that has a major contribution to growth of the economy.

Keywords— Infrastructure; Economic Growth; Panel Data; East Nusa Tenggara; Development

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I. INTRODUCTION

Economic growth is one of the success factors of economic development. Economic growth is usually measured by the development and growth of the economy in a country from each period to the next. The higher the value of economic development the better the economic growth in the country. Economic notations that is used as an indicator to see its growth is Gross Regional Domestic Product (GRDP). Development is needed to increase economic growth and the realization of the welfare of a region. Welfare can be realized, one of which is by equitable distribution of infrastructure development. Adequate and equitable infrastructure in all regions of a country will make it easier for economic actors to access and carry out economic activities. The running of economic activities properly will create economic growth. Economic growth is one of the success factors of economic development. Economic growth is usually measured by the development and growth of the economy in a country from each period to the next. The higher the value of economic development, it can be seen that the better the economic growth in the country. Economic growth that is used as an indicator to see its growth is Gross Regional Domestic Product (GRDP) (Fang, 2013). Development is needed to increase economic growth and the realization of the welfare of a region. Welfare can be realized, one of which is by equitable distribution of infrastructure development. Adequate and equitable infrastructure in all regions of a country will make it easier for economic actors to access and carry out economic activities. The running of economic activities properly will create economic growth (Maqin, 2011).

Infrastructure is usually carried out by the government, which can cooperate with a business entity by the Presidential Regulation of the Republic of Indonesia Number 67 of 2005 concerning Government Cooperation with Business Entities in Infrastructure Provision. Infrastructure improvements are is expected to bring prosperity and independence, and accelerate economic development to make economic activity more efficient. So, the government is obliged to complete economic support facilities and infrastructure. With more complete public facilities, the private sector will be more enthusiastic to invest in the area. Infrastructure development is a government asset to provide service to the public. The infrastructure includes roads, bridges, landscaping, offices buildings, hospitals, and so on (Weya et al., 2021).

Economic growth is a long-term problem, and economic growth is an important phenomenon experienced by the world in recent times. The process of economic growth is known as Modern Economic Growth. Basically, economic growth is defined as a process of long-term per capita output growth (Nazneen et al, 2021). This means that in the long term, an increase in welfare will result in an increase in per capita output, which also includes many alternatives in consuming goods and services, and is followed by an increase in people's purchasing power. The context of economic development, regional expansion is expected to encourage new development and

creativity in managing regional potential. This encouragement will increase opportunities to explore various new regional economic potentials that have not been paid attention to. In addition, the existence of new regions resulting from the expansion is expected to trigger the formation of new economic growth centers that will encourage the acceleration of regional economic development (Iskandar, 2011).

The economic progress of a region shows the success of a development although it is not the only indicator of the success of development. There are three kinds of measures to assess economic growth, namely output growth, output growth per worker, and output growth per capita. Output growth is used to assess the growth of production capacity which is influenced by the increase in labor and capital in the region (Yuniarti, 2020). Output growth per worker is often used as an indicator of changes in regional competitiveness (through productivity growth). Meanwhile, per capita output growth is used as an indicator of changes in economic welfare (Yuniarti, 2020). High economic growth does not guarantee the realization of community welfare. As various experts have pointed out, even though economic policies are designed to promote growth and proper modernization of the economy, it turns out that the big problems of poverty and underdevelopment cannot be solved by economic growth (Widada, 2019).

The development of an area aims to improve welfare and realize social justice for all levels of society. For this reason, development requires the right approach, so that it can produce growth accompanied by equity. Infrastructure plays an important role in increasing investment and expanding the reach of community participation, as well as equitable distribution of development outcomes (Bertoletti et Al, 2022). Infrastructure is a driving force for economic growth. From the allocation of public and private financing, infrastructure is seen as the locomotive of national and regional development. Infrastructure also plays an important role in improving the quality of life and human welfare, among others, in increasing the value of consumption, increasing labor productivity and access to job opportunities, as well as increasing real welfare. Infrastructure also has an important influence in increasing the value of consumption, increasing labor productivity and access to employment (Gouvea, 2022).

The role of infrastructure as a driver in the economic sector will be able to encourage the development of related sectors as a multiplier effect and in the end will create new business fields and provide production output as input for consumption. Therefore, the government needs to accelerate the program for equitable development in all regions. Thus, the development process that occurs is not only biased in areas that are already developed, but also in other areas that are considered to be lagging behind. Infrastructure is believed to be able to accelerate national economic development and increase the level of economic disparity between regions. In this context, infrastructure development can be a driver of economic growth (Khaled et al, 2022). However, there are many challenges in managing and developing infrastructure, such as the existing infrastructure gap between regions and a less than optimal infrastructure network to support sustainable economic development in the future.

The role of infrastructure is important to connect various centers of economic activity with their buffer areas. In remote areas that are difficult to reach, such as on the slopes of mountains or valleys, people usually live in poverty and are isolated from development progress even in the nearest growth centers. These obstacles prevent the poor from participating in the development process, both to get better jobs and to increase work productivity (Kirschner and Finaret, 2021).. Currently, infrastructure development can play a role in poverty alleviation, namely by increasing access for the poor and access to government intervention to be more effective in reducing poverty. Better access will reduce the cost of living, increase income, and open up opportunities for the poor to benefit from economic growth.

The poverty rate in NTT in 2005 tends to decrease but is above the national average. During the period 2010-2014 poverty in NTT decreased by 3.03 percent. The percentage of poor people in NTT is high, in 2014 the percentage of poor people nationally reached 10.96 percent, while in NTT it was 19.8 percent. Poverty is determined by productive attitudes and living habits, education level and health status, in addition to limited employment opportunities and limited institutional and economic system support (Bappenas, 2015). Distribution of districts and cities in NTT Province according to average economic growth and poverty reduction from 2008 to 2013, with the following explanation. The districts of Flores, Kupang, and Maumere are districts with average economic growth and poverty reduction above the provincial average. Economic growth that occurs in this quadrant can encourage faster poverty alleviation (pro-growth, pro-poor) (Yuniarti, 2020).

In a previous study conducted by Suswita (2020), on "The Effect of Infrastructure on Economic Growth in Simalungun Regency" discussed the importance of infrastructure development on economic growth. The absence of infrastructure in an area will cause obstacles to faster economic growth in a country. The variables

used in the study (Suswita, 2020), namely the length of the road, the amount of clean water, and the number of electricity customers, it is suspected that the relationship between all independent variables can affect economic growth. The results of the research process, namely economic growth can be explained by the variables of Road Length, Total Volume of Clean Water, and Number of Electric Customers, while the remaining 41.80% is influenced by other variables outside this regression equation or variables not examined. The results of the study have not described how to formulate an economic growth with the influence of road infrastructure development, transportation, electricity, health, and education. This research will provide a more detailed novelty aspect related to the variables of roads, transportation, electricity, health, and education which are thought to have significant and valid relationships in the process of economic growth in the province of East Nusa Tenggara.

II. LITERATURE REVIEW

Economic growth is one indicator of measuring the success of economic development in a country. Economic development is a series of activity processes carried out by a country to develop economic activities or activities in order to increase the standard of living/prosperity (Income per capita) of the community by reducing income inequality, providing employment opportunities, better education, improving health and nutrition standards. , improvement of environmental conditions, and equal opportunity, as well as refreshment of cultural life (Sukwika, 2018). Factors suspected as the most important economic growth is the availability of capital and labor factors. An increase in capital and labor will increase aggregate output in the economy. Capital includes public and private sector investments in the economy, for example, the private sector builds factories, purchases production machinery, etc. (N. Iskandar, 2019).

The characteristics of infrastructure are externalities, both positive and negative and the existence of a natural monopoly caused by high fixed costs and their level of importance in the economy. In addition, infrastructure is also non-exclusive (no one can be excluded), non-rivalry (consumption of one individual does not reduce the consumption of other individuals) and generally the marginal cost is zero. Infrastructure is also generally not traded (non-tradable) (Jiang, 2020). Infrastructure also plays an important role as one of the driving wheels of economic growth. The rate of economic growth and investment of a country or region cannot be separated from the availability of infrastructure such as transportation, telecommunications, sanitation, and energy (Atmaja, 2015). The increase in infrastructure and its improvement by the government is expected to spur economic growth

Highway infrastructure is a facility designed to facilitate transportation by land. Road infrastructure is a link between regional functions using various modes of transportation. Road infrastructure investment will affect the economic sector with the assumption that this increase will act as a stimulus for regional economic development or as a fulfillment of the level of demand (demand) of a region's economic growth (Haicheng, 2021).Transportation infrastructure is the main thing in supporting access to community mobility in carrying out daily activities and the process of delivering goods or services. The provision of transportation infrastructure has a reciprocal relationship with the economy of a region to support the development of urban and rural areas (Khan, 2018). The effect of the provision of transportation modes will have a positive impact on an area because transportation is closely related to accessibility, where accessibility is a factor that greatly determines the organization of space in urban areas (Marsu, 2018).

The influence of electricity and industrialization on economic growth in Indonesia is quite important because the aspect of the relationship between the use of electricity is getting higher and consequently will have an impact on the economic development of a country. The relationship between electricity consumption and economic growth is statistically significant and is shaped like an inverted U-curve. This means that the higher the economy of scale, the higher the electricity consumption (Buhaerah, 2016). However, the more advanced a country's economy is, the dominant industrial sector will shift from heavy industry to light manufacturing and service industries, which will result in a decrease in electricity consumption.

Health development is one of the national development efforts carried out in all areas of life. Health development aims to increase awareness, willingness and ability to live a healthy life for everyone in order to realize an optimal level of public health. Health is the main and absolute capital that must be owned. With good health will have a good influence on the environment, able to meet their needs, with health a child can attend school in the process study, and more importantly, with good health it is hoped that people will long-lived (Nurhayati and Suparman, 2014). Health infrastructure is one of the key factors in achieving health development in Indonesia. The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity (Beach, 2021). In practice, the

measurement of the level of health used is life expectancy. This measure is one of three components in calculating the Human Development Index (HDI) (Mukmin P, 2015).

East Nusa Tenggara Province is one of the provinces in eastern Indonesia with a total of 22 regencies/cities consisting of 21 regencies and 1 city. Automatically there must be a number of private and public schools ranging from elementary schools, middle schools to universities. In this material, the author wants to discuss the development of the 21st century Modern Era which is often known as the Industrial Revolution Era 4.0 (four point zero) for all schools in NTT in preparing all the attributes and tools to live in the 21st century or the era of the Industrial Revolution 4.0 (Machida, 2014).

Telecommunications today is something that cannot be separated from everyday life, it has even become a necessity. The benefits of telecommunications services (Telecommunication Services) have been felt by many parties, starting from business people, housewives, and even children. Telecommunications has become an inseparable need for the activities of every individual's life, especially in the era of information and technology which is growing rapidly at this time (Paravee, 2020). this. The importance of telecommunications for a country, especially in the economy, has been conveyed by the ITU that every 1% growth in teledensity will increase 3% of a country's economic growth. The need for information is absolutely owned by a nation because it can increase economic growth, standard of living and quality of society, for that it is necessary to provide adequate information infrastructure such as access, capacity, quality and reach (Ngatono, 2016).

Table 1. GRDP Growth of East Nusa Tenggara

Years	GRDP Current Prices	Growth Rate
2016	83742,79	5,12
2017	90758,93	5,11
2018	98930,19	5,11
2019	106731,76	5,25
2020	106480,97	-0,84

Source: Central Statistics Agency, processed.

Economic growth is formed from the performance of regional/island economic growth where the contribution of each region is very diverse. One of the reasons for this diversity is the differences in the state of infrastructure between one region and another. Based on table 1 above, it can be seen that the highest economic growth rate of East Nusa Tenggara Province was in 2019 at 5.25%. Meanwhile, in 2020 the rate of economic growth in East Nusa Tenggara decreased by -0.84%. Every achievement of the level of economic growth in the province of East Nusa Tenggara certainly cannot be separated from the role of infrastructure as a supporter of economic activity. The availability of economic infrastructure such as road, electricity, and transportation infrastructure as well as social infrastructure such as educational facilities, health facilities, communication facilities, are important factors in influencing regional productivity which ultimately affects economic growth.

III. RESEARCH METHODOLOGY

The type of data used in this research was secondary data, time serial data (periodic data) for the period of 2016 to 2020 obtained from the Central Statistics Agency of East Nusa Tenggara Province. The data needed in this study include: 1) Data on Economic Growth in the Province of East Nusa Tenggara, 2) Data on Infrastructure Development in the Province of East Nusa Tenggara. The data processing in this study uses fixed effect models (FEM). Fixed Effect Models are models with different intercepts for each subject (cross section), but the slope of each subject does not change over time.

The data analysis technique used was descriptive analysis and panel data regression analysis using the fixed effect model method, where the functions are as follows:

$$Y_{it} = \alpha + \beta_1 X_{1_{it}} + \beta_2 X_{2_{it}} + \beta_3 X_{3_{it}} + \beta_4 X_{4_{it}} + \beta_5 X_{5_{it}} + \beta_6 X_{6_{it}} + \varepsilon_{it} \qquad (1)$$

In this study, we will find out the factors that will influence economic growth (Y) by involving road variables with units of kilometers (X_1), transportation with units of…… (X_2), electricity with units of kilowatts (X_3), Health with number of person unit (x_4), Education with a connotation unit (x_5), and Communication with a percentage unit (%) with a connotation (x_6) in West Nusa Tenggara Province

IV. RESULT / FINDING

The results of panel data testing using the Fixed Effect Model, in the form of the influence of Road, Transportation, Electricity, Health, Education and Communication to GRDP. test results regression is as follows:

Table 2. Panel Data Estimation Results with Fixed Effect Model

Variable	Coefficient	t-Statistic	Prob.
Road	-0.440995	-0.300985	0.7642
Transportation	0.000830	0.956350	0.3417
Electricity	-0.001847	-1.200165	0.2335
Health	-33.65232	-0549120	0.5844
Education	5.208205	2.022835	0.0463
Communication	21.64482	5.416358	0.0000

Source: Data processing results, 2022

Based on Table 2, the t statistical test or partial test produces road variable obtained a t-stat value of -0.3009 with sig value. of 0.7642, which means that the road variable has a negative and not significant effect on the economic growth of East Nusa Tenggara Province. Transportation variable obtained a t-stat value of 0.9563 with sig value. of 0.3417, which means that the transportation variable has no significant effect on the economic growth of East Nusa Tenggara Province. Electricity variable obtained a t-stat value of -1.2001 with sig value. of 0.2335, which means that the electricity variable has a negative and not significant effect on the economic growth of East Nusa Tenggara Province. Health variable obtained a t-stat value of -0.5491 with sig value. of 0.5844, which means that the health variable has a negative and not significant effect on the economic growth of East Nusa Tenggara Province. Education variable obtained a t-stat value of 2.0228 with sig value. of 0.0463, which means that the education variable has a positive and significant effect on the economic growth of East Nusa Tenggara Province. Communication variable obtained a t-stat value of 5.4163 with sig value. of 0.0000, which means that the communication variable (X6) has a positive and significant effect on the economic growth of East Nusa Tenggara Province.

Table 3. Regression Coefficient Test Results

Estimation	Value
R-squared	0.994749
Adjusted R-squared	0.993020
S.E. of regression	247.3750
Sum squared resid	5017940.
Log likelihood	-746.1260
F-statistic	575.3285
Prob(F-statistic)	0.000000
Durbin-Watson	1.478490

Source: Data processing results, 2022

Based on the results of hypothesis testing conducted for this study, the following results were obtained: Based on F test's Table 3 above, it is known that the probability value of the F-Statistic is $0.000 < (0.05)$ which means H0 is rejected. So it can be seen that road, transportation, electricity, health, education and communication altogether will affect GRDP.

The interpretation of the coefficient of determination (R^2) shows how capable the variation of the independent variable is in explaining the variation of the independent variable. Based on Table 2, it can be seen that the coefficient of determination is 0.99 thus the variation in the variable Road, Transportation, Electricity,

Health, Education, and Communication explain 99% of the variation in East Nusa Tenggara's economic growth, 1% is explained by other variables outside the model.

V. DISCUSSION

Length of road has no significant effect on GRDP. The length of the road is no longer the only main supporter of smoothness economy. This is because each County or City already has access roads that are enough so that it does not require additional road length. Road quality which plays an important role in the smooth flow of the economy between economic areas. if the length of the path with the condition Good roads will make the distribution of economic goods faster because the risk of traffic jams and the slow speed of vehicles due to damaged roads will be smaller. but if the road quality the more it is improved, the smooth running of economic goods and services will contribute in supporting higher economic growth. This is in line with the research conducted by Kaupa (2015) which discusses Effect of Infrastructure on Economic Growth in South Sumatera Province with the ordinary least squares method which indicates that Length of road has no effect on GRDP.

Transportation has no significant effect on GRDP The East Nusa Tenggara Provincial Government has launched an acceleration transportation infrastructure development so that the GRDP growth rate increases increased. One of the steps taken is to involve the private sector to participate as well as in infrastructure development through investment (investment), good foreign and national parties. However, the field of businesses in the transportation infrastructure sector in domestically, especially in areas where there is no interest for the private sector. This is because, the level of Payback takes time long enough that the government becomes main or single role for development or maintenance of transport infrastructure (Palilu, 2018). This is in line with the research conducted by Chen et., al (2021) which discusses Does Transport Infrastructure Inequality Matter for Economic Growth? Evidence from China. *Land* with Theil index and Gini coefficient are the two most popular methods for quantifying inequality which indicates that transportation has no effect on GRDP.

Electricity has no significant effect on GRDP. The relationship between electricity consumption and economic growth significantly can be interpreted if the higher the economy of scale, the electricity consumption will also increase. However, the more advanced a country's economy is, the dominant industrial sector will shift from heavy industry to light manufacturing and service industries, which will result in a decrease in electricity consumption. Thus the availability of energy supply, especially adequate and affordable electricity, is crucial in the development of the industrial sector because one of the critical aspects in the business of the manufacturing sector is the guarantee of the availability of electrical energy (Bank Indonesia, 2015). This is in line with the research conducted by Hidayati & Permana (2022) which discusses The Development of Economic Infrastructure in Western and Eastern Indonesia to Support People's Welfare Improvement with the panel data method with fixed effect model which indicates that Electricity has no effect on GRDP.

Health has no significant effect on GRDP. The low level of health of human resources will further reduce productivity so that the output produced from an area/region both in quantity and quality will have an impact on economic growth. Efforts that can be made by the government to maintain the health of the population so that they are always physically and mentally healthy are to ensure the availability of adequate health facilities for the entire community. The availability of adequate health facilities can make it easier for the community to access good health services when needed and is expected to keep the community in prime condition so that it is good. This is in line with the research conducted by Munawaroh & Haryanto (2021) which discusses Development of Infrastructure and Economic Growth of Papua Province. With the panel data method with Random Effect Model which indicates that Health has a positive but not significant effect on GRDP.

Education has significant effect on GRDP. Good human resources are influenced by the level of education. As one of the important aspects in the process of developing a mindset constructive and creative human resources, education is absolute needed. The higher the human capital a person has, the ability to produce goods and services will also increase, thus affecting the level of income By Therefore, the government needs to increase development in the field of education which is more adequate, namely in the form of school construction and repairs the curriculum. This is in line with the research conducted by Weya et., al (2021) which discusses The Influence of Infrastructure Development on Economic Growth in the Province of Papua Year 2006–2020 with the panel data method which indicates that education has a positive effect on GRDP.

Communication has significant effect on GRDP. The digital economy has become one of the important ways to promote high-quality economic development. technological advances affect economic growth. Therefore, it

is necessary to aggressively develop digital industry with the gradual development of the internet in order to become an advanced economic development, the development of digital infrastructure must be consolidated, deep integration of new infrastructure such as 5G, big data, internet. Must be developed and traditional enterprises must be supported to carry out the construction and transformation of sustainable digital infrastructure. Must be developed and traditional enterprises must be supported to carry out the construction and transformation of sustainable digital infrastructure. This is in line with the research conducted by Zhang et al., (2021) which discusses Study on The Effect of Digital Economy on High-Quality Economic Development in China with Feasible Generalized Least Squares (FGLS) method which indicates that communication has a positive effect on GRDP.

VI. Conclusion and Recommendation

Based on the results of the panel model regression analysis using the Fixed Effect Model and the discussion of the results of the study between the dependent variable and the independent variable as already described, it can be concluded that in the partial test health and communication variables have a positive and significant effect on GRDP and the variables road, transportation, electricity, and health have no effect on GRDP.

Infrastructure provision in Indonesia is slow due to constraints at various stages of the project, starting from preparation until implementation. In order to overcome these obstacles, there are some regulations or policies that can be carried out by the government including the following: Develop priority infrastructure, according to which infrastructure is most needed and most influential on the economy in East Nusa Tenggara. Overcoming infrastructure funding problems with the Cooperation scheme Government and Business Entities so that they are expected to increase financial feasibility of the project, including infrastructure and optimizing risk allocation between Government and Private in project provision infrastructure from preparation, pre-construction, construction to with operation and maintenance.

The development of infrastructure needs to always be considered, especially infrastructure that has an influence on economic growth, such as health and communication infrastructure. The government is expected to pay more attention to communication infrastructure. The development of communication infrastructure is very important because it can be used as another option if road access is not possible to be built and replaced with the internet and the use of other advanced technologies. Especially in East Nusa Tenggara Province, with the development of adequate communication infrastructure, it can reach areas or areas that have been difficult to reach so far. The direction of development is also starting to be directed towards digital and communication assets, especially for areas that are difficult to reach with transportation access because it can save time and costs.

In transportation infrastructure, to overcome congestion problems that have an impact on productivity, the government can implement several policies such as limiting vehicle age, limiting vehicle ownership, progressive parking rates, as well as increasing, and renewing public transportation. The Provincial Government of East Nusa Tenggara is expected to optimize the electricity infrastructure to strengthen the electricity system to be able to serve various electricity needs, in particular to encourage investment growth and increase the electrification ratio in East Nusa Tenggara Province. The availability of infrastructure is indeed not fully evenly distributed, so it is hoped that the community will use the available infrastructure facilities wisely.

The time period in this study only covers 5 years due to the limitations of the research data. This research is still possible to be developed further, therefore for future research it is hoped that further researchers will be able to add a longer research period to find out the pattern of infrastructure influence in a longer period of time and use the variables used in this study by adding some variables or even make changes to the variables that according to researchers most influence the impact of road infrastructure development in an effort to increase people's economic growth.

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Media Convergence And Covid-19 Pandemic: An Explorative Study Of The Perspective Of Media Workers At The Office Of PT. Media Televisi Indonesia

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Abstract

The advancement in technology and digitalization has caused disruption in various industries, including the media industry. Media companies and channels continue to find ways to stay relevant and survive in gaining the audiences attention and preferences. Therefore, a strategy facing the challenge has been taken by many media companies my going through a convergence process. Where the media company which before only entertained a certain platform audience, namely television, printed or radio, now has to answer the needs of audiences on all platforms. A media company in Indonesia, Metro TV also has taken the step in going through a convergence process. This is done to widen its market potential and grab audiences on a larger level. The convergence began in early 2022, which was also the beginning of public restrictions due to the global COVID-19 pandemic. Companies, including Metro TV had to adjust accordingly to government relations. This impacted the way of work and the convergence process. This research explores the impact it has towards the media workers, specifically reporters at Metro TV and how the company addresses the needs of its workers.. The research uses a qualitative interpretivism approach, where in-depth interviews will be conducted with Metro TV's employees, including its reporters and those at the managerial level. The findings will become a reminder and suggestion on how the company establish relations with its workers and how to enhance their motivation through the needed support in times of change and crisis. PT. Media Televisi Indonesia performs three dimensions of convergence, namely structural convergence, news coverage convergence and presentation convergence from the five dimensions of convergence.

Keywords— Media Convergence; Pandemic; Explorative Study

I. INTRODUCTION

The presence of social media and various online news platforms, poses a challenge for conventional media to get an audience to stay afloat. Media convergence is one way that can be done for conventional medias to survive. Media convergence is carried out to produce the types of news that can be consumed by multi-platform audiences, whether television viewers, print media readers or radio listeners so that media convergence can be referred to as media integration through digitalization carried out by the media industry (Nugroho, 2020). The convergence process has caused a number of media entrepreneurs in Indonesia to combine all previously separate subsidiaries into one media (Sambo & Yusuf, 2017). One of them is PT. Media Televisi Indonesia, which combines its subsidiaries, namely Metro TV, Media Indonesia, Medcom.ID and MG Radio, to become Media Group News.

At the start of the convergence process of Metro TV and Media Group News media in 2020, the world was facing the challenges of the Covid-19 pandemic. The pandemic had an impact on a number of companies because companies had to change their operational activities by implementing the Work from Home system. Adjustments were also made by Media Group News. Therefore, the convergence process, namely training between news platforms, is also adjusted, which is done online.

The process of media convergence is inseparable from the development of HR skills, which initially only focused on one platform, but now one must be able to answer multiplatform needs. So a talent performance management process is needed. Talent performance management is a continuous process of identifying, measuring, and developing the performance of individuals and work groups and aligning them with the strategic goals of the organization (Aguinis, 2019).

The company's relationship with the company's talents must be increasingly considered and taken into account. Especially for journalists or reporters, who are constantly required to provide optimal performance and are at the forefront of gathering information, with various adjustments such as providing news material for multiplatform and using digital technology. Technological changes and expectations of these changes have the

potential to increase stress and impact on employee conditions (Baran, Correla, & Thompson, 2011). In addition, the conditions and uncertainty of the Covid-19 pandemic that continues to change and positions journalists and reporters as a group at risk of being exposed. So companies must be able to attend and read the conditions of employees, because news agencies that provide the support and assistance needed by employees are proven by research that can help journalists survive, adapt and have better performance (Beam & Spratt, 2009; Reinardy, 2011). In addition, it is also important to apply appropriate assessment and compensation for welfare and career development.

This research aims to see how the perspective of journalists when facing the COVID-19 pandemic and the adaptation to changes in media convergence in Media Group News.

II. Literature Review

A. Impact of Media Convergence on the Work Experience of Media Workers

The word convergence refers to two or more things/objects meeting and uniting at a point. The term convergence has been widely used since 1990. The word is commonly used in the development of digital technology, the integration of text, numbers, images, video and sounds (Briggs & Burke, 2000).

Media convergence on the work experience of media workers, taken from a research conducted by Smeeta Mishra in India in 2016, where in-depth interviews were conducted with 20 journalists, revealed that journalists there considered media convergence at that time was not an urgency and wasn't their main concern. The television and newspaper journalists in India from the research said that most Indian journalists did not take the convergence process seriously. In addition, a television journalist in the research said that the convergence training he received to produce news for multiplatform was not used in his daily work routine. However, the research also stated that this did not stop the media in India from carrying out various forms of convergence.

Convergence is carried out to be able to produce a variety of media content using technological tools and infrastructure for diverse audiences. The impact of the convergence process occurs on the content, audience, technology, and the media industry itself (Nugroho, 2020). The challenges of the Covid-19 pandemic that had hit the world coincided with other challenges by the media and journalism industry.

Pauline Gidget Resterio Estella in her research tries to see how a journalist maintain to work in a crisis situation of the Covid-19 pandemic, especially in carrying out the role as a trusted source of information in the midst of the rapid flow of communication through the internet. Estella chose Southeast Asia as the location and background of the research, as a region that has a diverse political, cultural, economic diversity, and has a high level of internet penetration. However, Estella also expressed the view that journalism in the Southeast Asian region is still in its early stages as a result of the lack of research and development infrastructure, as well as the lack of appreciation for journalistic research itself (Estella, 2020).

Meanwhile, research conducted by Hoak regarding the stress level of journalists and the organizational support while reporting a pandemic, discussed how organizational support can mitigate and overcome the uncertain conditions caused by the Covid-19 pandemic. Hoak mentioned that although the long duration of the pandemic can affect the way an organization or company perceived existing conditions, for the research it can be concluded that organizational support in newsrooms can be more important and crucial when there are events that disrupt the daily news gathering activities, such as a pandemic. Ensuring the support of superiors and colleagues can be as important as providing technological equipment and tools to gather news that journalists, especially reporters, need (Hoak, 2021).

Casero-Ripolles also revealed that the midst of the Covid-19 pandemic, news consumption has shown a significant increase, even capturing an audience that prior to the pandemic was less likely to be interested in the latest news. In addition the media, especially television, seems to have regained their journalistic authority, even though if you look at the data, television is now no longer the main reference to search for news or information. (Casero-Ripolles, 2020).

III. Research Methodology

The research method used is qualitative research with a descriptive approach, qualitative research aims to understand what is experienced by the research subject as a whole and by way of description in the form of

words and language, in a special context by utilizing various scientific methods. A descriptive approach is used to solve problems and answer existing challenges based on the information and data collected.

This case study uses qualitative research methods with a descriptive approach and aims to describe the process of media convergence and talent management, specifically Metro TV reporters and how they answer the challenges of the media industry during the Covid-19 pandemic.

The time of research starts from January 2022 to April 2022, with the research location being conducted at Metro TV Jakarta. Data collection is done virtually via Zoom and Google Meet.

The population in this study are all Media Group News journalists with a sample of reporters and journalists as well as the leaders of the Metro TV convergence process. With a total of 18 respondents who were interviewed. The reporter criteria used as respondents are:

1. Active reporter at Metro TV
2. Have worked for at least 3 years
3. Have attended and participated in convergence training

Digging more in-depth information is done through interviews,with respondents selected who are competent and can answer questions related to this research. Namely representatives of the Metro TV editorial managerial division, who are responsible for leading the convergence process, including the Head of Convergence Metro TV, Metro TV newsroom manager, and Metro TV executive producer. Interviews were conducted in-depth and in a focused manner using open-ended questions.

The framework of questions that serve as a guide for interviews with directors of Metro TV are as follows:

Table 1.

Topic	Questions
Introduction	1. What is your job description, sir/madam? 2. What are your responsibilities like?
Media Convergence Adaption and Transition	1. How urgent is the convergence process? 2. How to introduce convergence and change processes? 3. What is the process of training and mentoring like? 4. What is the prepared communication process like? 5. Is there any resistance from employees and how to deal with it? 6. How to adapt to the Covid-19 pandemic? 7. How to see and measure the needs of employees, especially reporters in the convergence process in the midst of the Covid-19 pandemic? 8. What are the goals and benchmarks for the success of media convergence?

Question framework that serves as a guide in conducting interviews with Metro TV employees (reporters):

Table 2.

Topic	Questions
Introduction	1. How long have you worked at Metro TV? 2. What is your job description?
Understanding the Concept of Media Convergence	1. Do you know the media convergence process plan? 2. What is understood about media convergence?

	3. What is the process of introducing and training media convergence like?
	4. How is the readiness of Metro TV reporters and other media under Media Group News to carry out the media convergence process?
	5. How has the Covid-19 pandemic affected the work process and media convergence training?
Perspective Exploration	1. How do you see the need for media convergence in the company?
	2. Has the training process and introduction to media convergence been effective?
	3. How does the Covid-19 pandemic affect your challenges at work?
	4. What is the impact of media convergence on your work?
	5. Did you get support and have your needs met during the media convergence process and during the Covid-19 pandemic?
	6. How important are the needs provided by the office for you?
	7. What kind of support or assistance do you expect?
	8. Do you have any suggestions regarding the implementation of media convergence in the company?

Data analysis was carried out through thematic analysis. Thematic analysis is carried out to identify, analyze and report the pattern of themes from the collected data.

IV. RESULT / FINDING

Media convergence carried out by Media Group News are structural convergence, news coverage convergence and presentation convergence. The transformation implemented by the media group is that previously a journalist was limited to covering and creating news content for only one platform where he worked, but now a journalist (reporter) covers news to be given to various platforms (multiplatform). The same thing happened in newsrooms, where previously news was received by various editors on different platforms, but now the sending and receiving of news is centralized. The newsroom transformation process implemented by Metro TV and Media Group is shown in Figure 1.
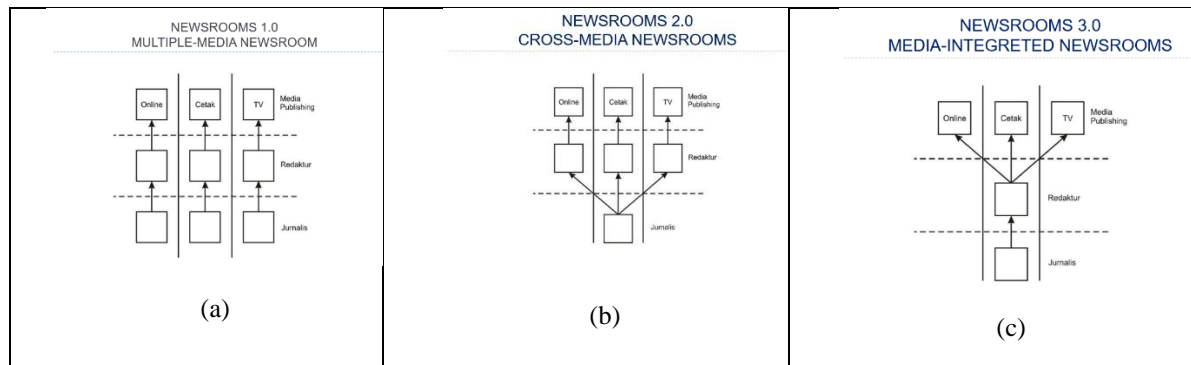
Figure 1. Newsroom Flow

Figure 1 shows the transformation of newsrooms that has been carried out by Media Group News. Newsroom 3.0 is an integrated newsroom. In Newsroom 3.0 newsrooms provide content for multiple channels by integrating a complete news stream for print, broadcast and digital versions from planning to production. The responsibility for the channel is not assigned to one particular person, but the responsibility for news coverage belongs to the section head. The structure of the room also consists of a news-hub or news center, and there are branches connected to the center. In this integration there is a unification of workflows and also the use of shared news content. All the news, information and content that journalists collect is collected in a database known as a basket. The results of this coverage can then be used for processing depending on the needs of each media with

their respective characteristics. Interviews were conducted on 18 participants. Participants were divided into 2 (groups) based on the function of position in the Metro TV office and Media Group News, namely group 1 reporter and group 2 managerial.

The interview findings in this study are: convergence has an impact on working conditions during the covid-19 pandemic, lack of organizational support for employees in dealing with media convergence, implementation of convergence policies in the field is not effective, convergence causes workload to increase, office support for employee health when the pandemic is sufficient and the convergence policy needs to be accompanied by a policy of additional incentives and benefits.

V. DISCUSSION

Convergence Impacts Working Conditions During the Covid-19 Pandemic: Adjustment of the workday schedule is done without losing the productivity of the office and the company. Metro TV journalists who originally got 2 (two) days off every week. Now they get 3 (three) days off, implementing a work from home or WFH system, because there are no demands to look for pictures and provide live reports or live reports on television, many sources of information either personal, companies, and ministries/agencies hold events and conferences online. Therefore, journalists are required to be able to adapt to using devices to attend and cover the information, and Reporters are still required to go directly to the field and cover the news. This is because television still requires presence and audio-visual material. So, reporters face the risk of contracting and spreading the virus.

Convergence is the fusion of several elements of the Media Group News platform to increase efficiency. One reporter can provide material or coverage to multiplatform. In the beginning, each platform sent its own reporter or journalist, now it can be reduced to become a joint reporter. With the modification of the work system, the impact is also seen on jobs that no longer require physical presence in the office. Especially in news coverage and processing. So that the pandemic has also transformed the work system in Metro TV and Media Group News.

Lack of Organizational Support Towards Employees in Facing Media Convergence: Media convergence is introduced and implemented in stages to employees and reporters of Metro TV and Media Group News since 2019. The introduction system is also carried out through an approach to superiors and outreach to other reporters. The socialization was carried out many times with various media, both in writing, face to face and virtual, Reporters understand the need for media convergence to be implemented. This was stated by a few participants, Reporters think that the system is very crucial because it directly affects their work in the field, Reporters feel that the training provided when they first became employees has become their main provision because they are required to take part in multi-platform training first. Now the training for their convergence feels the same as they got in the past, the training provided is also mixed skills, such as how to write in print aimed at online and TV journalists, as well as how to appear and give direct reports to print journalists. However, the training system provided by Metro TV reporters was said to be less effective. Because the material provided is not in accordance with what they do in the real field, and mentoring program is also provided for the convergence reporters. However, this program is admittedly not optimal. This is because the appointed mentors are said to have busy schedules, so they cannot continuously monitor the coverage and performance of their mentored children.

Implementation of Convergence Policy in the Field Ineffective: The implemented system is still ineffective and not good. The implementation that has not been maximized is also recognized by managers who are also participants. "Where he said that because of the new system, it was very understandable that there were shortcomings and needed time to adjust", Inconsistent communication of assignments so that it becomes difficult to carry out daily tasks, Forming converged journalists from 'finished' journalists from print, online and television media will be more difficult, when compared to forming or recruiting new journalists who are really focused on becoming convergence journalists, They feel the impact on their work in the field actually adds a heavier burden. Because they must provide more than 1 (one) news coverage material to the platform and seeing the readiness and preparedness of the reporters and the human resources of Media Group News, it was said that their reporters were 'Ready not ready, they must be ready'. So, they have no choice but to adapt and follow the policies of the office.

Convergence Causes Workload to Increase: Media convergence causes employees to feel objected and overwhelmed by increasing the platform for them to provide coverage. So that a few resistances emerged from the reporters to follow or carry out this media convergence process, The burden felt by TV reporters is also considered heavier than other platform reporters. Because they are still prioritized and relied on for coverage that requires live reports on television, The addition of a news platform, as well as a different type of script format requested by the office, the reporters who went into the field felt more Tired. Especially with the condition of the Covid-19 pandemic which also attacks them psychologically, and Lack of communication and understanding which leads to objections to carrying out convergence without clear directions.

Seeing the condition of the reporters in the field and the various attitudes related to media convergence, the managers are also aware of the resistance from the employees. But this resistance is seen as natural, mainly due to a lack of understanding and a reluctance to change. However, the resistance shown by employees, especially reporters, did not show a meaningful attitude or lead to an offensive attitude. The average only complains about working conditions behind with his fellow friends. So that resistance and objections are seen by managers as conditions that do not prevent them from continuing to carry out the existing media convergence.

The managerial team said that they continue to open lines of communication and carry out continuous dialogue to provide understanding and facilitate the implementation of media convergence. The socialization that continues to be carried out is in the form of understanding and changing the way of thinking of reporters who think they work for 3 platforms.

But reporters still feel a lack of communication exists to address this media convergence. Both from discussing the existing system and to conveying complaints about the difficulties they encountered in the field, which became the basis for them to be reluctant to undergo the media convergence process.

Office Support for Employee Health During the Covid-19 Pandemic: In dealing with the Covid-19 pandemic, all employees, including reporters, are faced with a few challenges, both psychologically and physically. They must be more secure because they go directly to the field with high mobility to get news. Seeing this condition, managers and superiors also see the need for health support that needs to be given to employees. Specially to increase and maintain the immunity of employees and reporters, Health needs such as vitamins and the necessity of testing for Covid-19 through tracing and tracking are the concerns of the office. Especially with a few employees who have tested positive for Covid-19. They continue to be given assistance and assistance to assist their recovery and recovery. This is reflected in how the office allocates additional budget for this, Support for medical equipment and health assistance during the Covid-19 pandemic was also welcomed by employees, including reporters. They feel the presence and good intentions of the office by continuously providing vitamins and Covid-19 test facilities regularly and free of charge, and Employees who have contracted Covid-19 also feel how they feel very helped by the assistance and facilities provided by the office. Whether it's from tests to help get isolation facilities at the athlete's house. This assistance and assistance are also considered very important by reporters. Especially considering their job, they inevitably must go directly to the field and still meet with many people. So, they are more susceptible to exposure to the virus and the risk of contracting the Covid-19 virus.

Convergence Policy Needs to Be Accompanied with Additional Incentives and Benefit Policies: Media convergence causes adaptation to change in the existing system, many of them also expect additional incentives in the form of money, there is no assistance in the form of credit allowances or quotas from the office even though reporters often must access events and make scripts from home, because it coincides with their WFH (work from home) schedule. This has an impact on the need for internet quota packages, However, this is inversely proportional to the statement given by the supervisor who was also an interview participant. Where the participant stated that the office continues to aid reporters to carry out independent reporting, including by providing credit allowances, Reporters also hope for additional incentives as a form of compensation for work they perceive as additional work compared to before. Managers also said that plans for remuneration systems and incentive benefits are also being designed and worked out for employees who are considered productive and good. However, it has not been implemented optimally due to the current conditions, and however, there are also managerial parties who consider this monetary incentive to be detrimental to professionalism and should be removed to avoid harm to both parties. Both the company and the employees.

Next, the motivation needed does not come from the company or the manager, but the motivation of employees and reporters is the spirit and passion from within the individual. However, the reporter considers the current working conditions with increasing needs during the Covid-19 pandemic. Almost all participants considered monetary benefits to be their main motivator to continue to work and survive at the Metro TV and

Media Group News offices. Moreover, they have communicated this to their superiors, and received an answer that the incentive system is being drafted.

Participant number 11 also revealed that the motivation given by the office is very important to help him increase work productivity. Looking at the current conditions, both internally in the office from the work he does and the external conditions of life's demands, he revealed that monetary benefits or money are the main motivators to increase motivation and productivity at work.

VI. CONCLUSION AND RECOMMENDATION

The perspectives of journalists or reporters when dealing with the covid-19 pandemic and adapting to changes in media convergence at Media Group News based on an exploratory study of media workers' perspectives, there are several important points, namely: convergence has an impact on working conditions during the covid-19 pandemic, lack of organizational support for employees in the face of media convergence, implementation of convergence policies in the field is not effective, convergence causes workload to increase, office support for employee health during the pandemic is sufficient and convergence policies need to be accompanied by policies of additional incentives and benefits.

PT. Media Televisi Indonesia performs three dimensions of convergence, namely structural convergence, news coverage convergence and presentation convergence from the five dimensions of convergence mentioned

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Text Mining Approach to Analyze User Response on Social Media Towards a Sales Promotion Program

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Abstract

The purpose of this research is to investigate how users responses to a technology company's sales promotion program in Indonesia through comments on social media by identifying influential keywords and themes. Tokopedia, an Indonesian technology company that specializes in E-Commerce, has seen significant growth. Tokopedia implements a marketing strategy, specifically a sales promotion, as part of their business strategy. Sales promotion might influence user's perspectives, thus it's critical for the firm to understand user's perspective. This study applied text mining to analyse user's perspective through user comment on social media to get a wider picture, trends, and user interests. Using the Twitter API, the authors gathered 13,921 Twitter comments between January 1, 2021, and December 1, 2021. These data were subjected to content analysis using word frequency, part of speech tagging, co-occurrence matrix, core-periphery analysis, and network analysis. Even though text mining has been used in marketing, to author best knowledge, this research is among the first to investigate sales promotions using network analysis. This research was effective in identifying influential keywords and themes distribution. The influential keywords are associated to Tokopedia monetary promotion benefits, which may be employed for marketing strategies and social media network activation. The author also identified community themes, which are (i) multi-product promotions, (ii) Gojek and Tokopedia sales promotion collaboration, (iii) Tokopedia monetary promotions, (iv) viral content, and (v) PLN promotion, which could provide valuable information for the company to improve their business performance. This research offers a novel approach of transforming social media content into meaningful insights about sales promotion.

Keywords— Network Analysis; Sales Promotion; Social Media; Text Mining

I. INTRODUCTION

In recent years, Indonesia has seen growth in the development of technology-based companies. This was shown by Indonesia's ranking, which ranked fifth in the world with 2,193 start-ups in 2019, after the United States, India, the United Kingdom, and Canada. The growth of unicorn and decacorn start-ups demonstrates not only the quantity but also the quality of companies owned by Indonesia (Ministry of Communication and Informatics, 2020). One of the startup technology companies in Indonesia is Tokopedia, which ranks second in Indonesia in terms of unicorn valuation, with a US $7 billion valuation (CBinsights, 2021). Tokopedia's status as a unicorn also has a significant economic impact, particularly during a pandemic, which is consistent with the company's objective.

In its business activities, Tokopedia conducted sales promotion as one of their marketing strategies to increase customer transactions. According to Shimp (2010), sales promotions may attract customers by offering a variety of benefits (Sinha & Verma, 2018a). Sales promotion could not only increase customer transactions, but also improve brand awareness and keep customers engaged with the brand because of the benefits provided (Sinha & Verma, 2018a). Sales promotions on consumer behavior have a positive correlation with short-term or behavioral effects in increasing sales volume and purchase intentions and long-term effects or perceptual behavior that show a positive and significant relationship between sales promotion techniques and brand loyalty (Santini, Vieira, Sampaio, & Perin, 2016). In this research, Tokopedia's sales promotion program is called Waktu Indonesia Belanja (WIB), which provides discounts of up to 90%, as well as cashback vouchers and free shipping fees. The program was held every 25th to the end of each month throughout 2021.

Even though sales promotion could generate a good impact on sales, it could also lead to a negative impact (Marshall & Johnston, 2018). Hanaysha (2018) and Eleboda (2017) found that sales promotions had a negative impact on purchase decisions. Hanaysha (2018) also proved that sales promotions may have a negative impact on customer perceptions of brand quality since lowering product costs tends to have low quality. Hence, it is critical for a company to understand user perspectives and responses during a sales promotion program to

provide feedback to the company. Companies could achieve this by listening to users through interviews, generating surveys or analyzing comments from social media that could provide useful information.

Tokopedia uses social media to distribute information regarding the sales promotion program. Because of the enormous number of active users, social media is widely used nowadays. According to the Indonesia Digital Report 2021 (Hootsuite & We are Social, 2021), Indonesia has 170 million active social media users. The high penetration of social media in the public community causes companies to use social media as a tool for marketing and brand building. User interaction on social media not only allows the company to exchange information but can also be used by users to share and exchange information (Tsimonis & Dimitriadis, 2014). The data received from social media could be used to measure user opinions on corporate services and establish user preferences. Therefore, companies could utilize user responses on social media to obtain a bigger picture of trends and interests.

Based on the previous arguments, this research method analyzed user responses during sales promotions that were gathered from social media. User comments on social media frequently concern specific companies, brands, services, and products. This research extracted data from the social media platform, Twitter, a microblogging platform. Several studies have shown that brand advocates who use social media may make a difference in service performance, allowing businesses to focus on their core competencies and to get insight from their customers via Twitter (Hewett, Rand, Rust, & Heerde, 2016; Liu, Burns, & Hou, 2017; Grover, Kar, Janssen, & Ilavarasan, 2019). This massive volume of user feedback on social media may be efficiently mined and used as a strong source of information for businesses, particularly for guiding marketing plans based on what people actually think about their products and services (Dwivedi et al., 2020). The massive volumes of social media data emphasize the need for a system that is capable of efficiently transforming textual large data into brand insights. Considering users' comments on social media are typically huge in quantity, this research used text mining methods to organize the data.

In this research, we used a text mining method, specifically network analysis. Text mining employs Natural Language Processing (NLP) methods to optimize the identification of hidden information from unstructured data, with the goal of identifying relationships between textual elements such as the occurrence and co-occurrence of specified terms (Kwartler, 2017). The network analysis approach is used to investigate relationships in social data and to analyze the co-occurrence of certain phrases. Network analysis not only analyzes each word as the smallest unit but also the source, flow, and semantic relationship between information from a group of words to achieve a more precise understanding. The semantic relationship between these words can create a network that can describe the associations of the words that appear and their characteristics (Hou, Cui, Meng, Lian, & Yu, 2019). Text mining itself has been commonly used in marketing, according to Halper, Kaufman, and Kirsh (2013), text analysis is used to analyze target markets, customer relationship marketing, social media, churn detection, and market analysis (Oh & Kim, 2020). Liu, Burns and Hou (2017) also investigated brand-related user-generated content on Twitter using Latent Dirichlet Allocation and sentiment analysis, as did Jia (2018), who used text mining to quantify ratings on restaurant reviews.

Even though active studies have identified marketing through text mining, to the author's best knowledge, there is no prior study that analyzed customer response towards sales promotion using network analysis. The large volume of textual data on Twitter that this research used could have a greater impact than traditional methods. Textual data can be used to get marketing insights (Berger, Humphreys, Ludwig, Moe, Netzer, & Schweidel, 2019). This study extends the literature by proposing an analytical framework based on machine learning techniques that have rarely been applied in the competitive environment of the service industry (Gur & Greckhamer, 2019). Thus, this research could enrich the literature on sales promotion as network analysis can identify relevant concepts and their interrelations that may provide marketing insights. By combining several disciplines, this research has the potential to gain relationships and approaches. This study used numerous text mining approaches, including word frequency, part of speech tagging, co-occurrence matrix, core-periphery analysis, and network analysis.

There are two main objectives of this research, first it identified influential words that appear in users' comments about a sales promotion program. Those influential keywords could be employed for company marketing strategies and social media network activation. Second, this research identified the several themes that appear on Twitter during sales promotion. Each theme has its own insight that could enhance a company's service performance. This research also offers several contributions by applying a novel approach to transforming social media content into meaningful insights about sales promotion. These findings also support

user responses evaluations and recommendations that may provide significant information to the company in order to improve their business performance.

II. LITERATURE REVIEW

To provide context for the research and emphasize our contributions, the author mainly focuses on four research streams : (i) sales promotion (ii) social media (iii) text mining (iv) network analysis.

This research focus to analysed user response on sales promotion program from users perspective. To gathered users response, companies mostly used traditional method such as interview or survey. Through digitalization many company start to analyse users response through content in social media. This research chose new approach by utilizing social media to analysed user response on sales promotion. Considering users' comments on social media are typically huge in quantity, this research used text mining methods to organize the data. Furthermore, to answer those research objectives this research use network analysis which could identify influential keywords and themes by identifying flow, and semantic relationship between information from a group of words to achieve a more precise understanding and found out the themes that appeared. Thus, this research could enrich the literature on sales promotion as network analysis can identify relevant concepts and their interrelations that may provide marketing insights. This research also combining several text mining methods, including word frequency, part of speech tagging, co-occurrence matrix, core-periphery analysis, and network analysis. To the author's best knowledge, there is no prior study that analysed customer response towards sales promotion using network analysis. This research contributed to the existing of understanding by offering an analytical framework based on text mining techniques that have rarely been used in the competitive environment of the service sector.

A. Sales Promotion

Sales promotion is one of the elements of the promotion mix, which aims to increase purchases of a product through consumers, salespersons, or those included in the channel (Marshall & Johnston, 2018). Promotion is a powerful marketing tactic that allows a company to engage customers more effectively with its brands (Kim & Kang, 2018). The advantages in sales promotion can be categorized into two types, namely utilitarian and hedonic (Sinha Verma, 2020). What is meant by utilitarianism are benefits related to meeting basic needs and rational aspects of purchasing, while hedonistic benefits are related to wants, feelings, and emotions. The two advantages are positively correlated in increasing product sales. In addition, through the benefits offered in sales promotion, it can have a great influence on brand equity (Sinha & Verma, 2018a).

According to Hanaysha (2018) and Eleboda (2017), sales promotion could also have a negative influence on purchase decisions. Hanaysha (2018) further reveals that sales promotions can be harmful to customer perceptions of a brand since a reduction in product pricing generates a perception of low quality. Other research also discovered that overuse of sales promotion is not a good promotional strategy and can lead to a general cheapening of brand image and distrust by customers (Marshall & Johnston, 2018). Therefore, it is important for a company to understand user response during a sales promotion program.

In this research, the author analyzes user response towards the Tokopedia price promotion program on social media using text mining. Although prior studies have investigated marketing issues with text mining, the authors are unaware of similar studies that have examined user response to sales promotion using the network analysis method. Previous research typically employed questionnaires or traditional approaches; for example, Sinha and Verma (2019) conducted a field survey to examine the association between sales promotion and user impressions.

B. Social Media

In recent years, many researchers have argued that it is vital to investigate information on social media platforms (John, Kim, & Barasz, 2018; Drakett, Rickett, Day, & Milnes, 2018). Many users use social platforms to tell others about their daily activities and experiences as well as their opinions. The fact that users are organized into networks of individuals with similar opinions and ideas is a major advantage of social platforms (Palos-Sanchez, Saura, Reyes-Menendez, & Esquivel., 2018). Social media has a form of environment that can be accessible from anywhere on the globe, and most of it can stimulate interactions amongst users to share their thoughts (Grover, Kar, Janssen, & Ilavarasan, 2019). Therefore, it is crucial for businesses to analyze

user opinions on social media because it allows them to connect with consumers who may become potential clients.

Twitter, a social media platform that allows users to disseminate messages, was employed in this research. Twitter has a significant role in the world, as evidenced by the fact that it receives 1.6 billion unique visitors each month and has 330 million active users (Sashi, Brynildsen, & Bilgihan, 2019). According to the Hootsuite Digital Report 2021, there are 14.05 million Twitter users in Indonesia. Twitter is commonly used to spread repetitious material from the media in order to provoke responses (Ma, Tse, Sato, Zhang, & Lu, 2020). Therefore, Twitter questions could generate conversations amongst people and create traffic. Several studies have stated that there is a need for companies that utilize social media to contribute to service improvement so that they can engage and gain insight regarding their brand from customers on the Twitter microblogging platform. (Hewett, Rand, Rust, & Heerde, 2016; Liu, Burns, & Hou, 2017; Grover, Kar, Janssen, & Ilavarasan, 2019)

This research examines Twitter comments, often known as tweets, which are users' opinions. Tweets are limited to 280 characters and are used to produce useful thoughts. Twitter is another example of a social media platform with great information transmission capabilities (Kitano, Yamada, & Tan, 2021). One of the main benefits of platforms such As twitter is that users are organized in networks, enabling users to explore groups of people, communities, and people related by common interests rather than individual profiles or personalities. (Hubert et al., 2017). Twitter data can also be easily extracted in this research by using the Twitter API. Furthermore, compared to other e-commerce companies, Tokopedia has the most Twitter followers (1 million). Those are the reasons for choosing Twitter in the research.

C. Text Mining

This research used a text mining method in data collection. Text mining itself is a process of transforming text data in the form of unstructured text into usable information (Kwartler, 2017). Text mining is a part of data mining that is used to discover information from data in the form of text. The amount of data obtained from social media can be difficult to quantify because the data has qualitative properties of unstructured data and has a lot of noise. This challenge can be solved using text mining (Netzer, Feldman, Goldenberg, & Fresko, 2012). Text mining itself has been used in the marketing field. For example, in the research of Ghose, Ipeiroti, and Li (2012) using text mining and crowdsourcing to estimate demand from hotels, Liu, Burns, and Hou (2017) investigated brand-related user-generated content on Twitter using Latent Dirichlet Allocation and sentiment analysis, and Susan Jia (2018) used text mining to quantify ratings on restaurant reviews.

Textual data can be used to get marketing insights and be used for prediction and understanding tools (Berger, Humphreys, Ludwig, Moe, Netzer, & Schweidel, 2019). By combining several disciplines, text analysis has the potential to gain relationships and approaches. There are several steps in text analysis, namely, pre-processing data and analyzing text data. This step may change according to the research objectives. In this research, the authors used three main steps, which are: data collection, data pre-processing, and data analysis.

D. Network Analysis

On social media, circulating information will spread faster than in offline media. The speed of information dissemination in online media forms an information flow that maps relationships with one another to form a network. The network is represented as a graph with a combination of several nodes (values, sentiments, attributes, locations, ideas) and the relationships between the nodes, namely edges (links, ties, associations, affiliations, interactions) (Zhao L & Min C, 2019). In social media, nodes can be referred to as topics, accounts, and hashtags, while edges are relationships, friendships, following, web links, and information flows (Zafarani, Abbasi, & Liu, 2014).

To find out the importance of nodes on a network, there are several types of centrality calculations in identifying the position of nodes in the network. The first is degree centrality, which measures the number of edges owned by one node (Golbeck, 2015). According to Henderson, Iacobucci and Calder (1998), degree centrality can identify how central or popular a particular node is in a network (Webster & Morisson, 2004). Another measurement to see the importance of a node is the Betweenness Centrality, which measures how important each node is related to other nodes (Zafarani, Abbasi, & Liu, 2014). It measures the centrality in the graph based on the shortest path. According to Freeman (1979), betweenness centrality can play a role in activating other words in the network (Holzmann and Wuhrer, 2000). Therefore, nodes with high betweenness centrality can act as bridges or intermediaries in the network. Closeness Centrality describes the distance of nodes to one another. If a concept has a close distance to another concept, then the concept has a high closeness

centrality (Wasserman and Faust, 1994). According to Freeman (1979), closeness centrality can describe the independence of a node.

Network analysis can be useful for quantifying the relationships between words that can show the semantic structure of topics from certain domains, namely social media (Himelboim, Smith, Rainie, Shneiderman, & Espina, 2017). Topics in the network can be identified by building a co-occurrence matrix based on the word frequency co-occurrence and then analyzing the community based on optimization of modularity (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008). The first two types of matrices in network analysis are: the first two-mode network is a description of the article and keywords that appear in the article, while the one-mode network connects keywords based on their appearance in the document (Lee & Sang, 2018). This research used one type of network.

III. Research Methodology

The text mining technique was employed in this study to examine user responses on Twitter during the sales promotion program by finding influential keywords and user topics. This research is divided into three primary stages: data collection, pre-processing, and data analysis (Fig. 1). In the first stage, data is acquired by searching for text-based comments on Twitter using the Twitter Application Program Interface (API). The data is then pre-processed using R software (R Core Team, 2021), with the following R packages: dplyr (Wickham, François, Henry, & Müller, 2021), stringr (Wickham, 2019), tm (Feinerer & Hornik, 2020), and stopwords (Benoit, Muhr, & Watanabe, 2021). This stage includes text normalization, slang terms, and stop words to clean up the text before going to the next stage. At the data analysis stage, the data was subjected to word frequency, POS Tagging, biterms co-occurrence matrix, and core-periphery analysis, using netUtils (Schoch, 2022) and udpipe (Wijffels, 2021) packages from R. The researchers were also able to discover the influential keywords and the theme for each community using Gephi. Finally, the results of those steps, influential keywords and themes, could give the company insightful information.

The author realizes the importance of validating the collected data because the data might contain spam or bot tweets. As a result, when collecting data, the author filters it twice using a total of seven unique keywords to ensure that the data acquired was relevant to the research objectives. Data is retrieved using Twitter's API for academic research with specific keywords to filter only tweets related to Tokopedia's sales promotion program. Furthermore, this research also conducted multiple phases in pre-processing steps to strengthen the validity of the data, such as detecting spam tweets, deleting duplicate tweets, tokenization, eliminating terms that do not have an important function on the network, and utilizing the part of speech tagging approach. Those methods are considered to reducing bias in tweets, which might interfere the analysis steps (Liu et al., 2019; Leem & Eum, 2021).

STEP 1 : Data collection
- Twitter API
- January, 1st ,2021 – December, 1st ,2021

STEP 2 : Data pre-processing
- Text Normalization
- Slang Words
- Stop Words

STEP 3 : Data analysis
- Word Frequency
- POS Tagging
- Biterms Co-occurences
- Network Analysis
- Community Analysis

STEP 4 : Reporting
- Summarizing
- Reporting Findings
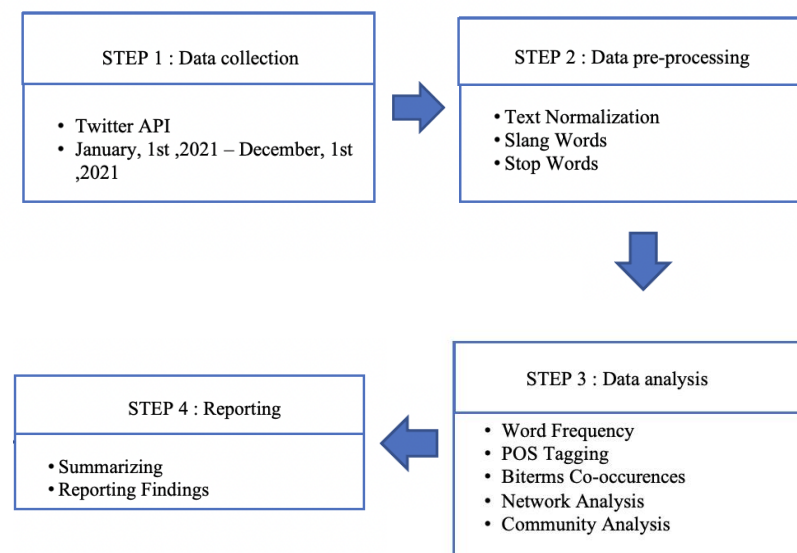
Fig. 1 Research Framework

E. Data Collection Stage

This stage used R software to extract tweets and user comments from Twitter. Twitter Application Programming Interfaces (API) for Academic Research are utilized to get Twitter historical data. Twitter data is retrieved using keywords related to Tokopedia and sales promotion program, the keywords are 'Tokopedia,' 'Tokped'. Furthermore, to filter tweets that are related to sales promotion, the researcher added additional keywords which are, '*diskon*' (discount), '*promo*' (promotion), 'cashback,' '*ongkir*' (shipments fee), and 'wib'. This research successfully gathered 13,921 Twitter comments between January 1, 2021, and December 1, 2021.

F. Pre-Processing Stage

During this stage, the researchers divided it into two steps. The first step is called text normalized data. It removes text from unnecessary terms such as URLs or links, hashtags, emoji, numbers, and symbols, and it also removes any duplicate tweets. The second step was slang words and stop words. Slang words is a process to transform informal/daily words into standard words. This method was used because most of the tweets contain informal daily language. The next step is to stop words. It removes stop words such as conjunctions, prepositions, and other words that have no meaning as individual words.

G. Data Analysis

The frequency of words is the first stage of analysis of data that has been processed in the pre-processing stage. The purpose of this step is to do statistical analysis on the frequency of word occurrences throughout the document. At this step, the researcher examines a collection of words that are processed by creating a corpus, which then generates information about the frequency of each word that appears.

Building Co-occurrence matrix with The Part of Speech (POS) Tagging technique. POS tagging optimizes word selection by classifying the types of words (nouns, adjectives, verbs). The researchers then selected the types of words to be processed further to obtain a more optimized analysis. During this step, the researcher used the R package called udpipe (Wijffels, 2021). After obtaining the POS Tagging output, the author chose "noun" as the type of word to be used as an input in creating a biterm co-occurrence matrix. A biterm co-occurrence is a pair of terms that frequently appear or occur sequentially in a phrase. This bigram co-occurrence list may examine semantic links or correlations between words in user comment data (Hou, Cui, Meng, Lian, & Yu, 2019).

Network Building and Analysis. After knowing the words that often appear, this study examines the relationships and associations of each word by using the Network Text Analysis method. This study uses a one-mode network which reconstructs from a two-mode network where the relationship between each document and the words that appear is converted into a relationship between keywords. In one mode network, there is no relationship between articles but focuses on the keyword relationship (Lee & Rha, 2018). The relationship between keywords analyzed by one-mode networks can describe the relationship between keywords. This relationship can be measured based on the degree of centrality, betweenness centrality, and closeness centrality.

Next is community analysis. The objective of this stage was to identify the themes of each community that have strong interaction (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008). The Gephi software conducted modularity calculations with the Louvain method, which were then visualized to show the distribution. This is accomplished by examining the classification of nodes in the cluster based on the amount of interaction of keywords. The results of each cluster show that the words are closely connected to one another and that they have a strong relationship. Each community represents a unique theme that could generate user insights that are beneficial to the company.

IV. RESULT/FINDING

A. Words Frequency

Using pre-processed data, the researcher estimated the frequency of words from 13,921 Twitter comments. The data is supposed to be clean and clear of meaningless terms that might influence research analysis. The researchers obtained the following results:

Table 1. Words Frequency. (Author's Work)

No	Words	Frequency
1	Tokopedia	3866
2	*Promo* (promotion)	2013
3	*Diskon* (discount)	1465
4	Cashback	1180
5	*Membeli* (buy)	1162
6	*Ongkir* (shipping fee)	1054
7	*Gratis* (free)	1053
8	*Kupon* (coupon)	797
9	*Memakai* (use)	660
10	Shopee	536

Overall, the researchers obtained a total of 8,155 unique words that can be shown in Table 1. From the table we can see that 'tokopedia', '*promo*'/promotion, '*diskon*'/discount, '*ongkir*'/shipping fee, and 'cashback' appear in the high frequency words that appear in Twitter comments. Despite this, the word 'wib' as the name of Tokopedia's sales promotion program is not shown in the list. This is because sentences containing the word 'wib' tend to be spam, which has the characteristic of high duplication of comments. The data was deleted at the pre-processing stage. Another word in Table 1 is 'Shopee', which is the name of a competitor of Tokopedia. The words 'cashback' , 'free' and 'shipping costs' 'are classified as the benefits in the sales promotion program. Further analysis related to the relationship between words and their influence in the network can be seen in the network analysis method.

B. Centrality Measurement and Core-Periphery Analysis

Table 2 shows the results of centrality in the form of degree centrality, closeness centrality, and betweenness centrality. Each measurement has a different meaning according to its role in the network. The five words that have the highest degree are 'tokopedia', 'promo', 'cashback', 'ongkir', and 'coupon'. Based on the previous explanation, words with a high degree of centrality are words that have a big impact on the network. This word can be a stimulus for marketing activity (Seitz & Roosen, 2015).

Table 2. Centrality Measurement.

No	Words	Degree Centrality	Closeness Centrality	Betweenness Centrality
1	Tokopedia	41,000	0,707	1282,317
2	*Promo* (promotion)	20,000	0,552	388,317
3	Cashback	11,000	0,504	141,850
4	*Ongkir* (Shipping fee)	9,000	0,513	343,900
5	*Kupon* (coupon)	9,000	0,496	60,750
6	*Kode* (Code)	5,000	0,322	1,867
7	*Wanita* (women)	4,000	0,314	58,500
8	*Teman* (Friend)	3,000	0,352	55,000
9	*Keluarga* (Family)	3,000	0,265	57,000
10	Group	3,000	0,352	55,000

Furthermore, the closeness centrality indicates how closely one node relates to another node. Closeness centrality showed the 'independence' of the nodes, as this node could appear without other words that activate the word. Through these words, the company can use them as a communication strategy to activate a network. Based on Table 2, it is known that the words that appear are 'tokopedia', 'promo', 'ongkir', 'cashback', and 'coupon'. The last centrality measurement is betweenness centrality. This measurement describes the role of the node as a bridge or intermediary in the network. Those words are 'tokopedia', 'promo', 'ongkir', 'cashback' and '*tahta'*/throne. These words can be used to create new networks so that information circulation can be expanded.

Researchers also analyzed the core-periphery to determine the structure of a network, using the method of Borgatti and Everett (2000). From the output from core-periphery analysis, it is shown that there are 6 nodes

included in the core, which are: 'tokopedia', 'coupon', 'cashback', 'promo', 'ongkir', and 'code'. The core nodes are words that are close to the main concept and have a big impact on a network. As for other words, the value is 0 which means those words were included in the periphery. Based on the centrality measurement and the core-periphery analysis, it can be shown that the nodes that belong to the core also have a high degree of centrality. It could confirm the importance of these concepts in the network.

C. Community Analysis

Researchers employed Gephi software to help visualize the network for community analysis. The Force Atlas 2 layout was utilized to build the network. According to Jacomy, Venturini, Heymann, and Bastian (2014), the Force Atlas 2 layout has better measurement quality than other layouts since it is an upgrade over the Force Atlas. Force Atlas 2 helps to gather words that have a higher connection. This layout was also used for scale-free networks. The findings of a community using the Louvain approach (Blondel, Guillaume, Lambiotte, & Lefebvre, 2008) showed five communities with a modularity value of 0.4, shown in Figure 2.

Fig. 2. Network Visualization (Author's Work)

Table 3. The Network's Theme and Proportion of Nodes.

Modularity Class	Proportion of Nodes	Theme	Color
1	42,37%	Multi-product promotions	Green
2	22,03%	Tokopedia Monetary Promotions Benefits	Orange
3	20,34%	Gojek Tokopedia Sales Promotion Collaboration	Pink
4	8,47%	Viral Content	Blue
5	6,78%	PLN Promotions	Yellow

D. Author's Work

The network distribution is shown in Figure 2. The size of the letters and circles represents the degree of centrality. The thickness of the connected red lines reflects the frequency of words, where the thicker the line, the higher the frequency. The different colors in the network represent each community. The strength of interaction between nodes influences the number of nodes in a community. A node appears in the same community if it has a strong association, such as a high relationship or occurrence. Table 3 shows that each community has a different proportion in the network. It also states the theme for each community. Five communities were identified. Those themes are: multi-product promotion, Tokopedia monetary promotion benefit, Gojek and Tokopedia sales promotion collaboration, viral content, and PLN promotion. This sequence also describes the proportion of communities in the network. The largest proportion is in multi-product promotion at 42.37%, and the smallest is in PLN promotion at 6.78%.

V. DISCUSSION

A. Influential keywords

The results of the core-periphery analysis confirmed that words included as the core also have a high degree of centrality. Those words were classified to be the influential words in the network. Thus, it is important for Tokopedia to pay attention to those dominant words since they have a big impact on the network. Those influential words are 'tokopedia', 'promotion', 'cashback', 'ongkir', and 'coupon'. According to Seitz and Roosen (2015), influential words could be used as a reference to determine marketing communication strategies.

The word 'promo' plays an important role in the network, which ranked second after Tokopedia in terms of degree centrality, closeness centrality, and betweenness centrality. This indicates that the word 'promo' has a big influence, may occur without depending on other words, and can act as an intermediary word to expand the network. The words 'ongkir' and 'cashback' also appeared in the third and fourth positions as well. These two words are related to the benefits of the sales promotion program, which are free shipping and cashback vouchers. According to the comments, those words are used by two types of users: buyers and sellers. Sellers used the words promo, ongkir, and cashback to promote products on Twitter with the purpose of increasing awareness about a product/brand or generating sales, as seen by the large number of product links observed in user comments. Sales promotion benefits are frequently employed in promotion tweets to attract customers. Meanwhile, from the buyer's perspective, those words appear to convey both negative and positive comments about the benefits and promotions offered.

This research could gain insights from these influential keywords. First, according to the words that often appear in the network, many words in this program are also associated with utilitarian benefits, such as 'price,' 'ongkir,' free,' 'fast,' 'cashback,' 'cheap,' 'original,' and 'saving.' This is also consistent with the type of sales promotion employed, which is a type of monetary promotion that activates words with utilitarian benefits on the network. Second, these benefits, cashback and free shipping fees*,* have a significant impact on the *network*. Both free shipping and c*ashback* could increase the total order volume (Vana, Lambrecht, & Bertini, 2018; Shehu, Papies, & Neslinal, 2020). Free shipping benefits could generate consumers' perception of compensating them for taking a risk to purchase risky products and could have positive effects (feeling component). However, in contrast, the increase in order volume from cashback is driven by a higher spend for both high and low risk products (Shehu, Papies, & Neslinal, 2020). Tokopedia may utilize these benefits to stimulate social media networks while still performing continuous evaluations regarding those benefits. Finally, Tokopedia's communication strategy should address information to both buyers and sellers. Tokopedia could use Twitter to increase engagement between Tokopedia and buyers and sellers. Engagement with sellers on social media might come in the form of likes, shares, or comments on the seller's post.

B. Community Identification

The first community (42.37 percent) is multi-product promotions. This community includes several words, which are 'tokopedia,' 'harga,' 'pulsa', 'shopee', 'buku' ,'original', and 'Lazada.' In this community, two types of product promotions appeared: 'pulsa' and 'buku' and several competitor names, such as 'shopee' and 'lazada.' Aside from that, the words 'original' and 'price' are frequently used while promoting a product. In addition, the appearance of competitors' names in user comments related to product promotions on Twitter revealed that several products were also sold on other platforms such as Shopee and Lazada. According to Ye, Xia, Zhang, Zhan, and Li (2020), online comments on internet networks can be used to identify competitors. As a result,

Tokopedia may leverage user comments to actively perform competitor analysis from the user's perspective to discover more about competitors. This is highly beneficial because competitor data is relatively difficult to obtain. The user's opinion on competitors could help Tokopedia by giving insights to improve their service performance.

The word 'original' is frequently used to promote items, and there is a connection between Tokopedia-Shopee-Original. The word "original" is used in product promotion to increase the perceived value of the product to customers. Peng, Zhang, Wang, and Liang (2018) divide customer perceived value into four categories: pricing value, functional value, emotional value, and social value. Originality falls under the category of functional value, which is related to a product's quality and safety. This is also related to the word 'harga/price,' which is contained in the price value (Peng, Zhang, Wang, & Liang, 2018). According to Peng, Zhang, Wang, and Liang(2018), perceived value has a positive influence on purchase intention.

In the second community, users discussed the benefits provided by Tokopedia's sales promotion, namely free shipping fee, and cashback. These benefits mentioned are included in the category of monetary promotion. Some of the words that emerged were 'cashback', 'coupon', '*ongkir*'(shipping fee), '*teman*'(friends), 'keluarga' (family), and 'rekomendasi' '(recommendations). Of the overall benefits offered, cashback and free shipping fees get high enthusiasm from users. Cashback and free shipping are used by users, especially sellers, to attract buyers, while buyers provide reviews regarding these benefits. In the network, the word '*ongkir*' activates the words of recommendation, friends, family, and groups that describe the existence of e-WOM. The E-WOM appeared because of referral marketing from Tokopedia, which could provide benefits for users. According to Berman (2016), a recommendation from a friend or family member could be more highly valued and respected than a paid advertisement.

The third community theme is, Gojek and Tokopedia sales promotion collaboration called '*Waktu Indonesia Belanja Spesial Kolaborasi Anak Bangsa*'. Several words appear, including '*promo*'(promotion), 'link', '*kode*'(code), 'gojek,' and '*kolaborasi*'(collaboration). Users are enthusiastic about the collaboration; this phenomenon is something that they have been waiting for because it is a merger between the two largest unicorn companies in Indonesia. This also shows that Tokopedia uses Twitter to distribute information, particularly about the ongoing promotional program. Comments including these words are not only related to information distribution, but also appear in buyers' reviews, both positive and negative. Tokopedia could take advantage of social media listening by utilizing text mining to provide customer feedback on social media regarding any issues that arise. Since negative e-WOM might impact purchase decisions (Haque, Kabir, Tarofder, Rahman, & Almalmi, 2020).

A content that is currently viral is also seen in the fourth community. The words that appeared were '*tahta*'/throne, '*pria*/man', '*wanita*/woman', and '*harta*/treasure'. The sort of material that might become viral is determined by how many people like, agree with, or prefer it, which could lead to more people sharing, commenting on, or liking the content. According to Erdoğmuş and Çiçek (2012), the type of content shared and preferred by social media users are music, funny, and extraordinary things online. This was related to how people think about social media, a platform where people want to entertain themselves, search for sincerity and fun, as well as share information and instructions. Those preferable content has a tendency to be viral and viral content has a positive relation on increasing brand loyalty of the customer (Erdoğmuş & Çiçek, 2012). Therefore, brand content should be entertaining and fun while also providing information about the brands (Erdoğmuş & Çiçek, 2012; Gamboa & Goncalves, 2014). Furthermore, according to Sinha and Verma (2018b), there is a gender effect on sales promotion benefits and customer perceptions; women tend to prefer hedonistic benefits and men are more interested in utilitarian benefits. Thus, Tokopedia could leverage content by using words that are related to hedonic benefit and conducting hedonic value promotion to attract certain targets, particularly women.

The theme for the fifth community is related to PLN Partnership Promotions. In this community, users were seen talking about promotions from PLN in collaboration with Tokopedia, Bukalapak, and Ace Hardware for selling electronic products. The collaboration between PLN and Tokopedia utilizes the target market of e-commerce, namely the younger generation, who are accustomed to using technology to participate in this program.

Researchers conducted further analysis related to the relationship between network analysis and centrality measures. Words that are in the viral content and referral marketing community have a high betweenness centrality value. Viral content and referral marketing in this *network* could distribute information and trigger the emergence of new communities. The company could employ viral content and referral marketing as a social

media communication strategy to improve user engagement and network activation. Furthermore, the researchers discovered that the words 'Shopee' and 'Bukalapak,' which act as competitors, had a high closeness centrality. This means that competitors might play an important role in the network since they are quick to activate other words in the network.

VI. CONCLUSION AND RECOMMENDATION

This research objective is to analyze user response on social media towards a sales promotion program. Using the text mining approach, this research was effective in identifying influential keywords and community themes. The influential keywords are associated with Tokopedia monetary promotion benefits, which may be employed for marketing strategies and social media network activation. The findings of our research also identified five community themes, which are (i) multi-product promotions, (ii) Gojek and Tokopedia sales promotion collaboration, (iii) Tokopedia monetary promotions, (iv) viral content, and (v) PLN promotion.

Generally, massive content on social media has provided great opportunities and challenges for exploiting the large volumes of data to create insightful information for business. This research offers a novel approach to transforming social media content into meaningful insights about sales promotion. The method uncovers hidden patterns and helps to understand customer perspective during sales promotion programs. This research conducted between December 2021 until May 2022, through those months this research reveals Tokopedia marketing strategy on 2021 and the gap on 2022 in the following results and what need to be improve. The results of this study can provide inputs for the company related to the sales promotion program

First, Tokopedia should consider those influential words in the communication strategy, particularly on social media during the sales promotion program. The words 'promo' can be used to activate the network and promote content on social media. The terms 'cashback' and 'ongkir' refer to the advantages of sales promotions, which have a large impact on the network and are in high demand among users. These two words can be used to activate a network and distribute information. Tokopedia could use those words in every advertisement related to *Waktu Indonesia Belanja* sales promotion program. However, if the two promotional programs are carried out for a long time, it can affect the company's profits and revenue. Therefore, Tokopedia needs to conduct periodic evaluations regarding the free shipping and cashback programs while still prioritizing the company's profitability. It is expected that the benefits provided over time have been recognized by users, enabling Tokopedia to reduce the intensity of sales promotions concerning the financial performance. Tokopedia can categorize its customers into several tiers based on their recent behaviors in order to deliver offers and services based on their activities. Sales promotion strategies must be reviewed on a regular basis while checking up on the situation, particularly threats from other competitors, in order to minimize the possibility of churn. Based on researcher observation, Tokopedia has reduced the sales promotion benefit and only apply those benefits in the selected stores and based on specific term and conditions. In recent advertisements, Tokopedia focus on discount and free shipping benefits. Tokopedia WIB advertisement in 2022 less shown Cashback benefits compare to 2021 advertisement. On the other hand, based on this research result, Tokopedia might consider to improve cashback and free shipping as their main benefits.

Second, the use of social media Twitter serves as a social hub for sellers and buyers to exchange information. As a result, Tokopedia's communication strategy with Twitter users should include information about sellers as well as buyers. Tokopedia may leverage social media, specifically Twitter, to increase engagement between Tokopedia and its stakeholders, especially users and buyers. Engagement is important for companies because it can have a positive impact to the company (Kang, 2014; Men & Tsai, 2016). Tokopedia can implement engagement strategies on social media for sellers and buyers through two-way dialogue to create interaction and create WOM (Chen, 2017). To buyers, Tokopedia can handle customer complaints on social media in a responsive manner. Meanwhile, a two-way dialogue with the seller can be done by commenting and reacting by liking the seller's post on Twitter which will trigger the interaction. For example, when seller X post content related to products that sold on Tokopedia, Tokopedia can provide supportive comments to start a dialogue or react to a favourite button on Twitter that expresses Tokopedia's support for the seller to increase engagement. Based on researcher observations, those engagement partially has been done but Tokopedia need to improve engagement especially with seller.

Third, Tokopedia may utilize viral content as a social media communication approach to improve user engagement and information spread. Tokopedia could constantly monitor viral content on social media that could be used as a reference for Tokopedia content. Viral content could be obtained from trending topics that appeared. Nevertheless, Tokopedia should still determine the type of content, such as focusing on content that

has high emotional value, entertaining, and fun to create hedonic benefits and stimulate users' responses on social media for the network. Based on researcher observation, Tokopedia has improve their WIB short video to be funnier, add music and more interesting in 2022 compare to 2021. Tokopedia also used Korean Band as one of their actors in their short video to engage more users. Unfortunately, Tokopedia content still need improvement to be viral since the previous advertisement didn't leverage trending topics as their content.

Fourth, Considering a sales promotion approach with more hedonic benefits to sharpen marketing strategies for certain target markets in accordance with the viral content and utilitarian benefits that tend to be felt more dominant in the words that appear. The perception of utilitarian benefits (perception of price-quality) has a positive impact or relationship on consumer attitudes but not on behavioural intentions while the hedonic benefits perception has been shown to have a direct positive impact and relationship on consumer attitudes and behavioural intentions (Jee, 2021). Therefore, it is important for Tokopedia to increase hedonic benefits. Based on Bandyopadhyay et al. (2021) hedonic benefits relate to value shopping obtained through immediate monetary and non-monetary, and delayed non-monetary. Tokopedia can apply these types of promotions such as adding product quantity without increasing the price, giving complementary products for free, giving free gifts/products, making lucky draws or scratch cards online to get prizes after purchasing products, holding contests with prizes that use skills such as competitions and provide premium items after making a purchase. Tokopedia had conducted giveaway challenge on 2021 WIB. Tokopedia should conduct several non-monetary promotions benefits like, online lucky draw, giving premium items/complement items in 2022.

Finally, Tokopedia should constantly be engaged in performing competitor analysis. This is indicated by the appearance of competitors' names in tweets, community 1 (42.37%), and the high value of closeness centrality. Tokopedia should create exceptional deals that are appealing and different from those of its competitors, particularly for items that are in high demand among customers. As a result, Tokopedia may leverage user comments using text mining methods to actively perform competitor analyses from a user's perspective to discover more about competitors (Ye, Xia, Zhang, Zhan, & Li, 2020). This is highly beneficial because competitor data is relatively difficult to obtain. The user's opinion on competitors could help Tokopedia by giving insights to improve their service performance.

This research may be expanded in various ways. The first is to expand the social media coverage by including user comment from other social media platforms such as Instagram and Facebook. This is conducted to gather a wider range of user responses and to compare them across multiple social media platforms. By obtaining user responses from other social media, the data owned is not limited to users with Twitter accounts. The collected data is expected to improve data analysis outcomes by detecting developing themes and user characteristics on each platform. Companies may use this to develop more specific marketing communication plans with varied techniques based on the findings of each platform's analysis. Second, extending the data collection duration. This is done with the intention of utilizing network analysis based on time/dynamic changes. Researchers can detect patterns that arise throughout time and their differences over time. Researchers can examine the relationship between themes and the occurrence of time to acquire more information that can be utilized to develop better time-specific marketing strategies. Third, use sentiment analysis to complement existing methods. This is done to obtain more comprehensive results for negative or positive comments. The disadvantage of this research is that it can only map comments that appear without identifying negative and positive responses. It is hoped that using the results of the sentiment analysis method, companies would be able to identify aspects associated with negative or positive things in order to discover problems, solve them, and enhance services provided. Finaly, assessing user input on other competitors' sales promotion programs. Tokopedia may leverage user comments on competitors to analyse and compare the company's strengths and weaknesses. This is critical in order for the firm to maintain their competitive advantage. As a result, user comments on rivals may be analyzed further, particularly on competitor names that appear on networks such as Shopee, Lazada, and Bukalapak.

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The Effect of Profitability on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange

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Abstract

The research topic discusses the effect of profitability on firm value. Fatima (2017) that the relationship between profitability and firm value can be said to be directly proportional or positively related, thereby showing the company's performance. According to Arizona (2020): "Companies that can generate high profits will tend to have a higher company value, because high company profits will increase the company's stock price, which means it will increase the value of the company in the eyes of investors". However, in reality, the return on equity (ROE) has increased but the price to book value (PBV) has actually decreased. The population and sample of this research are 26 companies listed in the food and beverage industry sub-sector manufacturing companies on the Indonesia Stock Exchange. The sampling technique is non-probability sampling with quantitative methods. Then data collection using library research, internet studies and documentation. SPSS Version 20.0 application is used for data processing. The results of the study explain that profitability has no significant effect on firm value. This is because investors pay more attention to prospects, risks and commodities. In addition, because profitability is not the only indicator that investors pay attention to in investing. The results of this study are in line with the results of research conducted by Lambu (2019) that: "Profitability partially has no significant effect on firm value". The results of this study provide a broad idea so that the company's value can be optimal in considering what factors are the company's weaknesses.

Keywords— Profitability; Firm Value.

I. INTRODUCTION

Companies are one of the drivers of the country's economy, including in Indonesia. In general, the main goal of each company is to maximize profits or profits for investor satisfaction. The existence of the company for the community has a positive impact, such as creating jobs, increasing income, contributing to regional and state revenues, and supporting economic improvement (Haholongan, 2016).

Firm value is a condition obtained by the company after undergoing activities for several years as an example of public trust in a company (Noerirawan and Muid, 2012). The rise and fall of the value of the company can be seen from its share price. Companies that have a level of corporate value certainly cannot be separated from various factors that influence it. According to Soekotjo (2019), the influencing factors are financial functions such as dividend policy, investment decisions, and added to the level of profit or often referred to as profitability obtained by the company.

According to Fatima (2017) the relationship between profitability and firm value can be said to be directly proportional or positively related, thereby showing the company's performance. With the increase in the company's performance, the stock price in the capital market increases and this has an impact on increasing stock returns. Profitability is considered as a benchmark on the company's performance in generating profits. According to Sudiarta (2016) if the company is able to increase profits, it indicates that the company is able to perform well so that it can create a positive view of investors and will also increase the share price of the company.

According to Fatima (2017) that: "The relationship between profitability and firm value can be said to be directly proportional or positively related". High profitability indicates a good company performance in generating profits so that it will increase the value of the company which means it will attract investors to invest. Then according to the opinion expressed by Arizona, et al (2020) that: "Companies that can generate high profits will tend to have higher company values, because high company profits will increase the company's share price, which means it will increase the value of the company in the eyes of investors". However, in reality, Return On Equity (ROE) increased but Price To Book Value (PBV) actually decreased. With the inconsistency of theory

and research results as well as existing phenomena, this research is intended to conduct further research on the problems above.

Based on the above background, the authors are interested in conducting a research entitled "The Effect of Profitability on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange." This study aims to determine the effect of profitability on firm value in manufacturing companies listed on the Indonesia Stock Exchange.

II. LITERATURE REVIEW

A. Profitability
Profitability ratio is a ratio to assess the company's ability to seek profit. This ratio also provides a measure of the level of management effectiveness of a company (Kasmir, 2014).

B. Profitability Goals and Benefits
According to Kasmir (2014) the purpose of using profitability ratios for companies and for parties outside the company is as follows:

a. To measure or calculate the profit earned by the company in a certain period.
b. To assess the company's profit position in the previous year with the current year.
c. To assess profit development over time.
d. To assess the amount of net profit after tax with own capital.
e. To measure the productivity of all company funds used both loan capital and own capital.
f. To measure the productivity of all company funds that are used either by own capital.

Meanwhile, the benefits of profitability are as follows:

a. Knowing the level of profit earned by the company in one period.
b. Knowing the company's profit position in the previous year with the current year.
c. Knowing the profit development from time to time
d. Knowing the amount of net profit after tax with own capital.
e. Knowing the productivity of all company funds used both loan capital and own capital.

C. Types of Profitability Ratios
According to Kasmir (2014) the types of profitability ratios that can be used are as follows:

a. Profit Margin on Sales
b. Return on Investment (ROI)
c. Return on Equity (ROE)
d. Earnings per Share of Common Stock

The profitability ratio used in this study is Return on Equity (ROE) because this ratio is one of the most important variables that investors see before they invest. A stable level of profitability gives investors confidence that the company has a good performance in earning profits.

D. Return On Equity (ROE)
Return On Equity (ROE) is a ratio used to measure net profit after tax with own capital. This ratio shows the efficiency of the use of own capital. The higher this ratio, the better. This means that the position of the owner of the company is getting stronger, and vice versa (Kasmir, 2015).

The formula for calculating ROE is as follows:

$$Return\ On\ Equity\ (ROE) = \frac{Profit\ After\ Tax}{Owner's\ Equity}$$

E. The Value Of The Company
According to Harmono (2009) explains that: "Company value is the company's performance which is reflected by the stock price formed by the demand and supply of the capital market which reflects the public's

assessment of the company's performance".

F. Firm Value Measurement Method

Firm value can be measured by a ratio called the valuation ratio. According to Weston and Copeland in Wijaya (2017) firm value can be measured using several measurement methods, namely:

1. Price Earning Ratio (PER)
2. Tobin's Q
3. Price to Book Value (PBV)

In this study, the valuation ratio used is Price to Book Value (PBV) because this ratio is widely used in investment decision making. In addition, there are several advantages of Price to Book Value (PBV), namely book value is a stable and simple measure that can be compared with market prices.

G. Price to Book Value (PBV)

Harmono (2014) states that: "A high price book value reflects a high share price compared to the book value per share. The higher the share price, the more successful the company is in creating value for shareholders. The measurement of price to book value (PBV) can be calculated as follows:

$$Price\ to\ book\ value\ (PBV) = \frac{Price\ per\ Share}{Book\ Value\ of\ Share}$$

Price book value is widely used in making investment decisions. There are several advantages of price to book value, namely it is a stable and simple measure that can be compared with market prices and can be compared between similar companies to show a sign that a stock is expensive or cheap.

According to Kasmir (2014) explains that: "The profitability ratio is a ratio to assess the company's ability to seek profit. This ratio also provides a measure of the level of effectiveness of a company's management. The size of the company's profitability in this study uses Return On Equity (ROE). The reason is because Return On Equity (ROE) is a ratio to measure net income after tax with own capital, this ratio is considered the most appropriate among other profitability ratios in relation to stock returns because in the capital account section there is also a share capital account, which is the shareholder's capital. share.

High profitability will give a positive signal to investors that the company is in a favorable condition. This attracts investors to own company shares. High demand for shares will make investors appreciate the value of shares greater than the value recorded on the company's balance sheet, so that the company's PBV is high and the company's value is high. Thus, profitability has a positive influence on firm value.

Based on the description described above, the framework of thought in this research can be described in Figure 1. below:

| Profitability | → | Firm Value |
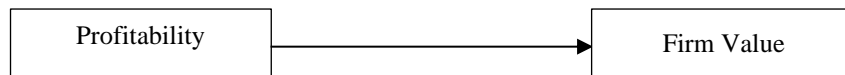
Figure 1. Research Paradigm

Based on the literature review, previous research and the framework described above, the hypotheses that can be proposed in this study are as follows:

H: Profitability has an effect on firm value in manufacturing companies listed on the Indonesia Stock Exchange.

III. RESEARCH METHODOLOGY

The research uses descriptive method with quantitative approach analysis, namely the results of the research conducted emphasizing the analysis of numerical data (numbers). According to Sugiyono (2015) states that: Quantitative research methods can be interpreted as research methods based on the philosophy of positivism, used to examine certain populations or samples, data collection using research instruments, data analysis is quantitative/statistical, with the aim of testing hypotheses. has been established.

The variables in this study are as follows:

1. Independent Variable
    According to Sugiyono (2015) that: "Independent (free) variables are variables that affect or are the cause of changes or the emergence of the dependent (bound) variable". The independent variable in this study is Profitability (X) as measured by Return On Equity (ROE).

2. Dependent Variable
    According to Sugiyono (2015) that: "The dependent variable (bound) is a variable that is influenced or is the result, because of the independent variable". The dependent variable in this study is firm value (Y) as measured by price to book value (PBV).

Based on the description above, the operationalization of the research variables in table 3.1 can be arranged as follows:

Table 1. Variable Operations

Variabel	Dimensions	Indicator	Scala
Profitability (X) Kasmir (2015:204)	*Return On Equity (ROE)*	• Net Income • Total Equity	Ratio
Firm Value (Y) Harmono (2014:114)	*Price to Book Value (PBV)*	• Price per Share • Company Book Value	Ratio

A. *Population and Sample*

Population

The population in this study is a manufacturing company in the food and beverage industry sub-sector which is listed on the Indonesia Stock Exchange with a total of 26 companies.

Sample

The sample is part of the number and characteristics possessed by the population. The sample is part of the number and characteristics possessed by the population. If the population is large, and it is not possible for the researcher to study everything in the population, for example due to limited funds and time, the researcher can use samples taken from that population (Sugiyono, 2015). In this study, the author uses a sampling technique, namely non-probability sampling with a purposive sampling approach. The reason this research uses purposive sampling technique is because not all samples meet the criteria according to the needs in this study. The criteria to be used in this study are as follows:

Table 2. Sampling Criteria

Sampling Criteria	Total
Manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the food and beverage sub-sector during 2013 – 2020.	26
Manufacturing companies in the food and beverage sub-sector on the Indonesia Stock Exchange (IDX) that did not publish complete and consecutive annual reports during 2013 – 2020.	0

Food and beverage sub-sector manufacturing companies that did not distribute dividends during 2013-2020	(16)
Manufacturing companies in the food and beverage sub-sector on the Indonesia Stock Exchange (IDX) that do not have complete financial data to calculate the variables in the study during 2013 – 2020.	(8)
Total target population	2
Target Population sampled Total sample (2 companies x 8 years)	16

Of the 26 manufacturing companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange, after purposive sampling, 2 companies that meet the criteria are as follows:

Table 3. The list of food and beverage sub-sector manufacturing companies listed on the Indonesia Stock Exchange used in this study.

No.	Code of Emiten	Name of Company
1	INDF	PT. Indofood Sukses Makmur Tbk
2	MYOR	PT. Mayora Indah Tbk

B. Data Types and Sources

Data Type

In this study, the quantitative data is the result of the calculation of investment decisions, namely price earning ratio (PER) and firm value, namely price to book value (PBV).

Data Source

The data source uses secondary data in the form of the company's financial statements PT Indofood Sukses Makmur Tbk and PT. Mayora Indah Tbk obtained by downloading the company's financial statement data from the websites www.bursa Efekindonesia.co.id and www.idx.co.id. which is the website of the Indonesia Stock Exchange.

Data Collection Technique

The data collection techniques and materials in the study were carried out by:

1. Documentation Research
   Sugiyono (2015) states that: "Documentation is a record of events that have passed". That is by obtaining data in the form of book notes, books, electronic media, print media and so on and studying documents related to research

2. Literature Research
   Sugiyono (2015) states that: Literature studies are related to theoretical studies and other references related to values, culture and norms that develop in the social situation being studied, besides that library research is very important in conducting research, this is because research cannot be separated from the literature.

3. Internet Study
   References are in the form of scientific journals, valid national and international news websites and other sites that are related to the problem being researched.

C. Techniques of Analysis and Design of Hypothesis Testing

Data Analysis Technique

The data analysis technique used in this research is statistical test using multiple linear regression with the help of SPSS version 20 application.

D. Descriptive Statistics

The descriptive statistics used include: mean, minimum, maximum, and standard deviation. The mean is the sum of the values of all data divided by the number of times, the minimum is the smallest value from a series of observations, the maximum is the largest value from a series of observations, and the standard deviation is the root of the sum of the squares of the difference between the data values and the average divided by the number of data.

E. Classic Assumption Test

The classical assumption test is used to see whether there are deviations in the regression model, so it is necessary to carry out an examination using the normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test.

1. Normality Test
    In this study, the normality test uses the Kolmogorov Smirnov method if the result of the significance number (Sig) is less than -.05 then the data is not normally distributed (Ghozali, 2016). In this study the technique that can be used to see the normality of the data is by looking at the Normality Probability Plot Graph and the Kolmogorov Smirnov One Sample Test. The provisions used in making decisions using the Normality Probability Plot graph are:

a. If the data spreads around the diagonal line and follows the direction of the diagonal line, the regression model fulfills the assumption of normality.

b. If the data spreads far from the diagonal and/or does not follow the diagonal line, the regression model does not meet the assumption of normality.

The One Sample Kolmogorov Smirnov test is used to determine the distribution of the data, whether it follows a normal, Poisson, uniform, or exponential distribution. In this case, to find out whether the residual distribution is normally distributed or not (Priyatno, 2012).

2. Autocorrelation Test
    The way that can be done to detect the presence or absence of autocorrelation is to perform a Run Test (Ghozali, 2016).

3. Heteroscedasticity Test
    According to Ghozali (2016) Heteroscedasticity test is to test whether in the regression model there is an inequality of variance from the residual of one observation to another observation. If the variance of the residuals from one observation to another remains, it is called homoscedasticity and if it is different it is called heteroscedasticity. A good regression model is one with homoscedasticity or no heteroscedasticity. If the p value > 0.05 is not significant, it means that there is no heteroscedasticity, meaning that the regression model passes the heteroscedasticity test. A good regression model is one with homoscedasticity or no heteroscedasticity. Most cross-sectional data contain heteroscedasticity situations because this data collects data that represents various sizes.

4. Multicollinearity Test
    Multicollinearity is a situation where some or all of the independent variables are strongly correlated, to detect the presence or absence of multicollinearity in the regression model, which can be seen from the value of the variance inflation factor (VIF) and Tolerance. These two measures show which independent variables are explained by the other independent variables. The limit of VIF is 10 and the value of tolerance is 0.1. If the VIF value is greater than 10 and the tolerance value is less than 0.1, then multicollinearity occurs. (Ghozali, 2016)

F. Multiple Linear Regression Analysis

Multiple linear regression analysis is used by researchers when researchers intend to predict how fluctuating independent variables as predictors are manipulated. If this analysis is used to determine the relationship between two or more independent variables and the dependent variable, either jointly or partially (Sugiyono, 2016). In general, the form of the regression equation obtained using multiple linear regression analysis refers to (Sugiyono, 2016) with the following formula:

$$Y = a + b_1 X_1 + b_2 X_2 + \ldots + b_n X_n$$

Information:
Y: Dependent/bound variable (Company Value)
X1: First Independent/Independent Variable (Profitability)
X2: Second Independent/Independent Variable (Investment Decision)
X3: Third Independent/Independent Variable (Dividend Policy)
a: Constant Number (Y value if X1,X2,…..Xn = 0)
b: Regression coefficient of independent variables (increase/decrease value)

G. Hypothesis Test

According to Sugiyono (2015) that: "The hypothesis is a temporary answer to the research problem formulation, where the problem formulation is stated in the form of a question sentence".The null hypothesis (H0) is not affected and the alternative hypothesis (Ha) shows an impact between the independent variable and the dependent variable. The design of this research hypothesis testing is to test whether there is an influence between the independent variable, namely investment decisions (X) on the dependent variable, namely firm value (Y).

H. Simultaneous Test (F Test)

The F statistical test basically shows whether all the independent variables included in the model have a joint effect on the dependent or dependent variable. By using SPSS, if the significant value of the calculated F result is > 0.05, then the hypothesis (H3) is accepted which means there is an effect and vice versa (Ghozali, 2016). To test the effect of simultaneous investment decisions (X) on firm value (Y), the test is carried out using the F statistical test with steps referring to Ghozali (2016:154) as follows:

a. Determine the overall hypothesis between Profitability,
- Investment Decisions and Dividend Policy on Firm Value. The statistical hypotheses of this study are:
- H0 = There is no influence between Profitability, Investment Decision and Dividend Policy on Firm Value
- Ha # There is an influence between Profitability, Investment Decision and Dividend Policy on Firm Value
b. Determine the significance value (k-1), to find out the area of the F rejection table.
c. The calculated F results are compared with the F table with the following criteria:
a) Reject H0 if Fcount > Ftable at 5% alpha for a positive coefficient
b) Reject H0 if Fcount < Ftable at 5% alpha for negative coefficients.
c) Reject H0 if the value of F–sign < S 0.05.
H0 is rejected if F count > F table ($\alpha = 0.05$).

I. Partial Test (T Test)

According to Ghozali (2016) the partial t test is used to determine the effect of each independent variable on the dependent variable. By using SPSS, the hypothesis (H1,H2) is accepted if the significant value of the t-count <0.05 and vice versa.

To test whether there is a relationship between the independent variables (X) having an impact on the dependent variable (Y), further testing will be carried out using the t statistical test with steps referring to Ghozali (2016) as follows:

1. Determine the partial hypothesis between Profitability and Firm Value. The statistical hypotheses of this study are:
Determine the partial hypothesis between Investment Decisions on Firm Value. The statistical hypotheses of this study are:
H0 = There is no influence between Investment Decisions on Company Value
Ha # There is an influence between Investment Decisions on Company Value

2. Determine the level of significance
Determined by 5% of the degrees of freedom (dk) = n – k – 1, to determine the t table as the boundary of the acceptance and rejection of the hypothesis. The significance level used is 0.05 or 5% because it is

considered sufficient to represent the relationship between the variables studied and is a significance level commonly used in research status.

3. Then conclusions are made regarding whether the hypothesis is accepted or not after being compared between
   t count and t table with the following criteria:
   a) Reject H0 if t count > t table at 5% alpha for a positive coefficient.
   b) Reject H0 if t count < t table at 5% alpha for negative coefficients.
   c) Reject H0 if the value of t – sign < S 0.05.
   Coefficient of Determination (R²)

Ghozali (2016) suggests that the value of the coefficient of determination is between zero and one. A small R^2 value means that the ability of the independent variables in explaining the variation of the dependent variable is very limited. Values that are close to one independent variable provide almost all the information needed to predict the variation of the dependent variable.

J. Research Sites

The research location is a place or area where the research is carried out and is used as a unit of observation in research. The location of this research was conducted at the IDX (Indonesian Stock Exchange) having its address at Indonesia Stock Exchange Building Tower 1 on Jalan Jendral Sudirman Kav. 52-53 Jakarta 12190 Indonesia.

IV. RESULT/FINDING

The profitability ratio shows the company's ability to earn profits. One of the ratios used to determine the company's ability to generate profits is return on equity (ROE). According to Jumingan (2014) that: "The level of return on equity (ROE) has a positive relationship with stock prices so that the greater the return on equity (ROE), the greater the market price, which means it gives a positive signal to shareholders which causes an increase in firm value. ". To find out the return on equity (ROE) can be calculated using the formula according to Jumingan (2014) as follows:

$$Return\ On\ Equity\ (ROE) = \frac{profit\ after\ tax}{owner\ equity}$$

As for knowing the profitability measured using return on equity (ROE) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, it is presented in table 4. as follows:

Table 4. Return On Equity (ROE)" for manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020.

No.	Code of Company	Return On Equity (ROE) (%)								Average
		2013	2014	2015	2016	2017	2018	2019	2020	
1	INDF	8,9	12,4	8,6	11,9	11	9,9	10,9	11,1	10,59
2	MYOR	26,8	24,5	24,1	22,1	22,1	20,6	20,6	18,6	22,99
Average		17,85	18,45	16,35	17,00	16,55	15,25	15,75	14,85	16,51

Source: www.idx.co.id data reprocessed 2022

For more details regarding the return on equity (ROE) of manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, see graph 4.8 below:
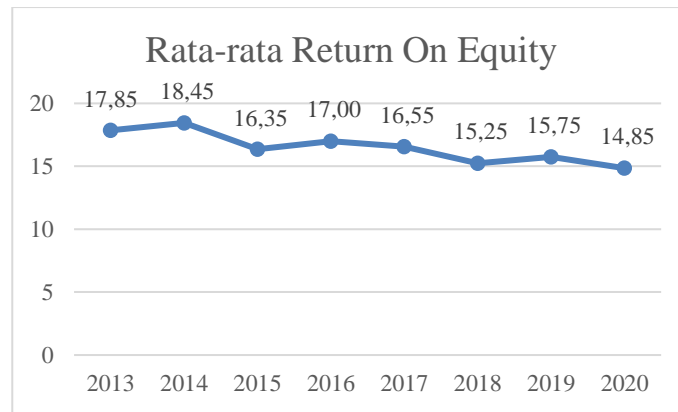
Figure 8. Chart of the average return on equity (ROE) of manufacturing companies listed on the Indonesia Stock Exchange 2013-2020

Based on table 4.2 and figure 4.8, it can be seen that the average return on equity (ROE) has changed from year to year, this is because:

The average return on equity (ROE) in 2013 was 17.85%, then increased in 2014 to 18.45%. This is because the profitability of PT Indofood Sukses Makmur Tbk has increased, this is because the net profit of PT Indofood Sukses Makmur Tbk has increased, but the profitability of PT. Mayora actually experienced a decline this was due to the declining net profit performance which was triggered by a loss in foreign exchange from the previous period.

In 2015 the average return on equity (ROE) decreased to 16.35%. This is because the profitability of the two companies, namely PT. Indofood Sukses Makmur Tbk and PT Mayora Indah Tbk experienced a decline. Decreasing profitability at PT. Indofood due to net profit decreased. But precisely at PT. Mayora's net income has increased, this is because the company's equity has increased.

In 2016 the average return on equity (ROE) has increased again to 17%, this is due to the profitability of PT. Indofood Sukses Makmur Tbk has increased because the net profit obtained has increased but profitability at PT. Mayora Indah Tbk experienced a decrease but the net profit obtained increased this was due to the increase in equity.

In 2017 the average return on equity (ROE) decreased to 16.55%, this was due to the profitability of PT. Indofood Sukses Makmur Tbk experienced a decline, this was caused by a declining net profit. Profitability value at PT. Mayora is the same as the previous year.

In 2018 the average return on equity (ROE) decreased again to 15.25%. This is due to a decreasein the value of profitability at PT. Indofood Sukses Makmur Tbk due to the decrease in net profit. But the profitability of PT. Mayora Indah Tbk experienced a decrease while the net profit earned actually increased this was due to an increase in equity.

In 2019, the average return on equity (ROE) increased to 15.75%. This is because of the increase in the value of profitability at PT. Indofood Sukses Makmur Tbk due to increased profits and profitability at PT. Mayora Indah Tbk has the same value as the previous year.

In 2020 the average return on equity (ROE) has decreased to 14.85%, this is due to a decrease in the value of profitability at PT. Mayora Indah Tbk caused by equity which experienced a significant increase from the previous year but net income increased. But PT. Indofood Sukses Makmur Tbk experienced an increase due to an increase in net profit.

Based on the explanation above, it can be concluded that manufacturing companies for the last 8 years have fluctuated increases and decreases every year, where the increase in return on equity (ROE) is due to the company's net income increasing so that profits increase, so the company is able to maximize the return on equity to generate profits. net, which means the company can satisfy the interests of shareholders. According to Brigham (2010) that: "The greater the company's ability to earn good profits, the greater the interest of investors in the company's shares". Meanwhile, the decrease in return on equity (ROE) was due to a decrease in the level of net income obtained by the company.

The value of the company is the investor's view of the company. This is related to stock prices. So that one of the considerations of investors in deciding investment is the value of the company where the investor will inject capital.

According to Suffah & Riduwan (2016) that: "The higher the stock price, the higher the value of the company". In this study, firm value was measured using price to book value (PBV). The higher the price to book value ratio, the more successful the company is in creating value for shareholders. To find out the price to book value (PBV) can be calculated using the formula according to Harmono (2014) as follows:

$$Price\ to\ book\ value\ (PBV) = \frac{price\ per\ share}{company\ book\ value}$$

As for knowing the value of the company measured using Price to Book Value (PBV) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, it is presented in table 4.4 as follows:

Table 5. Price to Book Value (PBV) for manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020.

No	Code of Company	Price to Book Value (PBV) (X)								Average
		2013	2014	2015	2016	2017	2018	2019	2020	
1	INDF	1,5	1,4	1	1,5	1,3	1,1	1,2	0,77	1,25
2	MYOR	0,20	0,21	4,8	5,7	7,1	6,8	4,4	5,3	4,51
Average		0,855	0,805	2,9	3,6	4,2	3,95	2,8	3	2.76375

Source: www.idx.co.id data reprocessed 2022

For more details regarding the price to book value (PBV) of manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, see the chart 4.10 below:
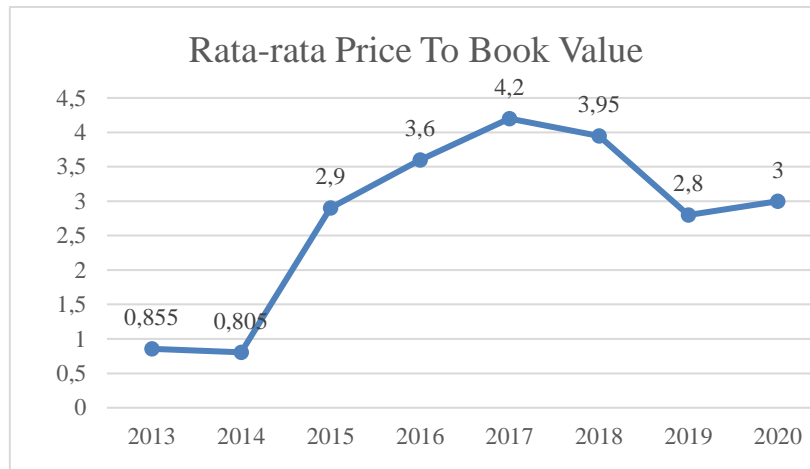
Figure 10. Chart of Average Price to Book Value (PBV) of Manufacturing Companies Listed on the Indonesia Stock Exchange 2013-2020

Based on table 4.4 and figure 4.10, it can be seen that the average price to book value (PBV) has changed from year to year, this is because:

The average price to book value (PBV) in 2013 was 0.85 times and then decreased in 2014 to 0.80 times. This is because the price to book value (PBV) at PT indofood Sukses Makmur Tbk has decreased but the results of the company's share price and book value have both increased so that the result of the percentage distribution between stock price and book value has decreased from the previous year and PT Mayora Indah Tbk has increased but the price per share has decreased.

In 2015, the average price to book value (PBV) increased to 2.9 times. This is because the price to book value (PBV) at PT Mayora Indah Tbk has increased due to the increase in stock prices, but the price to book value (PBV) at PT. Indofood Sukses Makmur Tbk experienced a decline due to the decline in stock prices.

In 2016 the average price to book value (PBV) has increased again to 3.6 times, this is because the price to book value (PBV) in the two companies, namely PT. Indofood Sukses Makmur Tbk has increased. Increase in PT. Indofood caused by rising stock prices. But the increase in PT. Mayora Indah Tbk's stock price and book value actually decreased.

In 2017 the average price to book value (PBV) has increased again to 4.2 times, this is because the price to book value (PBV) at PT. Mayora Indah Tbk experienced an increase due to the increase in its share price, but the price to book value (PBV) at PT. Indofood Sukses Makmur Tbk experienced a decline due to the decline in stock prices.

In 2018 the average price to book value (PBV) decreased to 3.95 times. This is due to a decrease in the price to book value (PBV) at PT. Indofood Sukses Makmur Tbk caused by the decline in stock prices. But the decrease in PT. Mayora Indah Tbk actually increased the stock price and book value of the company.

In 2019, the average price to book value (PBV) decreased again to 2.8 times. This is due to a decrease in the price to book value (PBV) at PT. Mayora Indah Tbk caused by the stock price has decreased. At PT. Indofood experienced this increase due to the increase in the price per share.

In 2020 the average price to book value (PBV) has increased to 3 times, this is due to an increase in price to book value (PBV) at PT. Mayora Indah Tbk caused by the stock price has increased. However, the price to book value (PBV) of PT Indofood Sukses Makmur Tbk experienced a decline due to the declining stock price.

Based on the explanation above, it can be concluded that manufacturing companies for the last 8 years have fluctuated increases and decreases every year, where the increase in price to book value (PBV) is due to the company's stock price increasing so that profits increase, so the company is able to maximize the return on equity to generate net income, which means the company can satisfy the interests of shareholders, which means that the value of the company will increase, while the decrease in price to book value (PBV) is due to a decrease in stock prices which causes the value of the company to decrease.

V. DISCUSSION

A. Descriptive Statistics

Descriptive statistics can be seen from the average value (mean), standard deviation, maximum value and minimum value to provide an overview of a data.

Table 6. Descriptive Statistical Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
ROE	16	11.0	268.0	158.875	74.0260
PBV	16	1.0	77.0	33.750	25.2837
Valid N (listwise)	16				

Source: SPSS Version 20 output, processed 2022.

Based on table 4.5 descriptive statistical explanation, namely Return on equity (ROE) shows a minimum value of 11, namely PT. Indofood Sukses Makmur Tbk. The maximum value of 26.8 is PT. Mayora Indah Tbk. Has a mean value of 158.875 and a standard deviation of 74.0260. This means that the mean is greater than the standard deviation, thus identifying that the results are good in generating company profits. And for Price to Book Value (PBV) shows a minimum value of 1, namely PT. Indofood Sukses Makmur Tbk. The maximum value of 7.1 is PT. Mayora Indah Tbk. It has a mean value of 27.062 and a standard deviation of 25.0106. This means that the mean is greater than the standard deviation, thus identifying a good result in firm value.

B. Normality Test

According to Ghozali (2016) that: "The normality test with graphs can be misleading if you are not careful visually it looks normal, but statistically it can be otherwise". Therefore, it is recommended that in addition to

the graphical test, the Kolmogorov Smirnov (K-S) non-parametric statistical test is equipped with a statistical test which can be seen in table 4.6 as follows:

Table 7. Normality Test Results
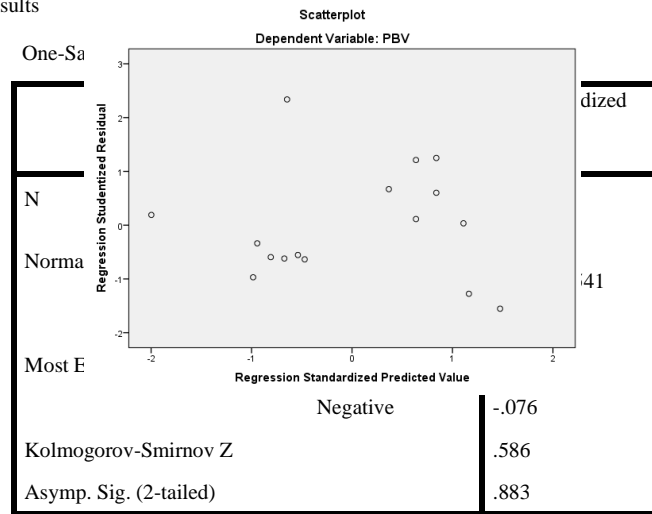
One-Sa...   ...dized

N

Norma   ...41

Most E...

	Negative	-.076
Kolmogorov-Smirnov Z		.586
Asymp. Sig. (2-tailed)		.883

a. Test distribution is Normal.

b. Calculated from data.

Source: SPSS Version 20 output, processed 2022.

The results of the normality test, it can be seen from table 4.6 that the Kolmogorov-Smirnov value shows that the Return Of Equity (ROE) is 0.883 where this result shows that the above results are significant, namely 0.883 > 0.05, this indicates that the regression model meets the assumption of normality.

C. Autocorrelation Test

Run Test is used to see if residual data occurs randomly or not, with a significance of 0.05. if > 0.05 then the regression equation is free from autocorrelation problems (Ghozali, 2016). The results of the Run Test test analysis can be seen in table 4.7 as follows:

Table 8. Autocorrelation Test Results

Runs Test

	Unstandardized Residual
Test Value[a]	-3.25801
Cases < Test Value	8
Cases >= Test Value	8
Total Cases	16
Number of Runs	6
Z	-1.294
Asymp. Sig. (2-tailed)	.196

a. Median

Source: SPSS Version 20 output, processed 2022.

Based on table 4.7 above, the Asymp value is obtained. Sig. (2-tailed) of 0.196 or 19.6% greater than the specified significance value of 0.05. So it can be concluded that there is no autocorrelation so that it meets a good regression model.

D. Heteroscedasticity Test

For the heteroscedasticity test with a scatterplot graph, which can be seen in the following figure:

Fig 2. Scatterplot Graphic Drawing *(Source: SPSS Output Version 23, processed 2022)*

Based on the picture above, it can be seen that there is no clear pattern, with the points spreading above and below the number 0 on the Y axis. It can be concluded from the scatterplot graph that there is no heteroscedasticity in this research model.

E. Multicollinearity Test

Based on the results of data processing with the help of SPSS statistical software version 20, the following results were obtained:

Table 9. Multicollinearity Test Results

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	7.604	13.942		.545	.594		
	ROE	.165	.080	.482	2.057	.059	1.000	1.000

a. Dependent Variable: PBV

Source: SPSS Version 20 output, processed 2022.

Based on table 4.8 above, it can be seen that the tolerance value of variable X is profitability (ROE) 1,000. So it can be seen that the tolerance value of the independent variable above has a variable value of > 0.10. Furthermore, in the results, the value of the VIF above to meet the requirements is less than 10. In profitability (ROE) it has a result of 1,000 < 10. So the VIF results for the independent variables have results that are less than 10. Based on the results of the multicollinearity test above, it can be concluded that the research this does not occur multicollinearity.

F. Multiple Linear Analysis

The following are the results of multiple linear regression analysis in table 4.9 below:

Table 10. Multiple Linear Regression Analysis

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.604	13.942		.545	.594
	ROE	.165	.080	.482	2.057	.059

a. Dependent Variable: PBV

Source: SPSS Version 20 output, processed 2022.

The constant value with the regression coefficient in table 4.9 can be explained as follows:

a. The constant value is 7.604. This means that if the profitability (ROE) as X the value is 0, then the firm value (PBV) as Y is 7.604.
b. The coefficient of the variable X profitability (ROE) is positive, which is 0.165. This means that profitability (ROE) has a positive influence on firm value (PBV), if there is an increase in profitability (ROE) of 1 time, it will be accompanied by an increase in firm value (PBV) of 0.165.

G. F Uji Test

The value of the Fcount results can be found using the statistical software SPSS version 20 which is presented in table 4.10 as follows:

Table 11. F Uji test

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2226.256	1	2226.256	4.233	.059[b]
	Residual	7362.744	14	525.910		
	Total	9589.000	15			

a. Dependent Variable: PBV
b. Predictors: (Constant), ROE
Source: SPSS Version 20 output, processed 2022.

The results of the above calculation, the hypothesis in this study states Profitability, jointly affects the value of the company.

H. T Uji Test

The value of the t-count results can be found using the statistical software SPSS version 20 which is presented in table 4.11 as follows:

Table 12. T Uji test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.604	13.942		.545	.594
	ROE	.165	.080	.482	2.057	.059

a. Dependent Variable: PBV
Source: SPSS Version 20 output, processed 2022.

Based on the results of the partial test (t test) in table 4.11 above, the t value for the independent variable is obtained. So as to produce a hypothesis, namely the results of the calculation of Profitability which is proxied by Return on Equity (ROE) with a partial test, it is obtained that tcount is 0.545 and ttable is 2.057 with a significance of 0.059. Because tcount is smaller than ttable, namely $(0.545 < 2.057)$ where the significance value is above 0.05 $(0.545 > 0.05)$. So it can be concluded that the profitability variable partially has no significant effect on firm value.

I. Coefficient of Determination Test (R2)

The results of the determination coefficient test can be seen from the Adjusted R Square value presented in table 4.12 as follows:

Table 13.R2 . test
Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.482[a]	.232	.177	22.9327

a. Predictors: (Constant), ROE
b. Dependent Variable: PBV
Source: SPSS Version 20 output, processed 2022.

Based on table 4.12 above, it is known that the amount of Adjusted R Square is 0.232 or 23.2%. This shows that the percentage contribution of the influence of all independent variables (Profitability, Investment Decisions and Dividend Policy) on the dependent variable (Company Value) is 23.2% while the rest is 76.8% (100% - 23.2% = 76.8 %) is influenced or explained by other variables not included in this study such as funding decisions, company external factors such as: inflation rates, currency exchange rates, economic growth, politics and market psychology.

V.   CONCLUSION AND RECOMMENDATION

Based on the results of research and discussion of the effect of profitability on firm value in manufacturing companies listed on the Indonesia Stock Exchange, the conclusions that can be drawn are partially (t-test) in

table 4.11 above, then the t-value is obtained for the independent variable. So as to produce a hypothesis, namely the results of the calculation of Profitability which is proxied by Return on Equity (ROE) with a partial test, it is obtained that tcount is 0.545 and ttable is 2.057 with a significance of 0.059. Because tcount is smaller than ttable, namely (0.545 < 2.057) where the significance value is above 0.05 (0.545 > 0.05). So it can be concluded that the profitability variable partially has no significant effect on firm value.

Profitability has no effect on firm value because investors pay more attention to prospects, risks and commodities. The reason is that profitability does not affect firm value because profitability is not the only indicator that investors pay attention to in investing. The results of this study are in line with the results of research conducted by Lambu (2019) that: "Profitability partially has no significant effect on firm value".

After the authors provide conclusions from the results of research on the effect of profitability on firm value in manufacturing companies listed on the Indonesia Stock Exchange, the authors will give some suggestions as follows:

a. For further researchers, there are still many factors that are not discussed in this study. Therefore, it is advisable to add or use other indicators that can affect the value of the company and conduct research on different company sectors and enlarge the population, not just one sector in order to obtain conclusions that may be different so as to add insight to researchers and readers.

b. For companies, the research results are expected to provide a broad perspective so that the company's value can be optimal. It is expected that the company can improve higher profitability to reduce costs and increase sales.

c. For investors who will invest, the results of this study are expected to be useful as a basis for consideration in investing which must still pay attention to profitability, and firm value and pay attention to other indicators as considerations in making investments such as liquidity level, company size, and ratios. related to investment. Investors are also expected to be more careful in choosing a company as a place to invest and must also be able to pay attention to what factors are the company's weaknesses.

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E-Filing and Tax Revenue: a Role of Digital Tax Socialization

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Abstract

This study aims to analyze the effect of the use of e-filing on the tax revenue by including the role of digital tax socialization to strengthen both relationships. The new contribution of this study is to combine literature e-filing, digital tax socialization, and tax revenue previously examined separately. For analysis, we use Moderated Regression Analysis (MRA) which was built through cross-sectional data for 7 years on the tax authorities in the regions. The study results show that e-filing has a positive effect on tax revenue. Subsequent results provide evidence that digital tax socialization can strengthen the positive effect of e-filing on tax revenue. In this study, we found that digital tax socialization directly has a negative relationship with tax revenue. The results of our study support the commitment of various countries to carry out tax reforms in a modern direction.

Keywords: e-filing; digital tax socialization; tax revenue; tax authority

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I. INTRODUCTION

Tax is placed at the top position as the main source of revenue in increasing a country's cash (Mawejje & Sebudde, 2019; Langer & Korzhenevych, 2018; Oz-Yalaman, 2019), therefore taxes are a means of mobilizing resources derived from the economic activities of the community to finance infrastructure development and state expenditures (Lin & Jia, 2019; Mawejje, 2019; Prichard, Salardi, & Segal, 2018). It is undeniable that taxes can be said to be the greatest supports of a country revenue (Larasati & Binekas, 2019; Suárez Serrato & Zidar, 2018).

Tax collection and tax law enforcement are difficult to enforce in various countries (Tiefenbach & Kohlbacher, 2015; Vilaça, 2012; Sivadasan & Slemrod, 2008). Thus, the increase in tax revenue is a major concern for policymakers, so that they can directly increase revenue by considering the determinants of tax revenue (Schafferer, Yeh, Chen, Lee, & Hsieh, 2018; Andreoni, 2019). Many ways can be done by policymakers and tax managers to determine the strategy as an effort to increase tax revenue (Gnangnon, 2016; Mardan & Stimmelmayr, 2018; Doerrenberg, 2015).

Various changes to tax management have been made through various mechanisms (Ikhsan, Trialdi, & Syahrial, 2005; Li, Xiong, & Xie, 2018; Elena, 2015). Policymakers and tax managers in various countries have carried out various reforms tax, one of which is utilizing information technology and databases (Agrawal & Wildasin, 2019; Olivares, 2017; Fu, Xue, Xu, & Yang, 2019). The challenge of digital disruption in the economy is made an opportunity through the responsiveness of the tax authority to improve the tax technology infrastructure (Javed, Saqib, Razaq, & Saeed, 2018; Moscoso Boedo, 2018). Increasing the effectiveness and efficiency of tax services is expected to have a positive impact on state revenue from the tax (Zeida, 2019; (Ghiaie, Auclair, & Noah Ndela Ntsama, 2019; Ilzetzki, 2018). In addition, the tax authorities help and guide taxpayers to provide facilities tax services (Andreas & Savitri, 2015; Savitri & Musfialdy, 2016).

The presence of technology always provides convenience for daily life, including the use of tax services (Javed et al., 2018; Ikhsan et al., 2005; Olivares, 2017) Social media such as Facebook, Twitter, Instagram and YouTube can be used as information media by tax authorities in various countries to help socialize taxation programs and regulations, meaning to remind taxpayers about the importance of paying taxes (Herawati, Tabroni, & Lusiana, 2018; Wibisono, 2019; Alstadsæter, Kopczuk, & Telle, 2019) If the awareness of taxpayers in reporting their taxes is increased, then the taxpayer compliance ratio will increase so that it affects the state revenue from the tax sector (Andreas & Savitri, 2015; Suprayogo & Hasymi, 2018; Agustini & Widhiyani, 2019).

Tax reform continues to be pursued in every country in the world, with the aim of increasing state revenue from taxes, which in turn will have an impact on improving domestic economic conditions (Benczúr, Katay, & Kiss, 2018; Shi, Tang, & Yu, 2015). Tax reform in developed countries, such as the United States will have an impact not only on the domestic economy but will have an impact a global (IMF, 2018). Meanwhile, the international community has recognized the need urgent for developing countries to expand fiscal space,

including increasing tax revenues to meet the needs of development sustainable (Fjeldstad, 2014; Mawejje & Sebudde, 2019).

The Indonesian government changed the tax revenue target for 2021, from the previous Rp1,176.3 trillion to Rp1,142.5 trillion. This figure is equivalent to 92.9% of the 2021 State Budget target of IDR 1,229.6 trillion. This means that in 2021 there will be a tax shortfall of IDR 87.1 trillion (CNBC Indonesia, 2021). This condition shows that tax reform has not yet shown maximum results. This condition is undeniable due to the pandemic that disrupts global and domestic economic conditions.

Awareness of taxpayers in Indonesia in meeting their obligations is still low, both for reporting notification letters and paying taxes (Cindy & Yenni, 2013; Prawiranegara, 2013). This condition also makes state revenue not optimal, because the largest state revenue comes from taxes (Lado & Budiantara, 2018; Masruri, 2018). If revenue can exceed that portion, development in Indonesia can be more optimal and create justice for all levels of society (Pratiwi, Suryani, & Kurnia, 2018; Pranata & Supadmi, 2018).

Tax authorities in Indonesia have carried out tax reforms, one of which is improving taxation services by developing tax administration modern and information technology (Ismail, Gasim, & Amalo, 2018; Rumina, Balandina, & Bannova, 2015; Bastani, Giebe, & Miao, 2019). One form of the modern administration of taxation is *e-filing*, which is the way the reporting is done taxpayer online and in real-time via the official site tax authority (Suherman, Almunawwaroh, & Marliana, 2015; Nurlaela, 2017; Erawati & Ratnasari, 2018). This system is intended to make taxpayers easy to do their tax reporting (Lado & Budiantara, 2018; Ismail et al., 2018).

However, this method raises new problems, namely, there are still many taxpayers who lack the knowledge and ability to operate an-based system online, so that socialization is needed to convey how to use the system (Ismail et al., 2018; Agustini & Widhiyani, 2019; Putri & Putri, 2019). The tax authorities in Indonesia have implemented various tax socialization programs, both manually and online. The development of information technology is used by tax authorities to promote taxation, such as the submission of taxation rules, taxation sanctions, the role of tax on development, procedures for using administration systems modern tax, and other taxation information (Gaigné, Hovelaque, & Mechouar, 2019; He & Wang, 2017; Rumina et al., 2015). Currently, the tax authority in Indonesia uses social media to socialize about taxes, such as Twitter, Facebook, YouTube, and Instagram.

This study builds on a variety of literature on taxation (eg, Putri & Putri, 2019; Agustini & Widhiyani, 2019; Andreas & Savitri, 2015; Ilzetzki, 2018; Gnangnon, 2016; Bastani et al., 2019; Rumina et al., 2015), especially regarding digital tax services, tax socialization, and tax revenue. Digital tax services will make it easier for taxpayers to report their obligations (Elvionita, 2018; Siahaan & Halimatusyadiah, 2018; Nurlaela, 2017). With the development of digital tax services, it is expected that taxpayers will fulfill their obligations so that state revenue from the tax sector increases (Agrawal & Wildasin, 2019; Foros, Kind, & Wyndham, 2019; Mardan & Stimmelmayr, 2018). In addition, taxation socialization has a role to introduce the mechanism of tax services digital to the public, so that the public as taxpayers will understand it (Andreas & Savitri, 2015; Savitri & Musfialdy, 2016; Herawati et al., 2018). Currently, socialization tax can be done through social media to provide information effectively and efficiently, so that people will be aware of paying taxes that have an impact on increasing tax revenues (Palupi & Herianti, 2017; Yücedoğru, Boz, Öner, Saygı, & Dibek, 2018).

There are many papers in the literature discussing tax revenue determinants different in each country (eg, Swanepoel & Schoeman, 2002; Castro & Camarillo, 2014; Fazlurahman & Kustiawan, 2016; Suárez Serrato & Zidar, 2018; Langer & Korzhenevych, 2018). Unlike the previous literature, this study investigates how the ease of digital tax services through *e-filing* on tax revenues is determined by the amount of digital tax socialization conducted by the tax authorities. In other words, this study seeks to introduce the extent to which digital tax socialization is able to strengthen the impact of digital tax services in an effort to increase revenue tax.

Then the new contribution of this study, namely concerning the relationship between literature digital tax service and separate digital tax socialization regarding tax revenue. To our knowledge, the use of the digital tax socialization variable is the first in the taxation literature, and this is the first study to document the effect of digital tax service on tax revenue that depends on digital tax socialization. We built data cross-sectional from various data sources for 7 years, from 2014 to 2021. In this study, we conducted an analysis using *Moderated Regression Analysis* (MRA).

This study aims to analyze the extent to which digital tax socialization is able to strengthen the effect of digital tax services through *e-filing* on tax revenue. This study was conducted to the tax authorities in one area

in Indonesia, namely Ciamis Regency, West Java Province. This paper continues as follows. In the next section, we describe our literature review and hypothesis. The third section identifies data sources, explains variables and discusses empirical approaches. The fourth section reports the results of our empirical analysis, and the fifth section summarizes the conclusions drawn from this study.

II. LITERATURE REVIEW

A. E-filing

E-filing is a way to submit tax obligations online and in real-time through several sites, among which can be accessed on the tax authority and other institutions designated (Putri & Putri, 2019; Pranata & Supadmi, 2018; Erawati & Ratnasari, 2018). The online-based service is intended for taxpayers who will submit income tax and corporate tax (Nurlaela, 2017; Agustini & Widhiyani, 2019). The benefits of using *e-filing* include 1) making it easy for taxpayers to report their obligations anytime and anywhere; 2) taxpayers do not need to queue to report their obligations at the tax office; 3) minimize errors in reporting tax (Suherman et al., 2015; Ismail et al., 2018).

Current taxpayers can utilize tax services *online* and in *real-time* whenever and wherever, so there is no need print report forms to manually and receipts (Suprayogo & Hasymi, 2018; Lado & Budiantara, 2018). This system is one of the innovations made by the tax authority so that taxpayers can report their obligations quickly, anytime and anywhere (Kurniawan, Aprianto, & Ines, 2018; Setiawan, Kurniawan, & Payamta, 2018). Taxpayers see that the system *e-filing* provides benefits for themselves, thereby increasing taxpayer awareness to pay taxes (Erawati & Ratnasari, 2018; Pranata & Supadmi, 2018).

B. Digital Tax Socialization

One way that tax authorities can do to increase awareness taxpayer is through socialization to provide information about taxation to the public (Herawati et al., 2018; Ismail et al., 2018; Andreas & Savitri, 2015). Socialization is the learning of values, norms, and patterns of behavior, which are expected by the group as a form of reform so that it becomes an effective organization. So the efforts made by the tax authorities in providing information about taxes can be done through socialization (Herawati et al., 2018; Savitri & Musfialdy, 2016).

One way that can be done in taxation socialization is by utilizing information technology (Aryati & Putritanti, 2016; Aryati, 2016). Information technology is the media used to process data, including processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information, namely information that is relevant, accurate and timely (Agrawal & Wildasin, 2019; Moscoso Boedo, 2018; Foros et al., 2019). Information technology is used for personal, business, government, and information strategy for decision making (Suryani, 2019; Mansor, Mohamed, Ling, & Kasim, 2016; Silaen, 2015).

The tax authority website in Indonesia is a medium for delivering information in cyberspace where taxpayers can access current and actual taxation data that is public anytime and anywhere quickly and easily. Social media such as Facebook, Twitter, Instagram, and YouTube are used by tax authorities as a tool that can be used to interact with taxpayers. The development of information technology is a potential for tax authorities to interact with taxpayers without face to face (Palupi & Herianti, 2017; Herawati et al., 2018; He & Wang, 2017).

C. Tax Revenue

Tax is state income that comes from the people as citizens of a country. The income comes from people who meet the requirements to be subject to tax and can be categorized as a tax object (Larasati & Binekas, 2019; (Suárez Serrato & Zidar, 2018). Tax revenue should be maximized because it will affect the income state (Gnangnon, 2016; Mardan & Stimmelmayr, 2018) Tax is the biggest revenue from total state revenue (Doerrenberg, 2015; Pratiwi et al., 2018).

The tax has a very large and increasingly dependable role to support government development and spending (Stoilova, 2017; Zhang & Li, 2011). One indicator of the success of tax reform is the increase in revenue state from the tax sector, which in turn will affect tax economic growth (Adkisson & Mohammed, 2014; Fazlurahman & Kustiawan, 2016). In various countries in the world, tax is the main concern by considering the factors determining tax income (Swanepoel & Schoeman, 2002; Benczúr et al., 2018). Various efforts were made by the tax authority to determine the strategy as an effort to increase tax revenue (Ghiaie et al., 2019; Pratiwi et al., 2018).

D. Hypothesis

In this section, we discuss how digital tax socialization can strengthen the effect of digital tax services through *e-filing* on tax revenue. The explanation of this relationship is evident in the theoretical foundation and empirical analysis of the literature on the practice of using *e-filing*, digital tax socialization, and revenue tax previously examined separately. Several studies provide clues about how digital tax socialization can strengthen the effect of *e-filing* on tax revenue.

To improve services, tax authorities in Indonesia reformed tax administration through *e-filing* online-based (Suprayogo & Hasymi, 2018; Suherman et al., 2015). The use of *e-filing* by taxpayers can facilitate reporting of their obligations, so reporting is much faster, more convenient, and can be done anywhere and anytime by taxpayers (Lado & Budiantara, 2018; Nurlaela, 2017). With the ease of tax services, taxpayers can report anytime and anywhere without having to come to the tax office (Erawati & Ratnasari, 2018; Agustini & Widhiyani, 2019). Taxpayers find *e-filing* useful and form a positive attitude for them so that it will increase taxpayer awareness to pay taxes which further increases state revenue from the tax sector (Putri & Putri, 2019; Setiawan et al., 2018). From the statement, the first hypothesis to be tested are as follows:

H1: *e-filing* positive effect on tax revenues.

Digital tax services through *e-filing* by tax authorities in Indonesia pose new problems for some taxpayers. Not all taxpayers have more knowledge and capability in using *e-filing*, so the socialization of the use of *e-filing* must be carried out by the tax authority (Kurniawan et al., 2018; Aryati & Putritanti, 2016). The development of information technology can be utilized by the tax authority to provide an understanding to taxpayers about the use of *e-filing* (Suryani, 2019; Siahaan & Halimatusyadiah, 2018). Social media is one that is used by authorities tax in Indonesia to provide information about taxation, such as *Twitter, Instagram, Facebook,* and *YouTube*.

The media can not only be used to provide information about the use of *e-filing* but can also be used to provide information on taxation rules, tax sanctions, the role of taxes in development and other taxation information (Herawati et al., 2018; Elvionita, 2018; Princesses & Princesses, 2019). So that the digital tax socialization expected to be able to strengthen the positive impact of *e-filing* on tax revenue. From that statement, the second hypothesis to be tested are as follows:

H2: digital tax socialization reinforces the positive effect of *e-filing* on tax revenue.

III. Research Methodology

A. Research Design

To test the hypothesis, we use *Moderated Regression Analysis* (MRA) to find out whether digital socialization is able to strengthen the positive influence of the use of *e-filing* on tax revenue. This study is based on assumptions in the discussion about developing hypotheses that explain that massive socialization through digital media can strengthen the positive influence of the use of *e-filing* on tax revenue. Conversely, socialization that is not done massively can hamper tax revenues.

Data on digital tax socialization is measured by the frequency of socialization through social media from the tax authority. Then the data regarding the use of *e-filing* is measured by the number of uses of taxpayers in reporting their obligations. Furthermore, data on tax revenue measured by the achievement of the realization of the target (annual %). All data, both regarding digital tax socialization, *e-filing*, and tax revenue are obtained from the tax authorities in Ciamis Regency, namely KPP Pratama Ciamis in 2014-2021.

B. Data

Data sources used and how the measurement of each variable will be discussed in this section. The type of data in this study was obtained from secondary data collected from KPP Pratama Ciamis as a tax authority, regarding *E-Filing*, *Digital Tax Socialization* and *Tax Revenue* from 2014-2021. The dependent variable in this study is tax revenue measured by the performance of realization of target (annual%) generated by KPP Pratama Ciamis from 2014-2021, which reports the percentage of achievement of the realization of the target that has been determined every year, with a high percentage indicating that the realization of high tax revenue and vice versa.

Furthermore, the use of *e-filing* is measured by the number of taxpayers uses in reporting their obligations. This data is taken from the report on the recording system of digital tax service (*E-Filing*) at KPP Pratama Ciamis

in 2014-2021. The higher number of taxpayers who use *e-filing* shows that the system is effectively applied as modern tax service, and vice versa. Then to measure digital tax socialization, we use the frequency of tax information dissemination using social media by KPP Pratama Ciamis in 2014-2021. This data is taken from the public relations department of the tax authority.

The higher frequency of delivery of taxation information on social media shows that the performance of tax authorities is better in promoting taxation to the public, including information about the use of *e-filing* to taxpayers. Conversely, the lower frequency of submission of taxation information shows that the performance of tax authorities is getting worse in socializing taxation to the public. The types of taxes, taxpayers and observed tax revenues are income tax and corporate tax, with the reason that *e-filing* is used for these taxes. Data sources and descriptions variable can be seen in the following table.

Table 1: Data Sources and Description of the Variables

Variable	Definition	Year	Source
E-Filing	How to submit tax obligations online and in real-time through several sites, among which can be accessed on the tax authority and other designated agencies.	2014-2021	KPP Pratama Ciamis
Digital Tax Socialization	Submission of tax information through social media by the tax authority.	2014-2021	KPP Pratama Ciamis
Tax Revenue	Tax revenue is state income derived from taxes.	2014-2021	KPP Pratama Ciamis

C. Empirical Approach

In this study, we use the *Moderated Regression Analysis* (MRA) to empirically examine the extent to which digital tax socialization is able to strengthen the influence positive of *e-filing* on tax revenue. To enable comparisons with studies previous, we ran the following 2 models.

$$TaxRevenue = a + bE\text{-}Filing + e \qquad (1)$$
$$TaxRevenue = a + b1E\text{-}Filing + b2DigitalTaxSocialization +$$
$$b3E\text{-}Filing.DigitalTaxSocialization + e \qquad (2)$$

The first model illustrates the relationship between *E-Filing* and *Tax Revenue*. If the number of users *E-Filing* gets higher, it will be followed by a higher *Tax Revenue*. The second model illustrates the relationship between *E-Filing*, *Tax Revenue*, and *Digital Tax Socialization* as moderating variables. If the frequency of *Digital Tax Socialization* gets higher, it will strengthen the impact of *E-Filing* on the increase in *Tax Revenue*.

IV. RESULT/ FINDING

Description of *e-filing*, digital tax socialization, and tax revenue can be seen in Table 2 below.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
E-Filing	5	7880.00	8314.00	8060.00	163.78492
Digital Tax Socialization	5	202.00	231.00	217.60	12.13672
Tax Revenue	5	77.11	92.01	83.50	6.37966
Valid N (listwise)	5				

Source: data processed

E-Filing has a minimum score of 7880, a maximum score of 8314, a standard deviation of 163.78492, and the score of a mean of 8060. The mean score shows that during 2014-2021 *E- Filing* was used by as many as 8060 taxpayers in Ciamis Regency to report their obligations. Furthermore, *Digital Tax Socialization* has a minimum score of 202, the maximum score of 231, a standard deviation of 12.13672, and a mean score of 217.60. The mean score explains that from 2014-2021 the tax authorities in Ciamis Regency provided tax information to the public 217.60 times through social media. Whereas *Tax Revenue* has a minimum score of 77.11, a maximum score of 92.01, a standard deviation of 6.37966, and a mean score of 83.50. The mean score

shows that from 2014- 2021 the realization of tax revenue did not always reach the target, which was only 83.50%. The first step in testing the hypothesis is testing the model (1), which is to find out the relationship between *E-Filing* and *Tax Revenue*. The results of the analysis in this step can be seen in the following tables.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890a	.792	.722	3.36167
a. Predictors: (Constant), *E-Filing*				

Source: data processed

Adjusted R Square generated a score of 0.722 shows that *E-Filing* has effected an of 72.2% on *Tax Revenue*, while the remaining 27.8% (100-72.2) is influenced by other factors not examined in this study. First we conclude that *e-filing a* positive effect on revenues. Tax *e-filing* makes it easy for taxpayers to report their obligations so that taxpayers will obey pay their obligations which causes increased state revenue from taxes. Second, our conclusion of the analysis provides evidence that digital tax socialization is able to strengthen the positive influence of *e-filing* on tax revenue. To find out whether this model (1) is suitable to be used to discuss the relationship between *E-Filing* and *Tax Revenue*, the results can be seen in the following table 4.

Table 4: Anovab

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	128.898	1	128.898	11.406	.043a
	Residual	33.902	3	11.301		
	Total	162.800	4			
a. Predictors: (Constant), E-Filing						
b. Dependent Variable: Tax Revenue						

Source: data processed

From table 4 you can see the F Sig. of 0.043 is smaller than $\alpha = 0.05$, meaning that the model (1) is suitable to be used to explain the relationship between *E-Filing* and *Tax Revenue* in this study. Furthermore, to determine the significance of the effect of *E-Filing* on *Tax Revenue*, it can be seen from the following table 5.

Table 5: Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-196.153	82.729		-2.371	.098
	E-Filing	.035	.010	.890	3.377	.043
a. Dependent Variable: Tax Revenue						

Source: data processed

The results of this analysis indicate that *E-Filing* has a positive and significant effect on *Tax Revenue*. The statement was proven from the beta unstandardized coefficients which were positive at 0.035 with a significance level of 0.043 less than $\alpha = 0.05$. This means that the higher of taxpayer's number who report their obligations through *E-Filing*, the higher the *Tax Revenue*, so this condition shows that the hypothesis first is accepted.

The second step in testing the hypothesis is testing model (2), which is to determine the extent to which *Digital Tax Socialization* is able to strengthen the positive influence of *E- Filing* on *Tax Revenue*. The results of the analysis in this step can be seen in the following table 6.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998a	.997	.994	.50527
a. Predictors: (Constant), E-Filing.DigitalTaxSocialization, DigitalTaxSocialization				

Source: data processed

Table 6 provides information that after the existence of *Digital Tax Socialization* further strengthens the positive influence of *E-Filing* on *Tax Revenue*. This statement is proven by an increase in the *Adjusted R Square*

score of 0.272 (0.994-0.722) or an increase of 27.2% (see tables 3 and 6). More and more tax authorities convey tax information to the public through social media, including information on the use of *e-filing,* causing taxpayers to understand the use of *e-filing* and immediately report their obligations, which in turn will increase tax revenue. To find out whether this model (2) is suitable to be used to discuss the relationship between *E-Filing*, *Digital Tax Socialization*, and *Tax Revenue*, the results can be seen in the following table 7.

Table 7: Anovab

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162.289	2	81.145	317.847	.003a
	Residual	.511	2	.255		
	Total	162.800	4			
a. Predictors: (Constant), E-Filing.DigitalTaxSocialization, DigitalTaxSocialization						
b. Dependent Variable: Tax Revenue						

Source: data processed

From table 7 you can see the F Sig. of 0.003 smaller than $α = 0.05$, meaning that model (2) is suitable to be used to explain the relationship between *E-Filing*, *Digital Tax Socialization*, and *Tax Revenue* in this study. Furthermore, to find out the significance of *Digital Tax Socialization* in strengthening the positive influence of *E-Filing* on *Tax Revenue*, it can be seen from the following table 8.

Table 8: Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.285	6.664		.793	.511
DigitalTaxSocialization	-.185	.107	-.352	-1.737	.225
E-Filing.DigitalTaxSocialization	6.736	.000	1.342	6.613	.022
a. Dependent Variable: Tax Revenue					

Source: data processed

The results of this analysis indicate that *Digital Tax Socialization* is able to strengthen the positive influence of *E-Filing* on *Tax Revenue*. This statement was proven from the beta unstandardized coefficients which were positive at 6.736 with a significance level of 0.022 less than $α = 0.05$. This means that the more often the tax authority submits information taxation to the public through social media (*Digital Tax Socialization*), the stronger the effect of *E-Filling* on *Tax Revenue*, so this condition shows that the second hypothesis is accepted.

From the results of our analysis we find that *Digital Tax Socialization* is related directly to *Tax Revenue* without any interaction, the result is negative. These results are evidenced from the beta unstandardized coefficients which are -0.185 with a level significance of 0.225 greater than $α = 0.05$. This means that *Digital Tax Socialization* has a negative but not significant effect on *Tax Revenue* because it is suspected that not all taxpayers use social media, so they do not receive tax information submitted by the tax authority.

V. DISCUSSION

In the taxation literature, especially the study of socialization tax, we did not find many studies focused on digital tax socialization.

Several studies have shown that massive tax socialization can increase tax revenue (eg, Silaen, 2015; Palupi & Herianti, 2017; Agustini & Widhiyani, 2019), but other studies also provide evidence that tax socialization has no effect on tax revenue (eg, Syriac, 2019; Siahaan & Halimatusyadiah, 2018; Putri & Putri, 2019). Likewise, there is evidence to support that *e-fling* can increase tax revenue (eg, Nurlaela, 2017; Ismail et al., 2018; Pranata & Supadmi, 2018), but other studies provide evidence to the contrary (eg, Suherman et al., 2015). Most of the studies that deal with *e-filing* are related to taxpayer compliance, but we are of the view that if taxpayers obediently pay taxes then it will increase state income from taxes.

The results of our study make several contributions to the literature. First, we extend two separate literature strands to date on the relationship between digital tax socialization, *e-filing,* and tax revenue. For this purpose,

when put together in a model without interaction terms, we prove that the digital tax socialization massive can increase the use of *e-filing* that resulted in increased tax revenue.

Second, our study is the first to use digital tax socialization in the tax literature. Tax socialization in the previous study was not focused on digital tax socialization. Third, we use measurements different regarding *e-filing* and digital tax socialization from previous studies. Another study measured both of them using primary data through questionnaires or interviews, but we used secondary data obtained directly from the authorities tax with whom we collaborated in data collection.

Fourth, we found that partially digital tax socialization represented by the frequency of submission of taxation information through social media had a negative no significant effect on tax revenue. This result provides new knowledge about the direct impact of digital tax socialization on tax revenue, which is suspected that not all taxpayers use social media, so not all of them get tax information from the tax authorities. These results might be different if examined in other regions or between countries.

Fifth, the results of this study have practical implications for tax authorities everywhere, to pay attention to service quality by always reforming the tax administration in a modern direction in providing the best service and making it easier for taxpayers to report their obligations. Finally, this research supports the commitment of various countries in continuing to carry out tax reforms in order to increase tax revenue in an effort to achieve economic growth targets (IMF, 2019).

VI. Conclusion and Recommendation

First, we conclude that *e-filing a* positive effect on revenues. Tax *e-filing* makes it easy for taxpayers to report their obligations so that taxpayers will obey pay their obligations which causes increased state revenue from taxes. Second, our conclusion of the analysis provides evidence that digital tax socialization is able to strengthen the positive influence of *e-filing* on tax revenue. More and more tax authorities convey tax information to the public through social media, including information on the use of *e-filing,* causing taxpayers to understand the use of *e-filing* and immediately report their obligations, which in turn will increase tax revenue. The results of this study, we find that tax socialization digital directly has a negative relationship with tax revenue. It is suspected that not all taxpayers use social media, so not all taxpayers obtain taxation information, including information about *e- filing*.

However, this study is only conducted on tax authorities in one region, so the study is next recommended to conduct research in various regions or in various countries, to expand the results. Furthermore, our study does not include compliance factors taxpayers, which in many previous studies directly related to *e-filing* and tax socialization, so subsequent studies are recommended to include taxpayer obedience elements and other elements to enable mixed results.

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Predicting The Occurrence of Top Rated Freelancers In Freelance Marketplace Using The Random Forest Algorithm

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Abstract

This study aims to analyze which factors are most important in predicting high-quality freelancer. The crisis and the covid pandemic forced companies to make cost efficiency so that recruiting online freelancers was a solution that could be considered. Recruiting freelancers online is quite easy, you just enter the freelance marketplace website, then choose the freelancer and job you want, then submit an offer. However, freelancers also have different quality. companies need to hire high-quality but low-cost freelancers for cost efficiency. This means, companies need to recruit freelancers who have top rated quality but are not yet top rated. In contrast to previous studies, the author uses the Top Rated variable as the dependent which reflects the high-quality and analyzes it using the Random Forest and Logistic Regression algorithms. The dataset contains 5,825 sample sizes downloaded from Kaggle.com, this is because Kaggle.com provides a complete dataset and is commonly used by machine learning researchers in the world. From previous research, Similar-Job-Experience and Past-Rating are the most important factors that reflect quality. Meanwhile, in this study, the attributes of totalRevenue, BilledAssignments, and totalHourlyJobs respectively become the most important variables that successfully predicting 30 Top Rated freelancers in the future. This finding should be useful for companies to be consider these factors in recruiting freelancers. To the author's knowledge, there is still limited research that discusses the criteria for freelancers using machine learning.

Keywords— freelancer, logistic regression, random forest, predict, pandemic

I. INTRODUCTION

The increasingly rampant Covid-19 pandemic has made many companies and MSMEs stop operating. This causes many companies to lay off workers and makes more and more unemployed people need income to survive. Freelancing is a workable solution for people to earn an income. This can also be used by companies to recruit freelancers in the context of cost efficiency. Compared to hiring or outsourcing, companies can also find it easier to use online workforce platforms to find, hire, supervise and pay workers on a project basis (Tubaro et al, Vallas & Schor, 2020). This condition is commonly referred to as the Online Gig-Economy which is a freelance labor market consisting of platform-mediated work carried out via the internet (Horton et al, 2018).

In early 2021, project demand increased by 90% globally compared to mid-2016 (Online Labor Index, 2020). In Indonesia, number of freelancers increased by 26% or 4.32 million people as of August 2020 compared to the previous period. Currently, there are 33.34 million people recorded as freelancers in Indonesia (Badan Pusat Statistik, 2020). The next challenge for companies is how to choose the right criteria for freelancers. Companies need to make a selection of 101 freelancers such as skills, relevant experience, cultural suitability, availability and cost (Jon Younger et al, 2016). On several online freelancing platforms, there is usually a special term for high-rated freelancers known as Top Workers (Projects.co.id, 2020) or Top Rated freelancers (Fiverr & Upwork, 2020). However, even though it makes it easier, in fact top freelancers have high prices and infrequent service availability, so they cannot be the only consideration for recruiting.

Finding out the criteria for freelancers is very important for companies. Study that analyzing the criteria for freelancers has been carried out by several researchers. First, the study about finding the determinant factors in gig workers, especially online teachers using PLS-SEM by Alif et al (2020). Second, study about aggregating and classifying gig workers in the Online Gig Economy using Automatic Text Classifier (ATC). Third, study about determinant factors in gig workers using Systematic Literature Review by Yudho et al (2020). Forth, perform a factor analysis that can improve the performance of freelancers using Ordinary Least Squares (OLS) Regression by Barlage et al (2019) and fifth, analyzing the criteria for freelancers who reflecting good quality using Random Forest by Abhinav et al, (2017).

However, this study should be especially useful two sides. First, for users of online freelance platforms to be able to understand and maximize the important factors of a quality freelancer. Second, for companies to make these factors as criteria in recruiting freelancers online. To find out which factors reflect a quality freelancer, I'm

here using the logistic regression and random forest algorithm. Random Forest is considered the best predictor in identifying the most important factors for becoming a freelancer (Abhinav et al, 2017). Random Forest and Logistic Regression are the best predictor that can predict the most important factor of employee turnover (Hossain et al, 2020) (Pratt et al, 2021). From several studies that have been carried out related to freelancers, study conducted by (Abhinav et al, 2017) shows that similar Job Experience and Past Rating are the most important factors to predict potential freelancers. Study (Barlage et al, 2019) shows that Professional Motivation and Project Engagement are the most important factors in maximizing the potential of freelancers.

Although there are several examples of studies assessing the characteristics of freelancers, in general, there are many limitations of studies in determining criteria and predicting potential freelancers. Also, this study can complement the existing literature, this study will use the Logistic Regression and Random Forest algorithm to see the best predictor to identify the important factors and predict potential freelancers of the online freelancer platform. Author choosing the random forest algorithm and logistic regression is based on several things, first is previous research. Regarding previous research, random forest has proven to have advantages in analyzing data such as freelancers (Abhinav et al, 2017) so that it becomes algorithms to be used. As for logistic regression, this algorithm is proven to be the highest accuracy with the AUC metric on employee data (Pratt et al, 2021) since freelancers have some of the same characteristics as employees. Second, random forest (RF) and logistic regression (GLM) are machine learning classification methods that are conceptually different, where the RF concept is more of a variable that is assessed using votes from a decision tree, while GLM is more of a linear method to see the relationship between input variables and output.

The purpose of this study is to analyze using machine learning what factors are the most important of the 24 attributes in predicting the existence of potential freelancers in the future. Where these potential freelancers can be used as recommendations in recruiting for companies.

II. Literature Review

A. Related Work

Several studies analyzing the criteria for freelancers or gig workers have been carried out by several researchers. First, research by Alif et al (2020), about finding the determinant factors in Gig Worker especially online teachers using PLS-SEM where as a result, the Trust factor contributes to people's intentions through Perceived Risk and Perceived Usefulness variables. On the other hand, increasing public perception of the benefits of technology can be done mainly by platform providers. Research by Yudho et al (2020) on the aggregation and classification of workers in the Online Gig Economy using the Automatic Text Classifier (ATC), the result is that Indonesian gig workers have experienced significant growth with most of them selling services in the creative and multimedia fields. Barlage et al (2019) conducted an analysis of factors that can improve freelancer performance using Ordinary Least Squares (OLS) Regression, the result of which is that the majority of respondents feel motivated while 18% are not. Abhinav et al (2017) analyzed the criteria for freelancers that reflect good quality using Random Forest, which resulted in Similar Job experience and Past Rating being the most important factors to become a good freelancer.

In addition to research from Abhinav et al (2017) which uses machine learning, namely Random Forest (RF) in analyzing the criteria for freelancers, the following recent studies also use machine learning in their analysis, but in slightly different proxies. Research from Pratt et al (2021) which analyzes what are the most important criteria that show signs of employee attrition, where in this study, Pratt uses several classification machine learning algorithms to compare. As a result, Random Forest has the highest value in accuracy, while Logistic Regression (GLM) has the highest value in terms of Area Under ROC Curve (AUC). Meanwhile, another study from Gomez et al (2021) analyzed what the most important criteria were in assessing the feasibility of online sellers on Amazon so that their products could be displayed in the buy-box. In the study, Gomez also compared various types of machine learning algorithms. As a result, Random Forest became the most accurate algorithm in terms of F1 values. Related to important variables, Pratt et al (2021) produce monthly income, ages, daily rate, working years, monthly rate and hourly rate variables as the most important variables measured using Gini importance. Meanwhile, in Gomez et al's (2021) research, it produced a full-filled profile, opinions, product rating, and product stock variables as important variables which were also measured using Gini importance.

III. Research Methodology
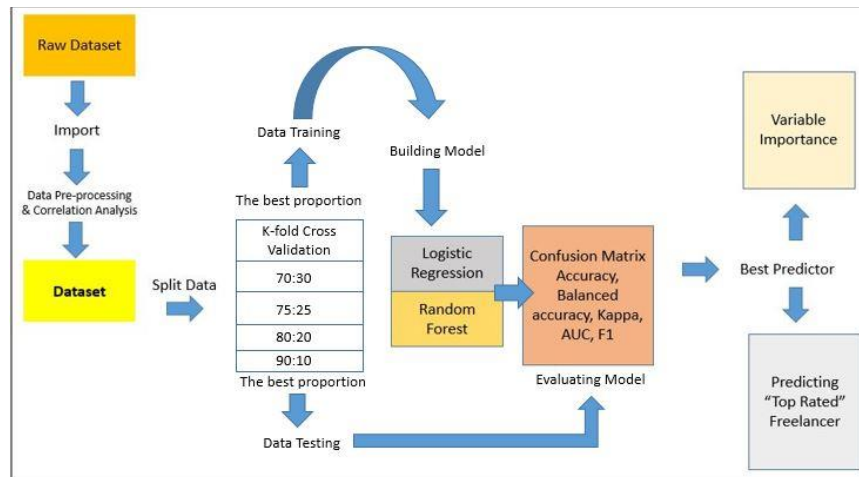
A. Research Design

Fig. 1. Research Design (Author, 2022)

There are several activities that will be carried out in this research, namely:

1. Download the Dataset.

   The first step is to get the raw dataset. In this stage, the author downloads the dataset available on Kaggle.com which is in .csv format which will then be used in the analysis.

2. Import Data

   The next step is to import the dataset into the R Studio software. This process uses the syntax in the R Studio script by writing "read.csv" so that this dataset appears and is ready to be processed.

3. Data Preprocessing and Correlation Analysis

   In this case the author will perform several steps in the pre-processing stage, first, Data Cleaning to delete data if there is missing data, Data Transformation to perform transformation if there is categorical data and make it numerical. Next is the correlation table analysis, where the author also removes several attributes that have a very high correlation with other attributes. The next step is to do data reduction by detecting outliers and then removing them if there are outliers that are too unequal with other data sets. The last is to normalize the data to adjust the parameters for each attribute if the scale of each attribute is far from one another. Normalization is carried out using the coefficient of variation method, where this is a method for making a measure of relative variability which states the dispersion of data values around the mean. The limit values for the coefficient of variation, lower and upper limits are reached when all variable values are equal (minimum) and all values except one are zero (maximum). The coefficient of variation can be misleading if there is a minus value with a mean close to zero. (Santos et al, 2021).

4. Data Split

   After the data is ready for use, the writer will then divide the data. The author split the data by trying several portions such as 80:20, 90:10, 75:25 and 70:30 using K-fold Cross Validation. After that, it is then seen which portion produces the highest accuracy and value. The author divides this data to avoid underfitting and overfitting data and to see the accuracy and performance of each classifier algorithm to be tested, the Logistic Regression and Random Forest.

5. Apply Model

   Next, the author will create a model for each algorithm. For the GLM algorithm, the author will create a model using Cross Validation for GLM and also the GLM's "Logit" function, where the model with the best accuracy will be compared its performance with the Random Forest algorithm. Meanwhile, Random Forest will be created without using cross validation. This is because each tree built by RF uses a different bootstrap sample from the original data and also the bagging process of RF for model formation from training data also automatically prevents overfitting. So that the use of cross validation is no longer needed for RF.

6. Model Evaluation

Logistic Regression and Random Forest's performance and accuracy will be measured using 5 approaches, using CM Accuration, Balanced Accuration, F-measurement, Kappa and Area Under the ROC Curve (AUC) also count how many variable important that appeared on each model. The results with the best accuracy and performance will then be used to find the most important attributes and make predictions.

7. Variable Importance

The estimated importance of predictor variables is identified to see the most relevant features or attributes that will most determine whether a freelancer at freelance marketplace will be worthy of a Top Rated title in the future. The most accurate algorithm will be used to train a model with complete data using the importance and varimp functions of the caret package on R. This function will measure the aggregate effect of the predictor attributes on the model and return a value for each attribute.

8. Recommended Freelancer

This is a step taken to predict which freelancers will then be able to get the Top Rated title on freelance marketplace based on important attributes that have appeared previously using a selected algorithm. The selected freelancers are freelancers who previously did not have Top Rated status but were eventually predicted to be Top Rated.

B. Data Collection

The data collection method used in this research is by downloading secondary data from Kaggle.com. The selected secondary data is the dataset of online freelancers from the freelance marketplace site which is still active in 2021. The dataset used is profile data from service sellers at freelance marketplace with a sample size of 5,824 with a total initial attribute of 76 attributes. This dataset is also limited to service sellers originating from the United States (USA).

C. Operational Definition Variable

The dataset used in this study is a freelancer dataset downloaded from kaggle. Kaggle is an open source website that provides various data for free. The context of the freelancer data used here is online freelancers or sellers who sell digital services on the freelance marketplace platform. This dataset also contains various text data such as: account number, country of origin, short name and profile description. Then it contains date data such as the date freelancer joined the platform. Also contains numerical data such as: total revenue, total feedbacks and total hourly jobs. Last, contains categorical data such as: recommended status and top rated status. This variable is very helpful for the author's research where the author predicts that there are freelancers who will be top rated as seen from the top rated variable as a response, and numerical and categorical variables as predictors.

Dataset contains 76 attributes, which 26 attributes do not have complete or homogeneous data and 26 other attributes are string or do not contain clear information. The attribute used as the response or dependent variable is the topRatedStatus attribute, which is the status of a service seller or freelancer who meets the requirements and changes status to Top Rated on the freelance marketplace platform. Meanwhile, predictor or independent variables we use here are numeric or categorical variables, while variables that are string or contain user id will not be included in the data analysis. Author does not use textual or string data to the model, because textual data does not always contain clear information and not all freelancers have complete textual data in this dataset, thereby reducing the risk of bias. Below is a table of attributes that will be used in the study, with one attribute being the response variable and the other 23 being predictor variables as shown in table 1.

Table 1. Operational Definition Variable

Variable	Definition	Role
topRatedStatus	Top Rated Status of Seller	Dependent
hourlyRate	Rate per hour	Independent
avgFeedbackScore	Average feedback score from buyer	Independent
totalHoursBilled	Total hours of project billed	Independent
totalFeedbacks	Total feedbacks from buyer	Independent
totalPortfolioItems	Total portfolio uploaded	Independent
recentAvgFeedbackScore	Recent average feedback score	Independent
recentTotalFeedbacks	Recent total feedbacks from buyer	Independent

recentHoursBilled	Recent hours project billed	Independent
isRecommended	Recommended status of seller	Independent
totalActualHoursBilled	Total actual hours billed	Independent
billedAssignments	Billed assignments of seller	Independent
totalRevenue	Total revenue of seller	Independent
combinedTotalRevenue	Combined total revenue of seller	Independent
totalHourlyJobs	Total hourly for all jobs	Independent
curAssignments	Total current assignments	Independent
combinedTotalEarnings	Combined total seller earnings	Independent
combinedRecentEarnings	Combined recent seller earnings	Independent
combinedAverageRecentEarnings	Combined average recent seller earnings	Independent
combinedAverageRecentCharge	Combined average recent seller charge	Independent
memberSince	Seller start to be seller	Independent
topTalentGroup	Top talent status of Seller	Independent
topRatedStatusEx	Top Rated status ex of seller	Independent

Author's preparation (2022)

D. Analytical Technique and Tools

Data analysis technique for predictive analysis in this research is using machine learning. Machine learning is the scientific study of algorithms and statistical models with the help of computer systems that perform certain tasks. (Chalal & Gulia, 2019).

The machine learning function used in this research is supervised learning with the classification method. Supervised learning is Machine Learning's task to learn a function that maps input to output based on a sample of input-output pairs. While classification refers to predictive modeling, where class labels are predicted. Mathematically, it maps the function (f) of the input (x) and output (y) variables as targets, labels or categories. (Sarker, 2021).

The author uses R Studio tools to perform machine learning functions, where R Studio is an Integrated Development Environment (IDE) for the R programming language that contains a console, a syntax highlighting editor that supports direct code execution and tools for planning, narrating, debugging, and workplace management (Rstudio, 2022). In addition, the author also uses tools such as Microsoft Excel to make data visualization and manual calculations.

IV. RESULT / FINDING

Result section presents the results of the study. Research results can be supplemented with tables, graphs (pictures), and / or charts.

A. Data Representation
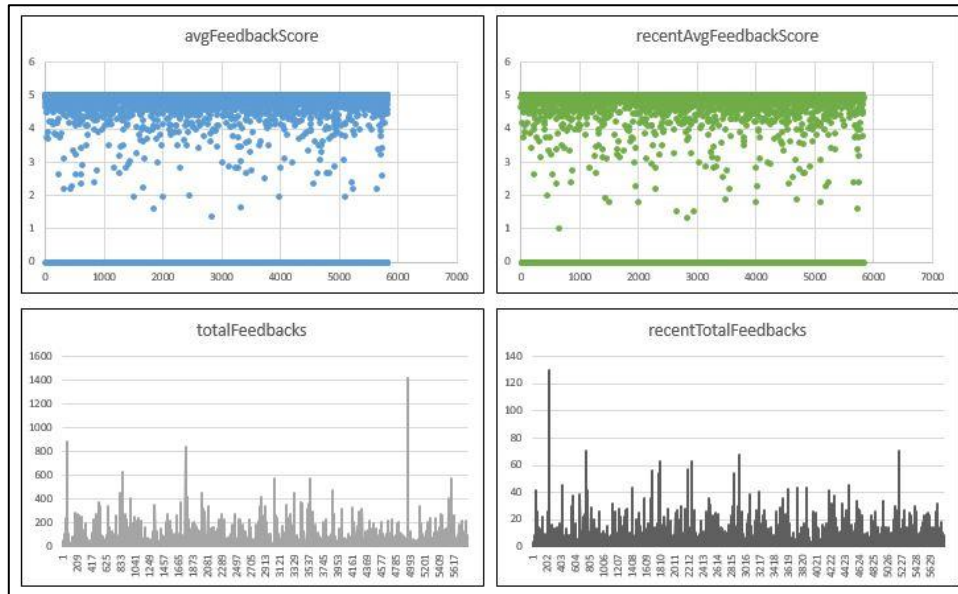
Fig. 2. Feedback Data Representation (Author's Preparation, 2022)

From Figure 2 above, it can be seen that for the avgFeedbackScore variable means the average feedback value, the data distribution is mostly 0 or never gets any feedback at all. But the majority of data distribution occurs in the range of 4.5 to 5, where quite a lot of freelancers get high feedback. For recentAvgFeedbackScore, has a distribution similar to avgFeedbackScore, this is because recentAvgFeedbackScore is a sample of avgFeedbackScore in the last year. For totalFeedbacks, the majority are in the range of 0 to 200, very few have more than 400 feedbacks and only one has more than 1,400 feedbacks. RecentTotalFeedbacks, the data distribution pattern is almost the same because it is a sample taken from the totalFeedbacks variable for the last year.
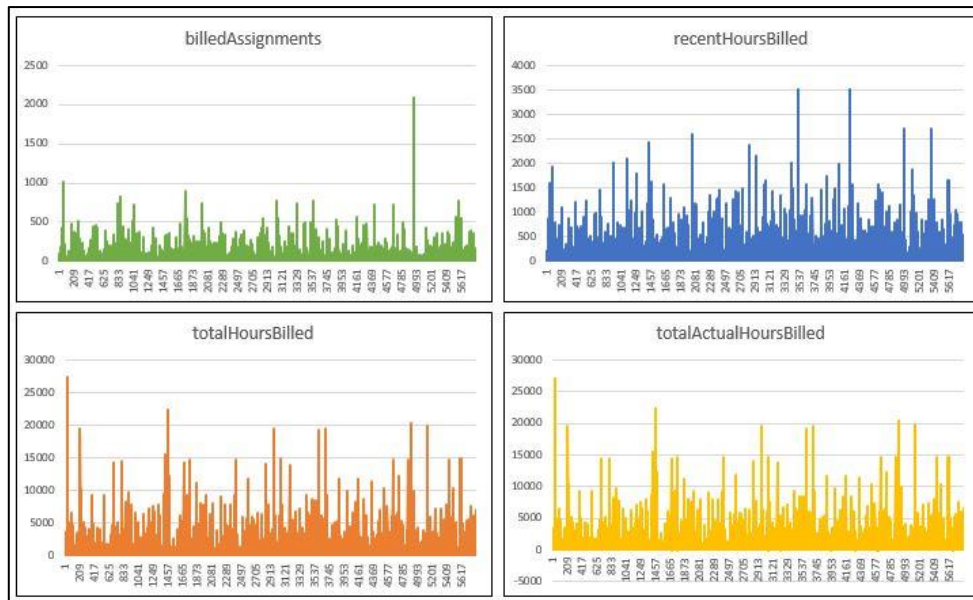
Fig. 3. Billed Data Representation (Author's Preparation, 2022)

From Figure 3 above, it can be seen that for the billedAssignment variable, the distribution of data is in the range of 0-200 jobs, only a few touch the number 500 or above. This is a sign that the demand for work for freelancers is not so much in the majority, so the opportunity to become a freelancer is still wide open. For the recentHoursbilled variable, the distribution is mostly around the 500 hours mark, although there are also many data that touch the 1,000-1,500 hour mark. The assumption that comes from this variable is similar to the billedAssignment variable, but the recentHoursbilled variable justifies the number of work bills in hours or 60 minutes in the last year. The variables totalHoursBilled and totalActualHoursBilled have almost the same distribution, namely the total number of billed work hours. The distribution of data is mostly around the 5,000 hours mark although there are also many that touch the number around 10,000 to 15,000 hours. In addition, there are also those whose total bills are above 25,000 hours, and are believed to be freelancers who have been on this platform for a long time and have long and consistent work bills.
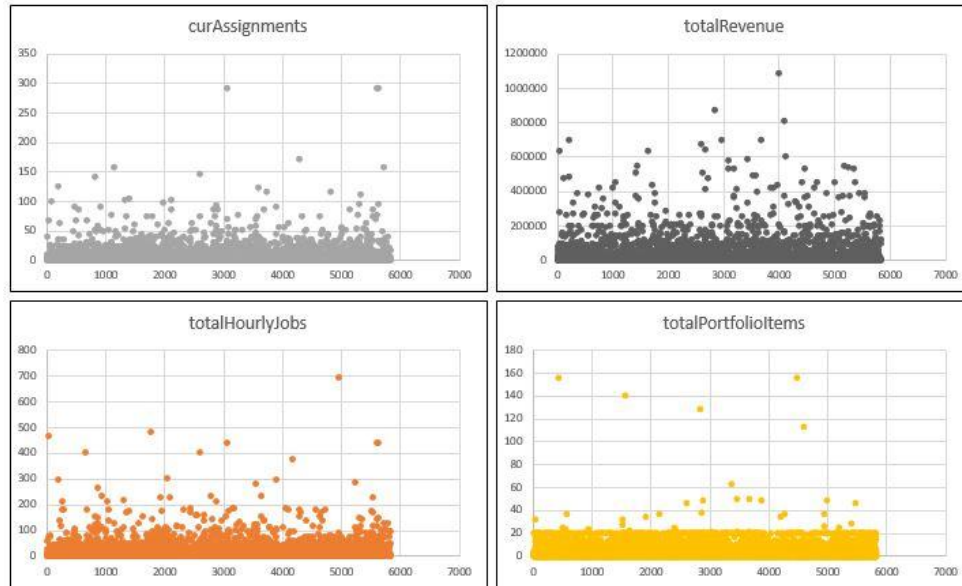
Fig. 4. Total Data Representation (Author's Preparation, 2022)

From figure 4, it can be seen that for the curAssignments variable, namely the number of tasks that have been completed in the last year, the distribution of data is large in the range of 0 to 50 tasks. Even so, there are some freelancers who have completed more than 100 tasks and there are almost 300 tasks that have been completed in the last year. For the totalRevenue variable, the lot is spread out in the range of 0 to $200,000. This pattern is similar to the curAssignments variable, which is widely distributed at the bottom, this is directly proportional to the fact that the higher the task completion rate, the higher the total income received by a freelancer. For the totalHourlyJobs variable, the data spreads around 0 to 100. For the totalPortfolioItems variable, which is the total portfolio uploaded on the online marketplace platform, the data distribution is in the range of 0 to 20 portfolios. The more portfolios, the more creative freelancers are considered and have a diverse selection of digital products or services or master many skills that make their portfolios large.
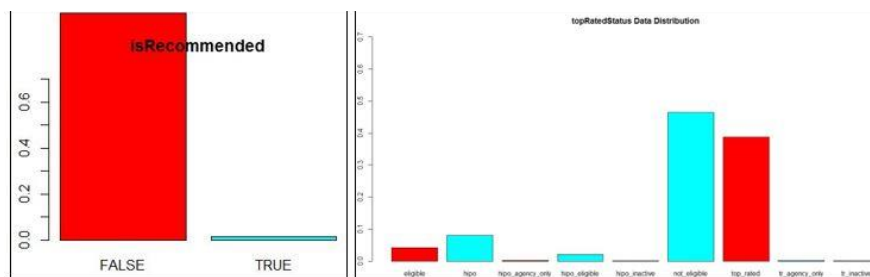
Fig. 5. Categorical Data Representation (Author's Preparation, 2022)

For categorical attributes, is Recommended variable has an unequal distribution. And also categorical variable topRatedStatus, there are several categories but the data distribution is mostly in the "not_eligible" category where the category that is not eligible to be Top Rated is the most for this variable. From the data representation above, it is clear that the average distribution of the data is not normally distributed according to Gaussian law.

B. Data Preprocessing

Fig. 6. Top Talent Removal Result (Author's Preparation, 2022)

Previously there were 76 attributes that had been reduced using Microsoft Excel to 24 attributes that were considered feasible to be used in the initial analysis. Of the 24 attributes, the topTalentGroup attribute was removed (check figure 6) because it was considered to provide the same information as the topRatedStatus response attribute.

Fig. 7. Removing Missing Data (Author's Preparation, 2022)

Furthermore, the authors also checked for missing values on the remaining 23 attributes and there were 2,935 missing data. The author then deletes the missing data so that there are no more missing values or missing data values. The dataset which previously contained 5,824 data is now reduced to 5,236 rows of data.

Fig. 8. Transforming Categorical Variable Data into Binary (Author's Preparation, 2022)

Based on figure 8, the isRecommended attribute has changed the value from the "FALSE" and "TRUE" categories to 0 and 1, respectively, because the more a freelancer is recommended, the higher the value the freelancer should have. For the topRatedStatus and topRatedStatusEx attributes, the values for the categories "hipo", "hipo_agency_only", "hipo_inactive", "hipo_eligible", "not_eligible", and "tr_inactive" became 0 while the categories "tr_agency_only", "eligible" and " top_rated" became 1. This is because the "eligible" category the author considers a freelancer who meets the requirements to be Top Rated and is considered equivalent to a freelancer from the "top_rated" category.

Fig. 9. Correlation Table (Author's Preparation, 2022)

From the correlation table in figure 9, there are several attributes that are perfectly and highly correlated with other attributes. totalHoursBilled attribute has a correlation of 1 (one) with the totalActualHoursBilled, topRatedStatus with topRatedStatusEx, combinedTotalRevenue with combinedTotalEarnings, combinedRecentEarnings attribute correlates 0.99 with combinedRecentCharge, combinedAverageRecentEarnings attribute correlates 0.97 with combinedAverageRecentCharge, billedAssignments attribute correlates 0.96 with totalFeedbacks, combinedRecentEarnings correlates 0.81 with combinedTotalEarnings, combinedTotalEarnings attribute correlates 0.8 with combinedRecentCharge. The Author will then discard 8 attributes, topRatedStatusEx, totalHoursBilled, totalFeedbacks, combinedRecentEarnings, combinedRecentCharge, combinedTotalEarnings, combinedAverageRecentCharge and combinedTotalRevenue.
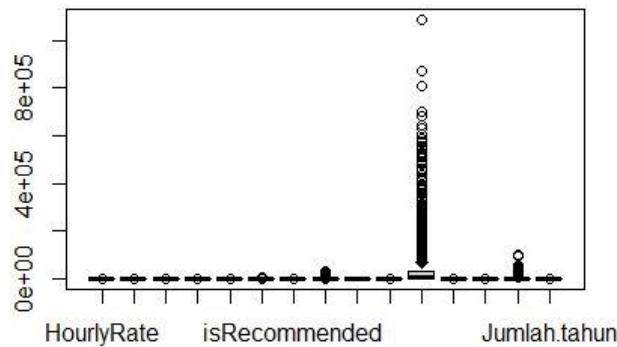
Fig. 10. Outliers (Author's Preparation, 2022)

From Figure 10 above, it can be seen that the totalRevenue attribute has the most visible outliers, while the combinedAverageRecentEarnings and totalActualHoursBilled attributes show the outliers that are not that far apart. Overall the data has outliers. The author then selects data that has high outliers so that the dataset which previously amounted to 5,236 is reduced to 4,042.
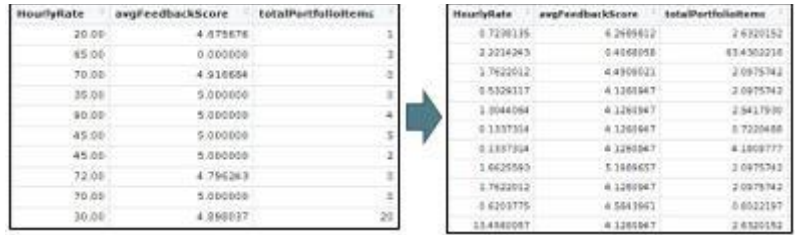
Fig. 11. Outliers (Author's Preparation, 2022)

Figure 11 is the result of the dataset after normalizing the data normalization. It can be seen that each attribute has relative variation value because I using coefficient of variation and this applies to all attributes so that the parameter distance for each attribute tends to be smaller.

C. Data Split

Based on the previous chapter, the author will try to experiment with sharing data with various proportions, where the results are as follows:

Table 2. Data Split Performance Using K-fold Cross Validation

Proportion	Accuracy	Kappa
70:30	0.681	0.0693
75:25	0.692	0.0774
80:20	0.696	0.0851
90:10	0.693	0.0821

Author's preparation (2022)

Based on table 2, it can be seen that the proportion with the highest accuracy and Kappa value is if the proportion of data is divided into 80:20 which outperforms other proportions. Furthermore, the data will be split with a proportion of 80% for training data and 20% for testing data.

D. Model Evaluation

Table 3. GLM Model Evaluation

Measures	CV	Logit
Akurasi	0.7005	0.7030
Precision	0.7098	0.7042
Recall	0.9644	0.9893
F1	0.8177	0.8227
AUC	0.529	0.640
Balanced Accuracy	0.5291	0.5171
Kappa	0.0761	0.0464

Author's preparation (2022)

Based on table 3, It can be seen that the accuracy of the GLM model formed by Logit has a higher number of sizes than Cross Validation, so that the Logit model will be compared with Random Forest.
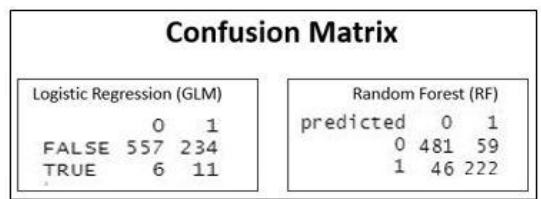
Fig. 12. Confusion Matrix Between GLM and RF (Author's Preparation, 2022)

From Figure 12, the Confusion Matrix is shown for the Logistic Regression (GLM) and Random Forest algorithms, respectively. In GLM's prediction, there are 557 people correctly predicted to be   freelancers who do not deserve Top Rated status, and 11 people correctly predicted to be freelancers with Top Rated status. For the Random Forest algorithm, as many as 481 people were correctly predicted not eligible to be Top Rated with 222 people eligible to be Top Rated.
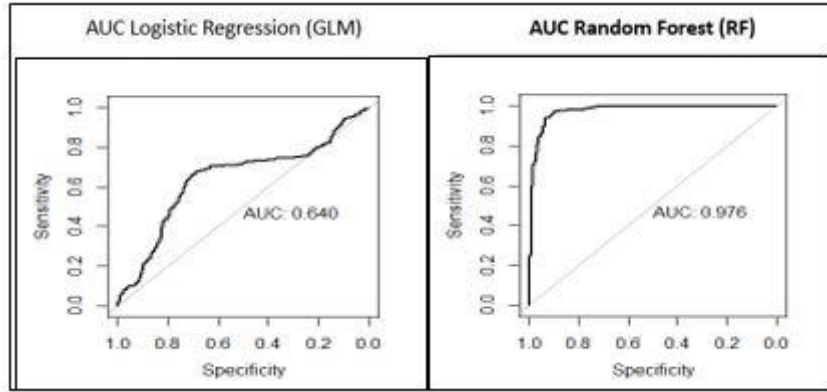
Fig. 13. AUC Comparison (Author's Preparation, 2022)

Table 4. Overall Model Comparison

Performance	Logistic Regression (GLM)	Random Forest (RF)
Accuracy	0.7030	**0.8700**
Kappa	0.0464	**0.7104**
F1	0.8227	**0.9016**
Balanced Acc	0.5171	**0.8513**
AUC	0.640	**0.976**

Author's preparation (2022)

From table 4 above, it can be seen that the Random Forest model and algorithm are the most accurate for the Confusion Matrix Acc, Kappa, F1, Balanced Acc and AUC methods. This clearly shows the power of RF over GLM, because RF is superior in all aspects. The use of these 5 metrics is also used with the aim of choosing an algorithm that has more accuracy so that the number of metrics used is odd. If special conditions occur, for example, these two algorithms excel in 2 metrics and have the same value in 1 metric, then the next comparison is the algorithm's value in all metrics. If the results are still the same, then the next comparison is the number of important variables that are predicted, where the algorithm with the number of important variables is considered more accurate. If the number is still the same, then the last thing to do is compare the coefficient of variation. The smaller of coefficient of variation will considered more accurate. Furthermore, the Random Forest algorithm and model will be used to identify important attributes and predict which freelancers will be Top Rated.
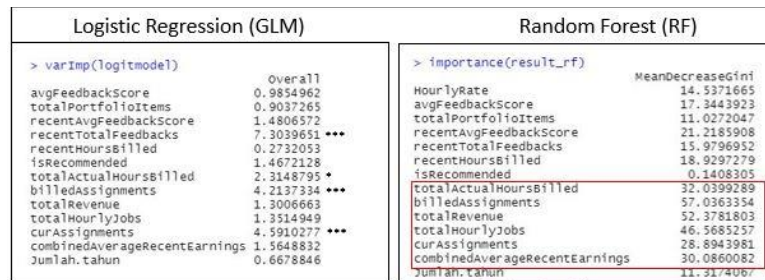
Fig. 14. Variable Important Model Comparison (Author's Preparation, 2022)

From Figure 14, it can be seen that GLM has at least four important variables, that are recentTotalFeedbacks, curAssignments, billedAssignments and totalActualHoursBilled. While RF has more important variables. With an average Gini value of 25.5, there are six important variables, namely billedAssignments, totalRevenue, totalHourlyJobs, totalActualHoursBilled, combinedAverageRecentEarnings and curAssignments.
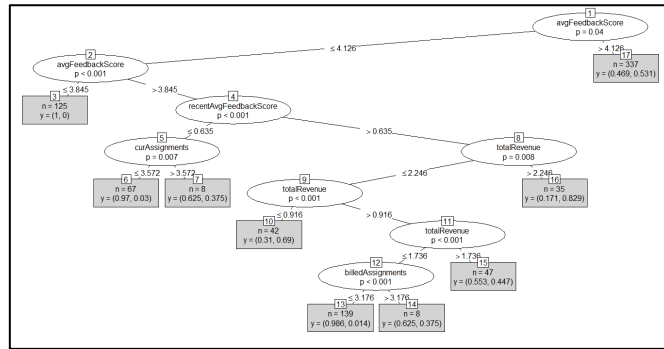
Fig. 15. Random Forest Tree Plot (Author's Preparation, 2022)

Next is the decision tree plot on the RF model, which can be seen in Figure 15, this plot uses testing data that is used to measure the performance of the model. In Figure 20, it is explained that if the avgFeedbackScore variable at node 1 is less than equal to 4.126, the decision will switch to node 2 with p = 0.001. However, if the avgFeedbackScore variable at node 1 is actually worth more than 4.126, then the decision will immediately switch to node 17 with a response variable value between 0.469 and 0.531 and so on.

E. *Variable Importance*

To identify the variables that are important in predicting whether someone deserves to be a Top Rated freelancer or not, the author uses the Mean Decrease Gini (MDG) to determine the most important variable.
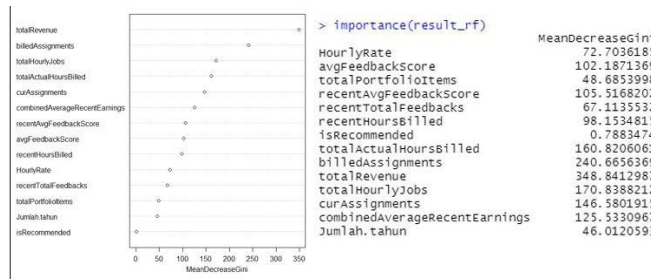
Fig. 16. Gini's Variable Importance (Author's Preparation, 2022)

From Figure 16 above, it can be seen that the 14 predictor variables have got their respective importance numbers. The most important variable to predict the occurrence of Top Rated Freelancers is totalRevenue with a value of 348.8, then billedAssignments with 240.6, totalHourlyJobs with 170.8, curAssignments with 160.8, totalActualHoursBilled with 146.5 and combinedAverageRecentEarnings with 125.5.

F. *Recommended Freelancer*

Based on the model that has been formed using training data, the Random Forest model was created to apply the classification, here the author uses all data 100%, totaling 4,043 lines in making predictions. The following are freelancers who were previously not Top Rated, but are predicted to become Top Rated in the future based on the Random Forest model. The following is a list of freelancers with the value of each important variable, names and profile have been hidden and changed to freelancer_1 to freelancer_30 due to privacy concerns.

Table 5. List of Potential Freelancer and The Importance Factor in Freelance Marketplace Platform

Freelancer	totalRevenue	billedAssignment	totalHourlyJobs	totalActualHoursBilled	curAssignments	combined/
Freelancer_1	5113	45	11	88	3	239
Freelancer_2	2988	10	15	87	5	126
Freelancer_3	7599	13	6	443	7	585
Freelancer_4	8670	21	7	143	2	402
Freelancer_5	11834	24	19	159	11	493
Freelancer_6	12931	199	43	110	38	66
Freelancer_7	4710	22	4	160	5	214
Freelancer_8	17966	20	14	145	3	641
Freelancer_9	28805	153	100	1155	7	99
Freelancer_10	25072	16	11	401	7	1567
Freelancer_11	47378	155	40	653	5	313
Freelancer_12	5537	15	4	24	10	369
Freelancer_13	19002	13	5	655	6	1420
Freelancer_14	12684	63	8	488	0	24
Freelancer_15	32971	21	23	922	10	180
Freelancer_16	3236	14	2	4	1	250
Freelancer_17	2158	24	0	0	0	364
Freelancer_18	11066	7	6	1024	2	798
Freelancer_19	7445	66	20	61	6	175
Freelancer_20	6638	17	7	70	6	120
Freelancer_21	12755	10	6	446	2	278
Freelancer_22	9422	8	5	639	2	80
Freelancer_23	43285	36	12	312	2	0
Freelancer_24	22966	37	15	275	4	494
Freelancer_25	27846	40	17	954	5	477
Freelancer_26	22773	60	34	367	5	440
Freelancer_27	10788	42	26	334	6	267
Freelancer_28	15868	17	5	64	9	1013
Freelancer_29	10534	33	18	131	26	334
Freelancer_30	3684	11	3	49	4	302
Average	15124	40	16	345	7	404

Author's preparation (2022)

V. DISCUSSION

Data representation is carried out to take a closer look at how the distribution of data for each variable, both numerical and categorical, so that we can see the characteristics of the data held. In this study, the data that is the response is topRatedStatus, where this variable contains 68% of freelancers who are not eligible to be Top Rated while about 31% are eligible, this is also seen in the split data distribution. The percentage of response attribute data is similar to the research by Pratt et al (2021), where their main attribute, namely satisfaction, provides information that as many as 69% of employees are satisfied and 31% are not satisfied. The difference is, Pratt et al (2021) represent demographic attributes such as age and education although there are also some attributes in common with author studies such as HourlyRate, Income and TotalHours.

In data pre-processing, the point is how the author performs data reduction, namely removing unnecessary attributes, data cleaning, which is removing data that has missing values, data transformation, namely transforming data to a certain scale (normalization) and data exploration, namely looking for outliers and eliminating them so that The resulting data is good enough for further processing. The research by Khera et al (2019) also carried out the same pre-processing stage, the difference is that Khera uses a standard deviation to select outliers where the autor uses selection using Quarters 1 and 3 to reduce data with the highest outliers so that the resulting image is shown in figure 14. Meanwhile research by Pratt et al (2021) only performs data reduction to remove unimportant attributes and missing values as well as data transformation to convert categorical data into numerical data.

In the model evaluation stage, it was previously explained that overall, the 5 Confusion Matrix evaluation methods Acc, Kappa, F1, Balanced Acc and AUC Mean (table 4) methods showed that Random Forest was the most accurate algorithm than Logistic Regression. These 5 (five) methods were also chosen to see how accurate they are from various sides, so as to convince the reader that comparisons are made through many methods that can contain more information. The number of model evaluation methods here is more complete than the research conducted by Dubey et al (2017) which only uses the F-measure for the evaluation model, and Gomez et al (2022) which only uses the Fmeasure, Kappa and Balance Accuracy. There is a slight difference where there are several studies that use methods that are not used by the author as in the study by Gao et al (2018) which used Recall, and Pratt et al (2021) which used Accuracy Standard Deviation and Area Under Curve (AUC) Standard Deviation. But in essence, there is no limit to how many methods should be used for model evaluation, so that some methods depend on the wishes of the author who feels what evaluation model is suitable for the algorithm being compared or just to see which algorithm is better if each algorithm has a tight competition for accuracy.

At the critical variable selection stage, the author uses Gini Importance or Mean Decrease Gini (MDG), the reason being that in MDG, the variable of importance is determined based on the contribution of each variable

to the homogeneity of nodes generated in a decision tree in Random Forest so this is considered better than Mean Decrease Accuracy (MDA). Several studies also use the MDGs to determine the importance of variables, such as the research of Dubey et al (2017) and Pratt et al (2021). Determination of the importance variable in this study uses the Mean where the average Gini value of each attribute becomes the limit whether the variable is considered important or not. The average value of 123.92 was obtained so that 6 variables with values above the average, namely totalRevenue billedAssignments, totalHourlyJobs, curAssignments, totalActualHoursBilled and combinedAverageRecentEarnings were chosen to be important variables for analysis and describe the real response attributes. A similar thing also happened to the research of Pratt et al (2021) where Income is the most important attribute and slightly different from Dubey et al (2017) where Job Experience is the most important attribute where this attribute is slightly similar to the TotalHourlyJob attribute which is ranked 3rd. most important.

At this stage of selecting which freelancers are recommended, it produces 30 people where they are users who initially do not deserve to be top rated but are predicted to be top rated based on the Random Forest model, but the author does not give a rating to these 30 freelancers. In contrast to the research by Dubey et al (2017) which ranked the top 3 most recommended freelancers. From the values in table 5, several types of freelancers can be drawn. Freelancer_6, Freelancer_9 and Freelancer_11, in general they are freelancers who have the most advantages, especially for billedAssignments and totalHourlyJobs. This type of freelancer is a freelancer who has a type of work with a long duration of time, such as Freelancer_6 who is voice over, Freelancer_9 who is an apparel product manager and Freelancer_11 who is a video editor and is trusted to work on large projects. However, they have a small combinedAverageRecentEarnings value. This is one of the reasons why they get a high demand for work for long-term projects because the prices can be quite cheap.

For Freelancer_13 and Freelancer_18, they are freelancer types who do not have many advantages, but have advantages in the totalActualHoursBilled and combinedAverageRecentEarnings variables and have disadvantages in the billedAssignments and totalHourlyJobs variables. This indicates that this type of freelancer is a freelancer who, in terms of duration, gets a large demand and also they get high profits because the price installed is also quite high. However, high prices make the number of requests per job small and also the total duration of time to complete the work is also short so this is not the type of long-term worker. This is because Freelancer_18 is a data entry that does not require much time and analysis.

For Freelancer_5, Freelancer_24, Freelancer_26, and Freelancer_27, they are the average freelancer type. Especially for Freelancer_24 and Freelancer_26, the advantage they have is the totalRevenue variable. This type of freelancer is a freelancer who has been selling their services and products in the freelance marketplace for a long time, but their performance is not so prominent as they have been operating for more than 7 years. While Freelancer_5 and Freelancer_27 can be said to have neither advantages nor disadvantages, all important variables here are of sufficient value on average, but they are considered to be consistently operating.

Next are Freelancer_7, Freelancer_12, Freelancer_16, Freelancer_17 and Freelancer_22. They are freelancers who can be said to be under performed in terms of the value of the important variables they have. Especially for Freelancer_7 and Freelancer_12, they have deficiencies in all variables except the curAssignment variable whose value is in the average. This means that these two freelancers are quite productive by completing many projects, despite the little income and demand that comes to them.

VI. CONCLUSION AND RECOMMENDATION

In this study, the author emphasized that recruiting freelancers could be an effective solution for companies in cost efficiency if they knew which freelancers had the potential to be recruited. Random Forest is by far a better predictor than Logistic Regression when it comes to predicting potential freelancers. Potential freelancers themselves are identical to freelancers who have a lot of income and demand for assignments that pile up because they are considered capable of doing tasks so that they get big pay even though the age factor is also important based on previous research. However, this study has a drawback, namely the unavailability of demographic attributes such as age and education so that it can produce different and more complete results. This research can also be developed in the future by increasing the number of algorithms that are compared and determining the ranking for each potential or recommended freelancer. Furthermore, this research is also expected to be a reference for companies in recruiting freelancers and also the results of this research can complement the theory about the criteria for potential freelancers for further research.

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Analysis Of The Influence Of The Number Of Seeds, Labor, And Land Area On Increasing Rice Production To Fulfill The Community's Food Bars Klaten District

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Abstract

The basic food needs of most Indonesians prioritize rice as the main staple of daily life in terms of staple food. The availability of rice needs for rice must be endeavored in such a way that it is always sufficient to ensure the availability of staple food for the community by prioritizing quality rice production and meeting the quantity of community needs. This study aims to be able to analyze various factors of rice production using the dependent variable, namely rice production and the independent variables, namely the number of seeds, labor, and land area to increase rice production in order to meet the food barns of the people of Klaten Regency by using the Error Correction Models (ECM) is based on the last 20 years of research, namely 2001 - 2021. Data were obtained from the Central Statistics Agency (BPS), and the Central Java Provincial Agriculture Office and several supporting references related to this research. Based on the results of the study and the regression model of the ECM, it can be concluded that the variables that have a significant influence in this study are the variable area of land and the labor variable, while the variable that does not have a significant influence is the variable number of seeds. The number of seeds is a variable that does not have a significant effect even though seeds should have a major influence on rice growth, but the variables used in this study only determine the quantity of the number of seeds, while the actual need is thought to be the main factor affecting rice, namely the type of seed that is produced. used in rice production. Future research is expected to make further research on the type of seed used for rice as the main factor affecting rice production.

Keywords—ECM, Labor, Land Area, Number of Seeds, Rice Production.

I. INTRODUCTION

The availability of rice is the most important commodity that is needed by the Indonesian people as the main staple food that they rely on, so as a result of that the availability of rice commodities must absolutely be prepared and it is the big responsibility of the government in order to prepare the supply of food consumption in order to prepare for a surge in consumption. community food (Mariyani, 2017). Another factor that is influenced by the rice commodity is not only as food, but can also be used as a parameter of stability to the economy of the people in Indonesia, when the distribution of rice to the community is hampered, problems that arise will have an impact on inflation and social conflicts in the community (Prasmatiwi, 2017).

The availability of staple foods has a very high potential and becomes one of the strategic values that rice is considered quite important for the survival of the community, so it is necessary for the government to ensure the availability of rice to become the main factor in people's food and it is hoped that rice distribution will be evenly distributed because if food availability is lower than needs will lead to economic instability (Rejekiningrum, 2013).

The community's basic food needs will always be the number one priority for the government in supporting the main food ingredients. As a result, the rice production process must always be considered every year because the demand for rice to become community food will continue to increase along with the growth in the number of existing people, it takes several very structured planning from the government to be able to prepare basic food needs (Rohman, 2017).

Rice is a core commodity in people's lives, especially in Klaten Regency, if rice production is not sufficient then rice production as food will also not be fulfilled properly so that it can cause problems with the price of other basic commodities and will rely on imported products to fulfill food ingredients in Klaten Regency (Claudia Afrilia, 2014). Rice is one of the leading commodities among the people of Klaten Regency, this is characterized by cultivation that still has the potential to be redeveloped considering the large area of land and abundant water sources (Sunjaya, 2016).

Rice commodities can be used as a reference when assessing the welfare of the community as well as in assessing the socio-political conditions that exist in the community. Almost all Indonesian people consume rice every day, causing the value of rice commodities to food has a very strategic value in controlling the lives of some people in this country. Another factor that is influenced by the rice commodity is not only as food, but can also be used as a parameter of stability to the economy of the people in Indonesia, when the distribution of rice to the community is hampered, problems that arise will have an impact on inflation and social conflicts in the community (Prasmatiwi, 2017). availability of rice is the most important commodity that is needed by the Indonesian people as the main staple food that they rely on, so as a result of that the availability of rice commodities must absolutely be prepared and it is the big responsibility of the government in order to prepare the supply of food consumption in order to prepare for a surge in consumption. community food (Mariyani, 2017). Consumption of rice which is quite high is an important thing to pay attention to for the procurement and availability of lowland rice which can be processed into sufficient food ingredients. Rice is a core commodity in people's lives, especially in Klaten Regency, if rice production is not sufficient then rice production as food will also not be fulfilled properly so that it can cause problems with the price of other basic commodities and will rely on imported products to fulfill food ingredients in Klaten Regency (Claudia Afrilia, 2014).

In Nedi's research (2015), on "The level of rice farming in Grobogan Regency, Central Java Province" discusses the linkage of rice commodity farming based on the high demand for rice food. The purpose of Nedi's research is to determine the amount of production costs, revenue, demand and B/C Ratio of rice farming in Grobogan Regency, Central Java Province. In this research on rice commodity farming, it provides an overview of the acceptance of rice to the production produced by rice farmers, and the income obtained based on the results of market demand related to staple foods. The results of this study state that the factors of production together have a significant effect on production with a 95% confidence level. The most significant production factor is the planting area with the highest multiple linear regression coefficient (0.560). Meanwhile, the use of production factors such as planting area, SP36 fertilizer and pesticides has not yet reached the highest economic efficiency. Meanwhile, labor and urea fertilizer are not efficient.

In Falatehan's research (2017), on "Factors Affecting Rice Production with the System of Rice Intensification" discusses the superiority of rice production using the System of Rice Intensification (SRI) system by surveying 2 areas in West Java, namely Subang and Karawang. The purpose of this study is to analyze the factors that affect production using the SRI system. The results of the study found that the production function analysis showed that the dummy SRI variable had an important role in increasing production for SRI farmers, but all SRI production factors were not significant. Both SRI and non-SRI showed a decrease in yield on the production technology scale. This implies that both systems show a decrease in average costs in the long run. The findings of this study are used as the basis for policy formulation and development of SRI agriculture in Indonesia.

In Rosyadi s research (2012), on "The level of household food security in underdeveloped villages" discusses household food security based on the demand for rice from the community by comparing the results of rice production. The results obtained from the research process, namely the need for household food in the research area is very high compared to the results of rice production. The average yield obtained from food demand is 78% and for rice production, it is only around 60%, although there has been an increase in production but still cannot meet household food in the research area so that the fulfillment of food needs in the research area is very low in terms of aspects. continuation can cause other problems that are thought to be quite serious in the research area. Based on the results obtained, there are limitations to the research, namely the research conducted is only limited to identifying food security, not being able to find out what factors affect household food security in the research area; and (3) The research results have not described how to formulate a food security management model to address household vulnerability to food in the research area

Based on previous research, it was found that the problems discussed were regarding demand, food security against rice availability, and system development that could affect production factors. In previous studies it has been mentioned that rice production has various factors that can affect the rise or fall of rice production results, with this research it is possible to examine the factors of rice production using the number of seeds, labor and land area variables. Related to the novelty of this study compared to research that has been done, namely the proof that the importance of land area and labor on rice production, and the number of seeds without knowing the type and quality of rice seeds can affect or not in the process of rice production takes place.

This study will provide a more detailed novelty aspect related to the variables of land area, labor, and the number of seeds that have a significant and valid relationship in the rice production process in Klaten

Regency using data for the last 20 years starting from 2001 - 2021. Data involving The 20-year time series is thought to be able to provide more detailed outcomes related to factors that affect rice production.

II. LITERATURE REVIEW

Rice production in Indonesia fluctuates every year. Now the average farmer has migrated from rice farmers to plantation or industrial farmers which according to them the level of welfare of farmers due to farming and plantation business far has a fairly commensurate advantage compared to rice farming (Marlina, 2017). Rice is the most important commodity for the public which has a primary need and strategic value in the economic, environmental, as well as social and political fields. This is what makes solid commodities have strategic value so that rice becomes the focus of government attention in meeting its availability as food or as a material for balancing social and political conditions. (Rachman, 2011).

The potential for resources in agriculture is very large as well as as a supporter of national income which tends to have a large value, which is also influenced by the number of people who depend on the agricultural sector for their life by placing their food needs or basic needs on rice (Pratama, 2019). The level of production of a country is determined by the number of workers and labor activities of a country. If the number of workers is small, then automatically the number of goods produced is also small and if the number of workers is large, the number of goods produced will also be large (Cahyani, 2019).

Workers are categorized as people who are in school, working, looking for work, taking care of the household and not working aged 15 to 64 years (Murdiantoro, 2011). Labor has an important role in economic growth, because basically labor is needed in every economic activity to produce an item. If the number of workers is small, then automatically the number of goods produced is also small and if the number of workers is large, the number of goods produced will also be large (Drennan, 2011).

Land area will affect the Indonesian economy starting from the farming sector, a very specific relationship when the production process has been declared harvested on a land area that ranges from one hertare per farmer, the income that farmers will find will increase, the availability of food as food or export material will increase. more available than rice fields that have a land area of less than one hectare (Suwarno, 2010). The influence of land area is not only on the level of efficiency of farming, but also has an impact on efforts to transfer and apply technology in agricultural development. If land ownership is more in boxes with a narrow area of control, agricultural development efforts will be difficult to carry out (Lyu, 2019).

Seedling is a young plant that has the potential to be a determining factor in plant growth and the quality of plant yields after growing (Marwah, 2014). Seedlings are used as an alleged factor that can affect corn production because seeds are included in the stages of the rice planting process in the early days. The nursery process from previous research (Hafidh, 2012) has a significant relationship with the quality of the seeds selected based on the needs of the rice harvest in the future, but in this study, the number of nurseries used is based on land area. One of the efforts to get the expected results, the use of seeds must be understood by most farmers by using an intensification program so that they can apply appropriate production technology and the use of efficient and profitable production facilities, including the technology of using the number of seeds per clump (Hafidh, 2012).

III. RESEARCH METHODOLOGY

The research method that will be used in the research process is a quantitative research process that uses the basic analysis of each variable that has an influence on the process that can affect rice production in Klaten Regency. The data processing process in this study uses the Error Correction Model (ECM) regression analysis method. The researcher uses the Error Correction Model (ECM) analysis method as an analytical tool for data processing in this study. The reason for using this method is that the ECM method can describe a fairly dynamic model in the economic process that is quite related to the research time series both in certain time periods. Based on the form of the econometric formula as follows:

$$\Delta PP_t = \gamma_0 + \gamma_1 \Delta TK_t + \gamma_2 \Delta LL_t + \gamma_3 \Delta BT_t + \varepsilon_t$$

Description :

γ : Independent regression constant

Δ : Result differentiating variable

ε_t : Error Element

t   : Years

PP   : Rice production in year t (tons)

TK   : Labor (life)

BT   : Seeds (grams)

LL   : Land Area (hectare)

In this study using data from all sub-districts located in Klaten Regency based on data taken including data on rice production, land area, labor, and number of seeds with the research year for the last 20 years which was determined from 2001 - 2021. The type of data used is secondary data that uses a time series method with a time limit of the last 20 years, starting from 2001 to 2021. The data collected can be obtained from the Central Statistics Agency (BPS) which includes data on Indonesian farmers, data on agricultural land area Indonesia, and data on Indonesian food crops. In this study, essential data will be obtained, namely the size of the agricultural land, the labor of rice farmers and the number of seeds used. The data is taken from the official website of the Central Statistics Agency (BPS) and other sources are obtained from literature studies in the form of scientific journals and e-books.

Organic Rice Production is the result of the amount of effort made by organic rice farmers to obtain as much organic rice production as possible. In this study the yield of rice or rice production is denoted as PP in tons (tons). The data was obtained from the Central Statistics Agency (BPS) and the data was taken online through the bps website, namely https://www.bps.go.id/.

The workforce in this study are organic farmers who work in the fields to produce an organic rice production. In this study, the number of workers or farm laborers is denoted as TK in percentage units (%). Data is taken online through the bps website, namely https://www.bps.go.id/.

Agricultural land is land that is intended or suitable to be used as agricultural land for farmers to be able to produce food crops and livestock. Agricultural land is the main resource to be able to manage food crops or agricultural activities. In this study, the total area of land is denoted as LL in hectares (Ha). Data is taken online through the bps website, namely https://www.bps.go.id/.

IV. RESULT/FINDING

In this study, an analysis of the factors that influence corn production was carried out to find out that land area, productivity, seeds, and labor were carried out in the 2012 – 2017 research year. Based on maize production data in 2012 – 2017 with research data from 10 districts and 6 cities in province of Central Java. The estimation results from this study involve factors of seed, labor, and land area which are suspected as a tool to determine the effect of rice production. The method of processing time series data for a period of 20 years is the ECM method with the following economic model :

$$\Delta PP_t = \gamma_0 + \gamma_1 \Delta TK_t + \gamma_2 \Delta LL_t + \gamma_3 \Delta BT_t + \varepsilon_t$$

Description :

γ = Independent regression constant

Δ = Result differentiating variable

ε_t = Error Element

t   = Years

PP   = Rice production in year t (tons)

TK   = Labor (life)

BT   = Seeds (grams)

LL = Land Area (hectare)

The estimation results using the ECM regression method used the classical assumption test consisting of normality test, heteroscedasticity test, and autocorrelation test. Based on all the classical assumption tests determined by the parameters of the hypothesis. Before passing the Error Correction Model (ECM) Approach test process, all the data needed to go through the classical assumption test. The estimation results from each normality test, autocorrelation test, and heteroscedasticity test will be defined by a diagnostic test as follows :

Normality Test Hypothesis

H0 > 0.1 means that it can be continued to the autocorrelation test on each variable

HA < 0.1 means that it cannot be continued to the autocorrelation test on each variable

Table 1. Normalities Test Estimation Results

Std. Dev	3997.105	Prob.	0,64261
Skewness	0,500849	Jarquee Bera	0.88443
Kurtosis	2,662687		

Probability (0.64261) > 0.1, so that there is normality in this model. then the autocorrelation test can be continued on each variable to obtain a probability value based on the standard assumption of less than 0.1.

Autocorrelation Test Hypothesis

H0 > 0.1 means that the model does not occur autocorrelation

HA < 0.1 means that there is no autocorrelation in the model

Table 2

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.587751	Prob. F(1,12)	0.4758
Obs*R-squared	0.849452	Prob. Chi-Square(1)	0.3784

Prob. Chi-Square 0.3784 > 0.1 So that in the model there is no autocorrelation because the standard autocorrelation for each variable is not more than 0.1, it can be concluded that the data from the variables of land area, seeds, and labor do not experience autocorrelation.

Heteroscedasticity Test Hypothesis

H0 > 0.1 means that the model does not occur heteroscedasticity

HA < 0.1 means that the model has heteroscedasticity

Table 3. Heteroscedasticity Test Estimation Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.970112	Prob. F(5,13)	0.4457
Obs*R-squared	5.109921	Prob. Chi-Square(5)	0.3754

| Scaled explained SS | 2.097288 | Prob. Chi-Square(5) | 0.8906 |

Obs*R-squared (5.1099) > 0.1, so that in the model there is no heteroscedasticity. The standard for determining the existence of heteroscedasticity with a value of more than 0.1 but in the results of existing data research, the value of the R-square has exceeded 0.1, it can be said that the data of all independent variables on the dependent variable does not occur heteroscedasticity.

Table 4. Classic Assumption Test Hypothesis Results

Num	Aspect Test	Hipotesis	Probability	Description
1	Normality test	H0	0,64261	Accepted
2	Autocorrelation Test	H0	0.3784	Accepted
3	Heteroscedasticity Test	H0	5,1099	Accepted

Source: data processed by researchers

Based on the classical assumption test, it can be concluded that the data in this study can be stated to have no autocorrelation and pass the normality test. The data contained in this study can be processed using the Error Correction Model (ECM) approach.

Table 5. ECM Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LL)	4.632247	0.744573	4.186467	0.0023
D(BT)	62.23869	39.12951	1.774502	0.1277
D(TK)	0.338582	0.097571	3.965822	0.0429
ECT(-1)	-0.412758	0.495798	-1.646889	0.0457
C	362.2772	1183.232	0.312750	0.6904
R-squared	0.967562	Mean dependent var		9618.758
Adjusted R-squared	0.966295	S.D. dependent var		67366.74
S.E. of regression	4823.185	Akaike info criterion		20.10028
Sum squared resid	2.58E+09	Schwarz criterion		20.28592
Log likelihood	-178.1286	Hannan-Quinn criter.		20.00623
F-statistic	674.4252	Durbin-Watson stat		1.654880
Prob(F-statistic)	0.000000			

Source: data processed by researchers

Based on the results of data processing using the ECM approach, it produces F-statistics and produces the probabilities of all variables that have an influence on rice production in Klaten Regency. The results that have been obtained in the ECM data processing will be concluded by using the research hypotheses of the F Test and T Test.

Table 6. ECM Estimation Results

$$\Delta PP_t = 362.2772 + \gamma_1 0.338582_t + \gamma_2 4.632247_t + \gamma_3 62.23869_t + \varepsilon_t$$

$$(0.0429)(0.0023) \qquad (0.1277)$$

$$R^2 = 0.966295;\ S.E.\ Regression = 4823.185;\ F\text{-}Statistic = 674.4252;\ Prob = 0.000000$$

Note: Significant α = 0.10; Significant α = 0.10; Significant α = 0.10;. Numbers in brackets are statistical probabilities.

Based on the results of the analysis showed that the probability of ECT (-1) was obtained at 0.0457 < 0.1 so that this model provides the view that the variables that have an influential relationship are land area (LL) and labor (TK) with a probability of 0.0023 and 0.0429, while the seed variable (BT) has no significant effect with a probability of 0.1277 exceeding the probability of = 0.10. The estimation results of Error Correction Models (ECM) will be reprocessed with the F Test and T Test.

Hypothesis F Test

Testing with the F test is one of the factors. Decision making criteria is carried out by making the following hypothesis:

H0 : Stimulant significant effect

HA : No significant effect simultaneously

The f test can produce a statistical probability value < (0,1) then H0 is accepted, if the statistical probability value is > (0,1) then H0 is rejected.

Table 7. The description of Test F

Aspect	Probabillity	Description
Prob (F-statistic)	0.0000	Accepted

Source: data processed by researchers

Based on the results of the analysis of the F test, the F test has a Prob (F-statistic) value of 0.0000 < 0.1, then H0 is accepted. It can be interpreted that there is a significant effect, but only on the variable labor (TK) and the variable area of land (LL) simultaneously while the variable number of seeds (BT) has no significant effect on the variable rice production (PP).

Hypothesis T Test

Testing with the t test is one of the factors. Decision making criteria is carried out by making the following hypothesis:

H0 : Stimulant significant effect

HA : No significant effect simultaneously

The t-test can produce a statistical probability value < (0,1) then H0 is accepted, if the statistical probability value is > (0,1) then H0 is rejected.

Table 8. The description of T Test

Variable	Hypothesis	Probabillity	Description
TK related PP	H0	0.0429	Accepted
LL related PP	H0	0.0023	Accepted
BT related PP	HA	0.1277	Rejected

Source: data processed by researchers

Based on the results of the t-test analysis, it shows that the land area has a prob of 0.0023 <0.1 then H0 is accepted and the workforce has a prob of TK (0.0429) <0.1 then H0, so that between the variables of labor (TK) and area (LL) has a significant effect on rice production (PP) in the long term.

Based on the results of the analysis showed that the probability of ECT (-1) was obtained at 0.0457 < 0.1 so that this model provides the view that the variables that have an influential relationship are land area (LL) and labor (TK) with a probability of 0.0023 and 0.0429, while the seed variable (BT) has no significant effect with a probability result of 0.1277 exceeding the expected probability.

The estimation results obtained using the Error Correction Models (ECM) approach method show that the seed variable has no significant effect on rice production in Indonesia in 2001-2021. Seedlings are the forerunner to plants so that they can grow to produce and produce, but in research This seed does not have a significant relationship with rice production, but seeds should have a relationship with rice production. Seedlings can be recognized as related if rice research is not only mentioned in general terms, but must be mentioned with the acquisition of the type of seed used. This is in accordance with the results of Marlina's research (2017) "factors that affect Ciherang rice production based on the number of seeds per hole and the age of rice". In this study it was stated that the linkage of seeds to rice production would not be affected by the number of perforated seeds or the age of rice, but seeds could have an effect when the type of seed was defined in detail and a comparison was made between the quality results of the type of seed to be used in production activities.

The land area variable has a fairly close relationship with the labor variable in the rice production process in Klaten Regency in 2001 - 2021. This is in accordance with the results of Mahananto's research (2016) "Factors that affect rice production in Nogosari District, Boyolali". The influence of land area has a very real influence based on the number of hectares used by farmers in rice production activities, to obtain maximum profits and yields, it is necessary to enlarge the land for rice production. The use of land area can provide benefits and can produce more production results depending on farmers who choose the area of arable land with large or small land areas. If in the long-term estimation the yield of rice production is not in accordance with the predetermined harvest target, it is necessary to re-observe the amount of land used for rice production activities in Klaten Regency 2001-2021.

The labor variable has a significant influence on rice production in Klaten Regency 2001 - 2021. This is in accordance with the results of Elsa's research (2020) "Factors that affect rice production in Deli Serdang Regency". The workforce has a fairly important role in production activities as a direct executor of the production process in all sectors of goods and services. If in the long-term estimation the yield of rice production is not in accordance with the predetermined harvest target, it is necessary to re-observe the number of workers used in rice production activities in Klaten Regency 2001-2021.

The yield and quality of rice production will depend on the workforce who takes care of the production process if there is a decrease in quality and quality results for rice production can occur due to the lack of labor for rice production activities with land use that is not proportional to the number of workers.

V. CONCLUSIONS AND LIMITATION

A. Conclusions

Rice production in Klaten Regency every year will increase and decrease in the number of rice yields due to the influence of land area and labor on activities during rice production. This study provides views to farmers or readers in order to gain an understanding of the factors that are tied to rice production when experiencing increases and decreases in corn production. Based on the results of research on the effect of rice production in Klaten Regency in the last 20 years from 2001 to 2021, it is driven by factors of land area, and labor, while in practice rice seed production activities can be relied upon as a factor that affects rice production when considering the type and quality of rice seeds used. If you only pay attention to the number of seeds used in rice production activities, the seeds will not have a significant effect on the results obtained in the rice harvesting process.

There is a conclusion that can be used as a reference, namely the production results have a relationship with the independent variables, namely labor (TK) and land area (LL) there is a significant effect on rice production (PP) in the long term. And there are also variables that do not have a significant relationship, namely variable number of seeds (BT). In this study, it was stated that the linkage of seeds to rice production would not be affected only by the number of perforated seeds and the age of the rice, but the seeds could have an effect when the type of seed was defined in detail and a comparison was made between the quality results of the type of seed to be used in production activities. The variable that is closely related to rice production is land area. The process of rice production is influenced by land area because the main factor of production is the land used based on the amount of hectares. In obtaining maximum profits and yields, it is necessary to enlarge the arable land for rice production. The use of land area can provide benefits and can produce more production results depending on farmers who choose the area of arable land with large or small land areas. The yield and quality of rice production will depend on the workforce who takes care of the production process if there is a decrease in quality

and quality results for rice production can occur due to the lack of labor for rice production activities with land use that is not proportional to the number of workers.

B. Limitation

It is hoped that future researchers can examine other factors that intersect as other rice production factors outside of seeds, labor and land area, so that they can be more clearly ascertained about rice production factors so that they can become strong literature as material for the study of rice production for readers. It is hoped that all farmers, in the process of producing rice, need several significant factors that need to be considered in detail in the rice production process. In this study, it has been proven that with the presence of seeds in rice planting, it is not immediately certain that the number of seeds in the production process is not a major problem. However, more observations are needed regarding the factors involved in detail to provide conclusions that affect the decrease and increase of certain factors.

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The Influence Of Discount Prices And Store Attempt On Consumer Behavior In Purchase Decisions At Pt Alfaria Trijaya Tbk (Alfamart)

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Abstract

Along with the growth of the retail business in Indonesia, the competition faced by PT. Sumber Alfaria Trijaya Tbk (Alfamart). This article is researched with the aim of analyzing the effect of the discount variable, and the Store Atmosphere on the endogenous variable, namely Purchase Decision. This article examines the exogenous (exogenous) variable, namely the discount variable, and the Store Atmosphere which has an influence on the endogenous variable, namely Purchase Decision. The analysis technique in this research is multiple regression analysis. The sample in this study was 100 consumers obtained through accidental sampling technique. The results of this study indicate that price discounts, and Store Atmosphere have an effect on impulse buying. Discounts have an effect on Purchase Decisions of 2,158. The company provides discount programs and promotions that are expected to increase consumer buying interest so that consumers will continue to shop at Alfamart. Store Atmosphere has a significant effect on Purchase Decisions of 2,223. Layout, condition of the room, arrangement of goods display can be a good opportunity for Alfamart to influence consumers to decide to make a purchase at Alfamart.

Keyword— Price Discount; Store Atmosphere; Purcase Decision; Alfamart.

I. INTRODUCTION

Increasing population growth and consumption patterns that are classified as consumptive are increasingly growing the interest of providers of goods and services, especially in the modern retail business.The presence of the modern retail industry basically takes advantage of people's shopping patterns, especially the upper middle class who do not want to be jostled in traditional markets which are usually not neatly arranged and the environment or store atmosphere is not comfortable.With an increasingly advanced era and technology growing rapidly making the modern retail business grow from time to time, this is related to consumer behavior in buying an item, wanting a low price, good quality, a comfortable place and other conveniences that are widely available in Indonesia. offered by modern retail business players such as Alfamart, judging by the 2019 data on the Alfamart official website, it says there are around 14,300 outlets operating after 20 years of Alfamart spreading its wings in Indonesia, this reason makes producers and providers of goods and services increasingly competing to attract the attention of consumers. One is with innovation in technology, Alfamart is trying to provide the best service during the COVID-19 pandemic,In 2019, the launching of Alfagift was carried out by Alfamart, which is an application from Alfamart that allows users to always be up-to-date on promotions and get special offers that are only available in the application, related to regulations on mobility restrictions during the pandemic by the government in order to break the chain. the spread of the virus by limiting mobility makes Alfamart provide messaging services between purchases above Rp. 35,000 using the Alfagift application or orders via WhatsApp and telephone, of course with several other offers in the form of discounts and product bonuses, in the Alfagift application consumers can make non-cash transactions, payment can be made by transfer from a bank that has collaborated or with a digital wallet, with this it is hoped that it will make it easier for consumers to shop,so there is no need to go out of the house with a high risk during the pandemic, the strategy adopted by Alfamart is to pick up the ball, besides that the promo price is also one way to attract consumer interest.Price is only one part of the marketing mix, therefore the price needs to be conditioned and support each other with other marketing mixes, namely product, distribution, and promotion.

Discounts or price discounts have several indicators, namely price reductions, new product discounts, discounts on products that are not selling well, discounts for certain moments, price compensation and lighting quantity discounts, space layout, and product arrangement on merchandise shelves that are organized and attract consumers. Store Atmosphere Indicator includes*instore*or in-store which includes lighting, air conditioning, room layout, displays and cleaning. The outside of the shop or*outstore*includes signage, parking space, environmental design.

The store atmosphere variable has no effect on purchasing decisions at*cafe*Little Wings Bandung [1], while Zain's research (2016) concludes that the store atmosphere variable has a significant effect on purchasing decisions at KFC Taman Square Bogor.

Based on the description above, a gap appears from the results of the research, the discounted variable has no effect on purchasing decisions at Matahari*Department Store*Malang Big Market. [2] Meanwhile, Emor's research (2015) concludes that the price discount variable has a significant effect on consumer purchasing decisions at Alfamidi Tanjung Batu. [3]

PT. Sumber Alfaria Trijaya Tbk (Alfamart) is one of the businesses engaged in the retail sector in Indonesia. Alfamart sells a variety of daily necessities ranging from snacks, instant foods, beverages, instant kitchen ingredients, home and body cleaning needs and many more. This minimarket which was established in 1999 has a building area of 200 square meters with operating hours from 7 am to 10 pm from Monday to Sunday. PT. Sumber Alfaria Trijaya Tbk (Alfamart) is not the only retail minimarket business in Indonesia.

There is a reason the author chose the object of research at PT. Sumber Alfaria Trijaya Tbk (Alfamart) because PT. Sumber Alfaria Trijaya Tbk (Alfamart) is the first pioneer of modern retail stores since June 27, 1999. Based on the results of field observations, the authors found advantages that are a plus for PT. Sumber Alfaria Trijaya Tbk (Alfamart) to be the object of research compared to other minimarkets in the same city, namely promotional activities carried out by PT. Sumber Alfaria Trijaya Tbk (Alfamart) is more varied and with the distribution of brochures in every resident's house by shop assistants, the inside of the store is spacious for the size of a minimarket so as to facilitate the flow of consumer shopping

Every month Alfamart which is a subsidiary of PT. Sumber Alfaria Trijaya Tbk (Alfamart) provides three types of discounts, including (1) Monthly Discounts (2) Super-Saving Discounts (3) Exciting Price Discounts An increase in the right and comfortable atmosphere of the store can attract visitors to find out what is being traded in the store. the. The atmosphere of the store can be created starting from the aspect. This study aims to determine the effect of price discounts and store atmosphere on purchasing decisions at PT. Sumber Alfaria Trijaya Tbk (Alfamart).

II. LITERATURE REVIEW

A. Discounts Definition of Discounts

Discount promotion offers several advantages including: it can trigger consumers to buy in large quantities, anticipate competitors' promotions, and support large volumes of trade." [4]. Price discount, is the savings offered to consumers from the normal price of a product [5]. A rebate is a rebate that a seller gives to a buyer because of the price of a certain activity, and the buyer is attractive to the seller. Consumers are interested in getting a fair price [6].

B. Types of Discounts

Types of Discounts According to McCarthy and Pereault (2014) Discounts are divided into several types, namely: [7]

a. *Quantity Discount*: Price discounts offered to attract consumers to make purchases in large quantities;
b. *Seasonal Discount*: Price discounts offered to attract buyers at certain times and to keep inventory earlier than necessary at this time;
c. *Cash Discount*: Price reductions to buyers to encourage them to pay bills early;
d. *Functional Discount*: Discounts made to members of the trading channel with predefined terms and functionsn.

Discounts are price reductions given by the company within a certain period and to increase sales of a product. [8]

Indicator:

a. Price Discount;
b. Brand;
c. Customer service;
d. Buying decision.

The store atmosphere aims to provide comfort to consumers and can be the main attraction for consumers. In addition, to make consumers comfortable in choosing the type of product to be purchased. Store atmosphere is the atmosphere in the store that creates a certain feeling in the customer resulting from the use of interior design elements such as lighting, sound system, air conditioning system, and service. Besides that it's the same as the definition of a shop atmosphere[9].

Another understanding according to J.Paul Peter and Jerry C.Olson translated by Damos (2014) Store atmosphere is a very important physical characteristic for any retail business. -long time in the store and indirectly stimulate consumers to make purchases [10].

C. Store Atmosphere Elements

The four elements of store atmosphere, which are summarized:

a. Shop Design: Store Design includes: Store front, Entrance, Shop face,Layout an dAmbience
b. Store Planning, including:
c. Room layout
d. Space Allocation
e. Visual Communication
f. Setting Merchandise[11]

According to Alma (2013), Store Atmosphere is a store atmosphere that includes interior, exterior, layout, and interior appearance that can attract consumers and generate interest to buy.

Indicators:

a. Shop Front
b. Interior Display
c. Interior View
d. Store Layout [12]

D. Buying Decision

Purchasing decision is a process where consumers recognize the problem, seek information about a particular product or brand and evaluate how well each alternative can solve the problem, which then leads to a purchase decision [13]. Purchasing decisions as follows: "Purchase decisions are part of consumer behavior consumer behavior, namely the study of how individuals, groups, and organizations choose, buy, use, and how goods, services, ideas or experiences to satisfy their needs and desires" [14]

E. Purchasing Decision Making Process

A. Kotler and Keller (2016) mention five buying decision-making processes, which are essentially:

a. Recognition of Needs
b. Information Search
c. Evaluation of various alternatives
d. Buying decision
e. Post-purchase behavior [15]

Citra (2016) in his research says that the relationship between social media and the purchasing decision process is social media as a promotional tool that makes it easier for consumers to see products easily through pictures and product descriptions to find out product information, choose, and evaluate products [16]. Mowen & Minor (2010) definition of impulsiveness (impulse buying) is an act of buying that is done without choosing a previous problem or buying intention that was formed before entering the store.

Indicators:

a. Purchase Spontaneity
b. Not Considering Consequences
c. A sudden urge to buy
d. Can't Refuse [17]

III. RESEARCH METHODOLOGY

This type of research is descriptive research with a quantitative approach. The independent variables used in this study are the discounted variable (X1) and the store atmosphere variable (X2) and the dependent variable is the purchase decision (Y). The population used in this study is Alfamart consumers for a week on March 25-31 2022, totaling 100 people.

The sampling technique used is non-probability sampling with a purposive sampling approach. Purposive sampling is a sampling method that is carried out by selecting subjects based on specific criteria set by researchers, namely the consumers of Alfamart Center.

In this study the number of population is unknown. Determination of the sample using the formula Moe (Margin of error) as follows:

$$n = \frac{Z^2}{4\,(Moe)^2}$$

$$n = \frac{(1.96)^2}{4\,(10\%)^2}$$

$$n = \frac{3,8416}{(Moe)^2}\,4$$

$$n = 96.04$$

Thus, the magnitude of the calculation of the size of the number of respondents who will be sampled in this study is 96.04 or rounded up to 100 respondents. [18]

The criteria determined are:

a. Gender male or female
b. Age 15-60 years
c. Central Alfamart Consumers

The author tested the instrument before distributing the questionnaire, testing the research instrument was carried out by distributing the research instrument to 20 respondents, then testing the validity and reliability of the instrument. The instrument is declared valid or meets the requirements if the coefficient price

$r_{hitung} \; \text{?} \; r_{tabel}$, while the research instrument is declared reliable if it has a value of *Alpha Cronbach* 0.60 or 60%.

After the instrument was declared valid and reliable, data analysis was carried out using classical assumption analysis tests, multiple linear regression and hypothesis testing of research data.

IV. RESULT / FINDING

A. *Validity Test*

Table 1. X1 . Data Validity Test Results

Items	Correlation Value Product Moment (rcount)	rtable	Information
1	0.702		Valid
2	0.638		Valid
3	0.541		Valid
4	0.719	0.3	Valid
5	0.482		Valid
6	0.729		Valid
7	0.622		Valid
8	0.541		Valid

Based on the table above, it is known that the Discounted Price (X1) variable contains 8 statement items with valid overall validity test results. Furthermore, Table 2 provides the results of the questionnaire validity test for the Store Atmosphere variable (X2).

Table 2. X2 Data Validity Test Results

Items	Correlation Value Product Moment (rcount)	rtable	Information
1	0.596		Valid
2	0.693		Valid
3	0.646		Valid
4	0.542	0.3	Valid
5	0.561		Valid
6	0.379		Valid
7	0.510		Valid
8	0.320		Valid

Based on Table 2 above, it is known that the Store Atmosphere variable (X2) has 8 items with valid overall validity test results. Furthermore, Table 3 provides the results of the validity of the questionnaire for the Purchasing Decision variable (Y).

Table 3. Y . Data Validity Test Results

Items	Correlation Value Product Moment (rcount)	rtable	Information
1	0.341		Valid
2	0.363		Valid
3	0600		Valid
4	0.563	0.3	Valid
5	0.644		Valid
6	0.652		Valid
7	0.354		Valid
8	0.327		Valid

Based on Table 3 above, it is known that the Purchase Decision variable (Y) has 8 items with valid overall validity test results.

B. *Reliability Test*

Table 4. Data Reliability Test Results

Variable	Cronbach's Alpha	Number of Items	rtable
Discounted Price (X1)	75.2%	8	60%
Store Atmosphere (X2)	71.6%	8	60%

Decision Purchase (Y)	69.6%	8	60%

Based on Table 4 above, it is known that the Cronbach Alpha coefficient obtained from the test results for the Discounted Price (X1) and Store Atmosphere (X2) and Purchase Decision (Y) rtable variables, so the conclusion from the reliability test of the three variables on the instrument research is declared reliable.

V. DISCUSSION

B. Data Analysis Method

Table 5. Regression Test Results

Test Type	Test results	Conclusion
t test	The results of the partial significance test or t test, namely the discounted variable affect the purchasing decision variable with 2.158 and a significance value of 0.033 0.05, so it means that the price discount variable has an effect on purchasing decisions. The second independent variable, namely the atmosphere of the store affects the purchasing decision variable with a value of 2.223, with a significance of 0.029 0.05, it can be interpreted that the atmosphere of the store affects purchasing decisions.	Discounts affect the Decision Purchase
		Store atmosphere affects decisions Purchase
F Uji test	Simultaneous significance test or F test in this study obtained 8.174 with a significance of 0.001, so with a significance value of 0.001 less than 0.05 that the variable price discount and store atmosphere simultaneously affect the decision purchase	Discounts and store atmosphere have a simultaneous influence on purchasing decisions

Source: Data processed by the author (2022)

Based on the description of the table above, it is stated that the results of the analysis state that regardless of the classical assumptions, then continued with multiple linear regression analysis testing which aims to determine the effect of price discounts, store atmosphere on purchasing decisions (Y). Data analysis was carried out with the help of SPSS version 23 program. The presentation of multiple linear regression analysis is explained as follows:

The results of the regression analysis are known by the regression equation below:

$$Y = 17.484 + 0.205x1 + 0.221X2 + e$$

Information :
Y = Decision Purchase
X1 = Discounts
X2 = Store Atmosphere
E = Error
Based on the above equation, the following explanation can be presented:

a. The constant 17,484 marked (+) means that if the price discount and store atmosphere = 0 (no change) so that the value of the purchasing decision variable is 17,484 which if the price discount and store atmosphere does not change so that purchasing decisions at Alfamart continue to occur due to the influence of variables other than X1 and X2 such as product quality, service, store image, price and so on.
b. The X1 regression coefficient of 0.205 is (+) which means that the greater the discount given, the higher the purchasing decisions of Alfamart consumers.
c. The X2 coefficient of 0.221 is (+) which means the better the store atmosphere, the better Alfamart consumer purchasing decisions.

C. Coefficient of Determination (R2)

The results of the coefficient of determination in this study were 0.146, which means that purchasing decisions for Alfamart consumers are influenced by price discounts and store atmosphere as much as 14.6% and the remaining 85.4% is influenced by factors outside the research variables.

VI. CONCLUSION AND RECOMMENDATION

D. ACKNOWLEDGEMENT

A. *The Effect Of Price Discounts On Purchasing Decisions At Alfamart*

Based on the results of the analysis, it is known that the price discount variable partially has a positive and significant effect on the purchasing decision variable at Alfamart, thus accepting the first hypothesis. The results of this study strengthen the theory of Hermawan (2012) explaining that the existence of giving discounts to consumers as a reward often leads to large purchases. [19]

The results of this study also strengthen previous research by Rumangkang (2014) concluding that price discounts have a significant positive effect on purchasing decisions [20]. Emor and Soegoto (2015) conclude that price discounts have a significant positive effect on purchasing decisions [21]. Ndari (2015) concludes that price discounts have a significant positive effect on purchasing decisions. [22]

Based on the test results, it is known that the condition of the price discount variable is stated to be strong, which means that the results of the respondents regarding the statement of the discounted variable answer mostly agree. This means that the discount at Alfamart is declared good and in accordance with the wishes of consumers

B. *The Influence Of Store Atmosphere On Purchasing Decisions At Alfamart*

Based on the results of the analysis, it is stated that the store atmosphere variable partially has a positive and significant effect on the purchasing decision variables at Alfamart. Kotler and Keller (2015) explain that the atmosphere of the store not only affects purchasing decisions, but the atmosphere of the store will also increase consumer purchases because of the convenience they feel when shopping. This shows that the research results are mutually reinforcing with the theory. Syahputra and Supriyatin (2015) concluded that store atmosphere had a significant positive effect on purchasing decisions [23].

The condition of the store atmosphere variable based on the test results is stated to be very strong, which means that the results of the respondents regarding the store atmosphere variable statement mostly answered strongly agree. Based on this explanation, the condition of the store atmosphere variable is categorized as high, which means that the store atmosphere is stated to be good and in accordance with the wishes of the buyer.

C. *The Effect Of Price Discounts And Store Atmosphere Simultaneously On Purchasing Decisions At Alfamart*

Based on the analysis, the results of the price discount variable and store atmosphere simultaneously affect purchasing decisions. This finding explains that the variable categories of discounts and store atmosphere are related. The results show that the store atmosphere variable has a greater effect on purchasing decisions at Alfamart, this is because when consumers shop at modern retail stores, the store atmosphere becomes a consideration for consumers to feel comfortable and the discounted prices given are the main attraction for consumers in shopping at Alfamart.

The results of the research analysis also strengthen the previous research of Warahma and Mudiantono (2017) that price discounts and store atmosphere have a significant effect on purchasing decisions. So that in this study price discounts and store atmosphere have a significant simultaneous effect on purchasing decisions at Alfamart. The results of this study strengthen the theory of Dalihade (2014) explaining that when a visitor decides to buy a product, the main factor is the existence of a price discount that can attract the attention of consumers to encourage potential consumers to buy the products offered and if the store can fulfill their wishes and provide convenience for visitors, visitors will directly rate good for the shop [24].

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Performance Improvement Of Sepiring Geprek Msme Through Human Resources Management And Improvement Of B2B Promotion Media

Juniar Rijatama[1]

Abstract

Small and Medium Enterprises (MSMEs), as one of the elements of economic growth, occupy a strategic position to accelerate the economy. Sepiring Geprek is one of the MSMEs engaged in food and beverage. Similar to other MSMEs, Sepiring Geprek also expects growth accompanied by good company management. To support this, Sepiring Geprek must prepare human resources management and increase marketing activities. By doing these, it is hoped that Sepiring Geprek can continue to grow and become one of the MSMEs that dominate the crushed (geprek) chicken market. The business coaching program is expected to catalyst MSMEs to achieve predetermined targets and desires. There are two Business Coaching programs that the author will carry out in helping MSMEs; first, by increasing the HR management program. It is expected that MSMEs will have a good HR management system and management in the future. Second, maximize marketing activities by increasing brand awareness and company profile. The two programs are expected to support MSMEs in improving the quality of their business.

Keywords—Business Coaching; HR Management; Marketing; MSMEs; Crushed (Geprek) Chicken.

I. INTRODUCTION

Indonesia's current economic development is a tangible form of the development of MSMEs in Indonesia. MSMEs or Micro, Small, and Medium Enterprises are businesses run by individuals, households, or small business entities. According to BPS (Central Statistics Agency) data, in 2020, the number of registered MSMEs in Indonesia reached around 64.2 million MSMEs, this number increased by around 10 million MSMEs over the last 10 year period (BPS.co.id). MSMEs in Indonesia is one of the industries that have a large impact on Indonesia's GDP (Gross Domestic Product). Based on BPS data in 2019, the total GDP of MSMEs contributed to the national economy (GDP) of 61.1%, and the remaining 38.9% was contributed by large business actors. The results of the development of MSMEs in Indonesia have an impact on the economy as a whole, which in 2020, employment managed to absorb around 120 million Indonesian workers (kontan.c.id).

The occurrence of a prolonged pandemic has become a new challenge for MSMEs to be able to continue to compete in this fierce competition. An effective and efficient strategy is needed to support business activities that are following current consumer and market conditions, especially those activities that are closely related to the current pandemic conditions, namely food. Through the concept of HR management and also the management of the marketing system, it is hoped that it can catalyst MSMEs in facing today's competition. Good HR management, of course, will improve the company's performance which in the future will affect the increase in other factors (Dessler and Huat, 2009). On the other hand, the management of the marketing system can also effectively increase the market share and brand awareness of the product itself (Kotler, 2004), besides that MSMEs must focus on how MSMEs can provide a brand image by creating a strong brand, loyalty, and brand equity to support its business activities. (Clow and Baack, 2016)

The business coaching carried out by the author is a process of implementing things needed by MSMEs to improve their business activities. In the business coaching process this time, the author tries to improve human resources management and maximize the marketing process. The management of human resources is essential because humans are the business drivers to keep it under predetermined standards (Kianto, A., Sáenz, J., & Aramburu, N., 2017). In addition, the marketing process also has a vital role in ensuring that the sales process and relationships with consumers can run well (Woodproof, PJ, Deitz, GD Howie, KM, & Evans, RD, 2019). It is hoped that with this business coaching activity, MSMEs can improve business systems, especially those related to HR activities and marketing activities. It is also expected that MSMEs can become companies that can develop and become market leaders in their business competition.

II. LITERATURE REVIEW

A. *Micro, Small And Medium-Sized Enterprises (MSMES)*

Micro, small and medium-sized enterprises (MSMEs) are essential for local economic development, playing a central role in economic growth (Gherghina et al., 2020). MSMEs generally exhibit a flexible approach towards technical shifts, better adaptability to customer requirements, and their organisational structure allows quick decision-making (Gherghina et al., 2020).

The growing role of MSMEs is expected to be balanced with the quality of MSMEs themselves, starting from HR management, marketing management, and financial management. It is hoped that MSMEs will continue to grow and have a good impact on economic development. Moreover, competition is another crucial factor that must be considered. Therefore, this program is expected to be a good catalyst for developing MSMEs and the economy itself.

B. Human Resource

Good human resource management can be the success of an MSME, such as achieving sales targets and increasing the market share of the company's products. Internal factors are no less critical to making the MSMEs run well and achieve the MSMEs' goals. A very vital internal factor is HR (Human Resources). With good HR management, of course, the company's performance will increase, affecting other factors. Several stages must be carried out correctly so that HR in MSMEs can work optimally and productively, including carrying out employee recruitment, employee training, employee assessments, and employee compensation (Dessler and Huat, 2009)

There are five stages in employee recruitment (Dessler and Huat, 20017), including planning & forecasting, recruiting, completing application forms, selecting, and interviewing. MSMEs must first determine what position they want to fill and what kind of candidate they want to look for in the planning stage. After completing the planning stage, MSMEs must then forecast how many people they want to recruit.

The next stage is recruiting, where MSMEs start looking for the specified candidates, fill in data from the candidates, select candidates who meet predetermined criteria, and the last is to conduct interviews with well-screened candidates. After successfully recruiting, the training stage is the second thing that MSMEs must do. The training aims to prepare prospective employees before engaging directly in operating business activities (Dessler and Huat, 2009).

The next stage is training, and this stage requires employees to be ready to work and carry out business activities according to MSME standards. However, to ensure that employees carry out business operational activities and procedures following the training that has been provided, companies must carry out an assessment process for employees (Dessler and Huat, 2009). There are several stages and methods of assessment. There are three stages to conducting an evaluation: defining the job and its standards, measuring employees' performance, and finally, providing feedback to employees.

The final stage is that MSMEs can determine compensation, bonuses, and promotions for employees who have good performance and achieve the specified targets. By carrying out the stages of HR management planning correctly and adequately according to the explanation above, MSMEs will be able to maximize HR within the company so that employee performance will increase, making it easier for the company.

C. Marketing Process

Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products of value with others (Kotler, 2004). In business implementation, the marketing department is one of the departments that can determine the direction of a company, especially in carrying out promotions for maximum sales. To achieve good sales, MSMEs must apply several marketing methods, including determining STDP (Segmenting, Targeting, Differentiaton, and Positioning), Marketing Mix, and Brand Management.

The target market must of course be reviewed properly, in conducting a review of MSMEs, the STDP and VALS (Values and Lifestyles) theory will be carried out. The theory of determining the target market through the STDP theory is expected that the products offered can directly match the prospective consumers who buy them and the VALS theory is used to determine the psychographic side of the target market (Clow and Baack, 2016). Then for the Marketing Mix, it can be interpreted as an integrated and integrated marketing method used by marketers for brand awareness, increasing profits, and reaching and getting consumers. In analyzing the Marketing Mix there are several aspects, namely aspects of Place (Place), Price (Price), Promotion (Promotion), Product (Product), which is symbolized by 4P. Next is Brand Management theory, this theory requires companies to understand the overall brand image and individual brand strengths that aim to make strong connections with consumers. In this material, MSMEs must focus on how MSMEs can provide a good image by creating a strong brand, brand loyalty, and good brand equity (Clow and Baack, 2016).

D. Brand Awareness

The ultimate goal of most businesses is to increase sales and income. Ideally, you want to attract new customers to your products and encourage repeat purchases. Brand awareness refers to how aware customers and potential customers are of your business and its products. Within a week after its introduction, surveys found that more than 90% of US consumers had heard about the iPhone as a result of advertising and news reports. This is exceptionally high brand awareness. Ultimately, achieving successful brand awareness means that your brand is

well known and is easily recognizable. Brand awareness is crucial to differentiating your product from other similar products and competitors.

III. RESEARCH METHODOLOGY

Business coaching is a case study qualitative research process, to ensure that the business coaching process can be carried out properly, the authors carry out several stages, the following are the stages carried out in the business coaching process.
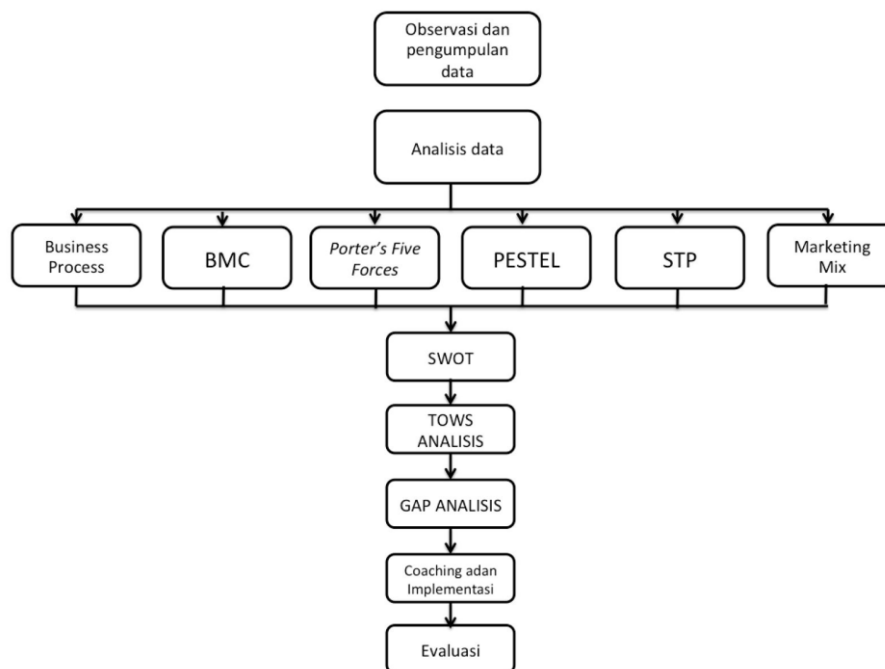
Fig 1. Business Coaching Process

Business Coaching is a series of research processes using qualitative methods. The data collection process is carried out by the author to determine the state of the business and the business environment that SMEs live, to facilitate the data collection process the author uses 2 data collection approaches, namely:

A. Primary Data

Primary data is data obtained directly by the author through interactions with owners, employees, partners, business competitors, and consumers. There are 2 methods used to obtain primary data,

b. Observation

Observation is a systematic observation and recording of the elements that appear in a symptom of the research process (Widyoko2014: 46). Observations were made by the author to find out the general description of the business activities of Sepiring Geprek SMEs. The first stage the author sees and observes how the food market in the South Tangerang area, from these results the author gets data in the form of substitute products and also how the competition in the related industry is. In the second stage, the authors observe and map out the competitors who are directly related to the MSME business process. From the observation process, the author knows how the service system is carried out by competitors, price comparisons with competitors, the food variance offered, and the length of service from each of these MSMEs.

c. Interview

According to Cooper & Schinder (2014) Open interviews are interviews where researchers can ask unstructured questions so that the object of the interview can develop answers so that information can be dug deeper in order to get quality data. The process of interviewing the author to several parties related to business processes.

1. Owner

The author's first interview with the owner, this interview is intended to find out the problems that occur from the owner's point of view, it is hoped that the results of this interview will find a major problem that is useful for the author to carry out this program. In addition, the authors hope that from this interview, they will know the expectations of this program.

2. Employees

The second interview was conducted with employees, employees are the main assets that carry out all MSME activities, therefore it is important to know the opinion from the employee's point of view. The author looks for problems from the point of view of employees who have not previously appeared, it is hoped that in the future MSMEs will know the problems they are facing and know what expectations are expected in the future from working in related MSMEs.

3. Partner

The current era encourages every company to have good relations with partners, therefore maintaining good relations with partners is one of the keys to success in managing business activities. The author conducts interviews with partners to find out the problems they face and what expectations are expected from being an MSME partner

4. Consumer

The last interview conducted is an interview with consumers, customer satisfaction is the ultimate goal of every transaction made by MSMEs. From this, the authors find out what problems consumers face, what experiences they have experienced, and what expectations are expected in the selling process of Sepiring Geprek.

The following is a summary of the respondent's profile in the interview process that has been carried out.

After anaylse the process of business, next step I analyse the target of the UMKM,

d. Segmenting

A plate of Geprek has done a mapping in segmenting. Segmenting means the company groups the types of consumers based on similar criteria. In this mapping, the writer carried out mapping to 3 parts, namely demographic, geographic, and psychographic. Sepiring Geprel segmented based on observations of the geprek chicken market, especially in the Pamulang area, South Tangerang. Based on interviews with informants, the Sepiring Geprek segmentation map can be seen in the following table:

Behaviour	Age	15-20 Tahun	20-35 Tahun	35-45 Tahun	>45 Tahun
	Gender	Laki-Laki		Perempuan	
	Occupation	Siswa	Mahasiswa	Buruh/ Karyawan	Wiraswasta
	Income	< 700.000	700.000 – 1000.000	1000.000 – 1.500.000	1.500.000 – 3.000.000
		3.000.000 – 5.000.000		5.000.000 +	
Geographic	Region	Tangerang Selatan		Kota Tangerang Selatan	
	Density	Desa	Kecamatan	Kota	
Psycho-graphic	Gaya Hidup	Urban	Semi urban	Rural	
	Aktivitas	Aktif beraktivitas		Tidak aktif beraktivitas	
	Values and Lifestyle Benefit	Strivers	Experiencer	Survivors	Thinkers
		Believers	Innovator	Makers	Achievers

Fig 2. STP

e. Target

The result of doing segmenting, companies do targeting to determine which consumers will be selected. The table above shows the target of the segmentation that has been determined. the demographic segment shows that Sepiring Geprek is targeting segments aged 20-35 years, while for gender itself the main targets of Sepiring Geprek are women and men because the majority of people who buy geprek chicken are men and women who look for food for their own needs and housewives stairs that buy food for a small family. The jobs that the company targets are women and men who act as students, housewives, employees, and entrepreneurs. The last demographic segment is income, for the income target, Sepiring Geprek selects everyone who has income.

Geographic segmentation, for its own regional distribution, Sepiring Geprek targets the South Tangerang area, especially Pamulang, the company chose this area because the owner comes from the area and has experience and knowledge of the potential in the area. In density, a plate of city geprek.

The last segmentation is psychographic where the company targets urban and semi-urban lifestyles, for the level of consumer activity the company targets all consumers who are active or not active because every time people need to eat will always be needed. The last psychographic is VALS which is used to find out the values and lifestyles as well as people's consumption. From the implication, VALS psychographics are divided into eight types, namely strivers, believers, survivors, innovators, experiencers, makers, thinkers, and achievers (Kottler and Armstrong). Makers represent consumers with low resources and motivated by self-expression. They are practical people who value independence. They focus on family, work, and physical recreation. They have little interest in the wider world. As consumers, they value practical and functional products.

f. Positioning

The last stage is positioning, Seporong Geprek determines the company's position in the geprek chicken market in the Pamulan area as follows:

a. A varied menu of Indonesian chili sauce.
b. Indonesian geprek chicken with high standards, halal, and using quality products.
c. Following and adapting to the latest trends in culinary conditions in Indonesia.
d. Economical.

Then, to anaylse the eksternal factor, porter analysis used bye the author, here the porter analysis. Based on the results of the theoretical analysis, these factors in the Geprek Sepiring Geprek Chicken Industry are summarized in the following table:

Table 1. *Five Porter' Analytics*

No.	Porter's Five Forces	Analisis
1	Competitive Rivalry	High
2	Bergaining Power of Supplier	Low
3	Bergaining Power of Buyer	Moderate to High
4	Threat of Subtitution	High
5	Threat of New Entry	High

It can be seen from the conclusion of the analysis that the geprek chicken industry in the Sepiring Geprek sales area shows stiff competition. It is proven by the number of companies entering and leaving and also high competition. Sepiring Geprek must continue to innovate and have a strategy to continue to maintain the company's existence in the market.

IV. RESULT/FINDING

This study answered the following question, How does HR management affect service delivery and how important is the company profile. Those question came from the results of discussions and observations of researchers on the business process of MSME Roti Doti. Researcher devided several category indicators from gap analysis and rank the priority things to be solve base on weights valuation that MSMEs applied .

Table 2. Pareto Analysis

No	Gap	Score	Weight	Contribution	Distribution	Accumulation
1.	SDM Management	8	10	80	36,03%	36,03%
2.	Company Profile	8	8	64	28,88%	64,91%
3.	Improvement Brand Awarness	5	8	40	18,02	82,93%
4.	Inventory Management	5	4	20	9%	91,93%
5.	Financial report	4	3	12	5%	96,93%
6.	Vision	3	2	6	2,7%	100,00%
				222	100%	

Fig 3. Pareto Analysis

V. DISCUSSION

Author analys the condition of the MSME.

Fig 4. Variance of menu

Picture 4. Price of menu

A. Product Taste and Rating

Taste is one of the most important elements in the world of food, therefore every product must be able to maintain the quality of taste in order to meet consumer satisfaction. From the results of the following observations are details of the online food rating of each product.
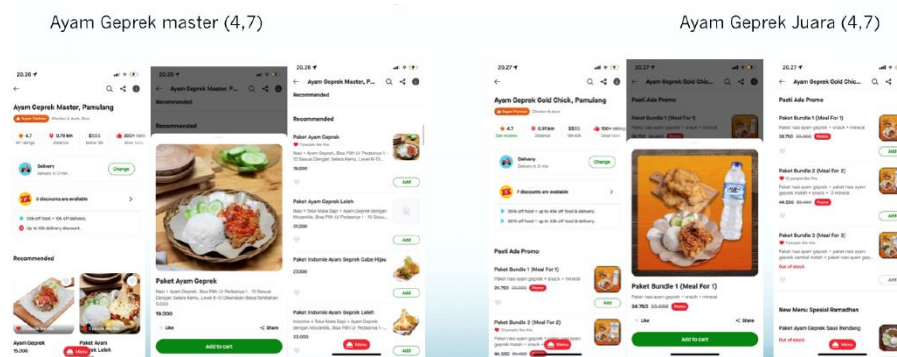
Rating observation results show that Sepiring Geprek has the highest rating compared to its competitors with a rating of 4.8. This rating shows that the quality of food provided to consumers has met the expectations of consumers. However, after further investigation, there are still consumers who feel that the product is not optimal, such as less foreign, less spicy, and too sweet. So the focus of the author and MSMEs to maintain satisfaction is

to maintain a stable taste compared to fulfilling the wishes of each consumer because the authors and MSMEs agree that taste has their own standards.

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B. Long of Service

The results of further observations that become the material for analysis and discussion of the author is the time of service. Service time is one of the important elements that the author discusses because based on observations, a plate of Geprek has a relatively longer service time compared to its competitors. The following is a breakdown of the length of service time for each product.

Nama Restoran	Sepiring geprek	Ayam Geprek Juara	Ayam Geprek Master	Ayam Geprek Gold Chick	Ayam Keprabon	Geprek Bensu	Ayam Geprek Koplo
Lama Pelayanan	21-24 menit	14 menit	13 menit	16-18 menit	11-13 menit	11-13 menit	24 menit

Based on the results of observations of long service times at MSMEs in a plate of Geprek because there are several process gaps that have not been maximized, some materials are made suddenly, and there are no SOPs and clear division of tasks. More details will be discussed in the results of the next meeting.

VI. CONCLUSION AND RECOMMENDATIONS

Along with the observation process until the completion of the improvements made, many things are still being improved so that the quality of service can improve which will have an impact on improving performance and also increasing the turnover obtained. all parties involved must be able to contribute in carrying out the planned improvements.

Overall, the author has succeeded in speeding up the service time to 17 minutes, an increase of about 25%. besides that the author has succeeded in making a company profile that has been applied. This company profile is the general information that Sepiring Geprek is trying to give to consumers. It is hoped that with a company profile, consumers who want to know further information about franchises, event orders, invitation orders, or other event orders can be fulfilled by Sepiring Geprek. The company profile also mentions additional information such as various product variations, chili variations, and MSME contacts, which are expected to provide more product information for consumers. In addition, the existence of this company profile is expected to increase brand awareness in the eyes of consumers that Sepiring Geprek is not just ordinary geprek chicken. Here are some views that are in the company profile that has been created.

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The Effect of Investment Decisions on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange

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Abstract

This study discusses the effect of investment decisions on firm value in manufacturing companies. Santoso (2018) states that investment decisions have a positive and significant effect on firm value. This contradicts the view expressed by Untu (2016) that simultaneous investment decisions have no significant effect on firm value. The population of this study are manufacturing companies in the food and beverage industry sub-sector which are listed on the Indonesia Stock Exchange with a total of 26 companies. The sampling technique used was non-probability sampling with a purposive sampling approach. The research uses quantitative methods. Data collection techniques are documentation, literature study, and internet studies. Data processing using SPSS Version 20.0 application. The results of the study reveal that investment decisions have no significant effect on firm value. This identifies that changes that occur in the ratio of investment decisions have no effect on firm value. The ineffectiveness of investment decisions is due to future uncertainty factors, in the form of changes in technology, socio-economic conditions, government policies. The results of this study are in line with the results of research conducted by Sari & Jufrizen (2019) that: "Partially prove that investment decisions have no significant effect on firm value". For investors, this is a matter of consideration and information that investing must pay attention to investment decisions and company value.

Keywords— Investment Decisions; Firm Value.

I. INTRODUCTION

In the era of industrialization, every company is required to improve its competitiveness. Santoso (2018) states that increasing competition in both the domestic and international markets requires companies to be able to maintain or gain competitive advantage by giving full attention to the company's operational and financial activities. Every establishment of a company must have a clear goal, namely short-term and long-term goals. According to Oemar (2016), the short-term goal of the company is to maximize the profit on existing resources, while the long-term goal of the company is to maximize the value of the company.

The value of the company will show the prosperity of shareholders, the high value of the company shows the prosperity of high shareholders. Company value is the success of management in managing the company. Purwitasari (2015) explains that the value of the company reflects the market response to the company. If the company maximizes its performance and has good prospects then the value of the company is good, investors will be willing to buy shares even if they pay more. The prosperity of shareholders is often seen from the high value of the company, so maximizing the prosperity of shareholders can be done by maximizing the value of the company (Saleh, 2017).

According to Purwitasari (2015) if the company is able to make the right investment decisions, the company's assets will produce optimal performance, this will give a positive signal for investors so that it will increase stock prices and increase company value. If the company is not able to display a good signal about the value of the company, the value of the company will be below its true value. Because basically every company always shows potential investors that their company is the right one to invest in (Nani Rohaeni, 2017).

Thus, with the achievement of these objectives, the company is expected to be able to manage good management to analyze financial statements. According to (Puspitaningtyas, 2015) financial statements are the most important means for investors to know the company's development periodically. Good quality financial reports can help investors to measure value and performance. Santoso (2018) states that investment decisions have a positive and significant effect on firm value. This contradicts the view expressed by Untu (2016) which states that simultaneous investment decisions have no significant effect on the value of the company. With the

inconsistency of theory and research results as well as existing phenomena, this research is intended to conduct further research on the problems above.

Based on the above background, the authors are interested in conducting a research entitled "The Effect of Investment Decisions on Firm Value in Manufacturing Companies Listed on The Indonesia Stock Exchange." This study aims to determine the effect of investment decisions on firm value in manufacturing companies listed on the Indonesia Stock Exchange.

II.   LITERATURE REVIEW

A.   Investation Decision

According to (Sudana, 2011) states that: "Investment decisions are financial decisions about assets that must be purchased by the company". Then according to (Sutrisno, 2012) "Investment decisions are a matter of how financial managers must allocate funds into forms of investment that will be able to bring profits in the future".

B.   Investation

Investment is "delaying current consumption to be used in efficient production for a certain period of time" (Jogiyanto, 2013). Meanwhile (Tandelilin, 2010) "Investment is a commitment to a number of funds or other resources carried out at this time, with the aim of obtaining a number of benefits in the future".

C.   Measuring Investment Decisions

(Sutrisno, 2012) states that: "Price earnings ratio measures how big the comparison is between the company's stock price and the profits to be obtained by shareholders". Price earnings ratio looks at the stock market price relative to earnings.

According to (Tandelilin, 2010) that the formula for calculating the Price Earnings Ratio (PER) of a stock is to divide the company's share price against earnings per share. Mathematically, the formula for calculating PER is as follows:

$$Price\ Earning\ Ratio\ (PER) = \frac{Stock\ Price}{Earnings\ per\ Share}$$

D.   The Value of the Company

According to (Harmono, 2014): "Corporate value is the company's performance which is reflected by the stock price formed by the demand and supply of the capital market which reflects the public's assessment of the company's performance".

E.   Factors Affecting Firm Value

Company valuation is influenced by several factors. The basic concept of corporate valuation used is: the value is determined in a certain period, the value must be determined at a fair price, the valuation is not influenced by certain groups. In general, many methods and techniques have been developed in company valuation, according to (Michell Suharli, 2006). among others are:

a.   Profit approach
b.   Cash flow approach, including the discounted cash flow method,
c.   Dividend approach, including dividend growth method,
d.   Asset approach, including asset valuation method,
e.   Stock price approach,
f.   Economic value added approach.

F.   Firm Value Measurement Method

(Sudana, 2011) explains that: "The Valuation Ratio is a ratio related to the performance appraisal of company shares that have been traded in the capital market (go public)". Firm value can be measured by a ratio called the valuation ratio. The valuation ratio becomes information for the public so that people are interested in buying shares at a higher price than the book value.

According to (Sudana, 2011) there is an assessment ratio as follows:

1. Price Earnings Ratio (PER)

This ratio is to measure how big the comparison between the company's stock price and the profits earned by the shareholders.

2. Tobin's Q

Tobin's Q is calculated by comparing the ratio of the market value of the company's stock to the book value of the company's equity.

3. Price to Book Value (PBV)

This ratio describes how much the market appreciates the book value of a company's shares. The higher the Price to Book Value (PBV) means the market believes in the company's prospects.

In this study, the valuation ratio used is Price to Book Value (PBV) because this ratio is widely used in investment decision making.

G. Price to Book Value (PBV)

According to (Harmono, 2014) states "A high price book value reflects a high share price compared to the book value per share. The higher the share price, the more successful the company is in creating value for shareholders. Measurement of price to book value (PBV) according to (Harmono, 2014) can be calculated as follows:

$$Price\ to\ book\ value\ (PBV) = \frac{price\ per\ share}{Stock\ Book\ Value}$$

Price book value is widely used in making investment decisions. There are several advantages of price to book value, namely it is a stable and simple measure that can be compared with market prices. The factors that influence the value of the company include investment decisions. Investment decisions in this study are proxied by Price Earnings Ratio (PER) to determine investment decisions. The reason is because the Price Earnings Ratio (PER) will make it easier and help analysts and investors in stock valuation and can help to consider which stocks can provide big profits for the investment they are going to do.

According to (Sugiyanto, 2008) that: "Price Earnings Ratio (PER) is the ratio obtained from the market price of ordinary shares divided by company profits". A high Price Earnings Ratio (PER) indicates a good company investment and good company growth prospects so that investors will be interested. High demand for shares will make investors appreciate the value of shares greater than the value recorded on the company's balance sheet, so that the value of the company is also high. Thus, investment decisions have a positive influence on firm value.

Based on the description described above, the framework of thought in this research can be described in Figure 2.1 below:
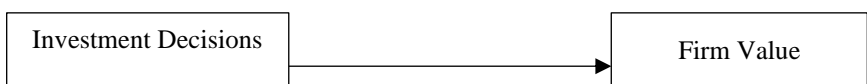
Fig 2. Research Paradigm

Based on the literature review, previous research and the framework described above, the hypotheses that can be proposed in this study are as follows:

H: Investment decisions affect the value of manufacturing companies listed on the Indonesia Stock Exchange.

III.   RESEARCH METHODOLOGY

Descriptive method is used in this study with quantitative approach analysis, namely the results of the research conducted emphasizing the analysis of numerical data (numbers), this research method will be able to determine the significant influence between the variables studied, so that it will produce clear conclusions about the object. study. The classification of research variables based on the relationship between variables as follows:

1. Independent Variable

(Sugiyono, 2015) states that: "Independent (free) variables are variables that influence or cause changes or the emergence of the dependent (bound) variable". The independent variable in this study is the investment decision (X) as measured by the Price Earnings Ratio (PER).

2. Dependent Variable

According to (Sugiyono, 2015) "The dependent variable (bound) is a variable that is influenced or that becomes a result, because of the independent variable". The dependent variable in this study is firm value (Y) as measured by Price to Book Value (PBV).

The operationalization of this research variable is contained in table 3.1 as follows:

Table 1. Variable Operations

Variable	Dimension	Indicator	Scala
Investment Decisions (X) Sutrisno (2012:14)	*Price Earning Ratio (PER)*	• Price per Share • Earnings per Share	Ratio
Firm Value (Y) Harmono (2014:114)	*Price to Book Value (PBV)*	• Price per Share • Company Book Value	Ratio

A. *Population and Sample*

The population in this study is a manufacturing company in the food and beverage industry sub-sector which is listed on the Indonesia Stock Exchange with a total of 26 companies. Because there are limitations in conducting research, a sample will be taken from the entire existing population.

Sampling technique is a sampling technique used to determine the sample to be used in research, there are various techniques for sampling that will be used (Sugiyono, 2015). In this study, the author uses a sampling technique, namely non-probability sampling with a purposive sampling approach.

The criteria to be used in this study are as follows:

Table 2. Sampling Criteria

Sampling Criteria	Total
Manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the food and beverage sub-sector during 2013 – 2020.	26
Manufacturing companies in the food and beverage sub-sector on the Indonesia Stock Exchange (IDX) that did not publish complete and consecutive annual reports during 2013 – 2020.	0
Food and beverage sub-sector manufacturing companies that did not distribute dividends during 2013-2020	(16)
Manufacturing companies in the food and beverage sub-sector on the Indonesia Stock Exchange (IDX) that do not have complete financial data to calculate the variables in the study during 2013 – 2020.	(8)
Total target population	2
Target Population sampled Total sample (2 companies x 8 years)	16

Of the 26 manufacturing companies in the food and beverage sub-sector listed on the Indonesia Stock Exchange, after purposive sampling, 2 companies that meet the criteria are as follows:

Table 3. The list of food and beverage sub-sector manufacturing companies listed on the Indonesia Stock Exchange used in this study

No.	Kode Emiten	Nama Perusahaan

1	INDF	PT. Indofood Sukses Makmur Tbk
2	MYOR	PT. Mayora Indah Tbk

B. Data Types and Sources

It was stated by (Sugiyono, 2015) that: "Quantitative data is data in the form of numbers, or quantitative data that is numbered". Quantitative data is data expressed by numbers, showing the value of the variable. In this study, the quantitative data is the result of the calculation of investment decisions, namely price earnings ratio (PER) and firm value, namely price to book value (PBV). This study uses secondary data in the form of the company's financial statements PT Indofood Sukses Makmur Tbk and PT. Mayora Indah Tbk obtained by downloading the company's financial statement data from the websites www.bursa Efekindonesia.co.id and www.idx.co.id. which is the website of the Indonesia Stock Exchange.

C. Data Collection Technique

Data collection techniques are the most strategic steps in research, because the main purpose of research is to obtain data (Sugiyono, 2015).

The data collection techniques and materials in the study were carried out by:
  a. Documentation Research
  b. Research Library
  c. Internet Research

D. Techniques of Analysis and Design of Hypothesis Testing

Data Analysis Technique
The data analysis technique used is statistical test using multiple linear regression with the help of SPSS version 22 application.

Descriptive Statistics
The descriptive statistics used include: mean, minimum, maximum, and standard deviation. The mean is the sum of the values of all data divided by the number of times, the minimum is the smallest value from a series of observations, the maximum is the largest value from a series of observations, and the standard deviation is the root of the sum of the squares of the difference between the data values and the average divided by the number of data.

Classic Assumption Test
The classical assumption test is used to see whether there are deviations in the regression model, so it is necessary to carry out an examination using the normality test, autocorrelation test, heteroscedasticity test, and multicollinearity test.

Normality Test
According to (Ghozali, 2016) the data normality test is the first step that must be done for any multivariate analysis. If there is normality, then the residuals will be normally and independently distributed. In this study, the normality test used the Kolmogorov Smirnov method. If the result of the significance number (Sig) is less than -.05 then the data is not normally distributed. In this study the technique that can be used to see the normality of the data is by looking at the Normality Probability Plot Graph and the Kolmogorov Smirnov One Sample Test.

Autocorrelation Test
The autocorrelation test aims to test whether in the linear regression model there is a correlation between the confounding error in period t and the confounding error in period t-1 (previous). If there is a correlation, it is called an autocorrelation problem. (Ghozali, 2016).

Heteroscedasticity Test
Heteroscedasticity test is to test whether in the regression model there is an inequality of variance from the residual of one observation to another observation. If the variance of the residuals from one observation to another remains, it is called homoscedasticity and if it is different it is called heteroscedasticity. A good regression model is one

with homoscedasticity or no heteroscedasticity. If the p value > 0.05 is not significant, it means that there is no heteroscedasticity, meaning that the regression model passes the heteroscedasticity test. (Ghozali, 2016).

Multicollinearity Test
Multicollinearity test aims to test whether the regression model found a correlation between the independent variables (Independent). According to (Ghozali, 2016) that: "A good regression model should not have a correlation between the independent variables".

Multiple Linear Regression Analysis
According to (Sugiyono, 2017) that: "Multiple linear regression analysis is used by researchers, if the researcher predicts how the ups and downs of the dependent variable (criteria), if two or more independent variables as predictor factors increase and decrease in value (manipulated)".

In general, the form of the regression equation obtained by using multiple linear regression analysis refers to (Sugiyono, 2016: 277) with the following formula:

$$Y = a + b_1 X_1 + b_2 X_2 + \ldots\ldots + b_n X_n$$

Information:
Y: Dependent/bound variable (Company Value)
X1: First Independent/Independent Variable (Profitability)
X2: Second Independent/Independent Variable (Investment Decision)
X3: Third Independent/Independent Variable (Dividend Policy)
 a: Constant Number (Y value if X1,X2,.....Xn = 0)
 b: Regression coefficient of independent variables (increase/decrease value)

Hypothesis test
By taking into account the characteristics of the variables to be tested in this study, the statistical test to be used is through the calculation of regression and correlation analysis to obtain conclusions. According to (Sugiyono, 2015) the hypothesis is a temporary answer to the research problem formulation, where the problem formulation is stated in the form of a question sentence. The null hypothesis (H0) is not affected and the alternative hypothesis (Ha) shows an impact between the independent variable and the dependent variable. The design of this research hypothesis testing is to test whether there is an influence between the independent variable, namely investment decisions (X) on the dependent variable, namely firm value (Y).

Partial Test (T Test)
Partial t test was used to determine the effect of each independent variable on the dependent variable. By using SPSS, the hypothesis (H1,H2) is accepted if the significant value of the t-count <0.05 and vice versa (Ghozali, 2016).

To test whether there is a relationship between the independent variables (X) having an impact on the dependent variable (Y), then the test will be carried out using the t statistical test with steps referring to (Ghozali, 2016) as follows:

Determine the partial hypothesis between Investment Decisions on Firm Value. The statistical hypotheses of this study are:

Determine the partial hypothesis between Investment Decisions on Firm Value. The statistical hypotheses of this study are:

H0 = There is no influence between Investment Decisions on Company Value
Ha # There is an influence between Investment Decisions on Company Value

Determine The Level Of Significance
Determined by 5% of the degrees of freedom (dk) = n − k − 1, to determine the t table as the boundary of the acceptance and rejection of the hypothesis. The significance level used is 0.05 or 5% because it is considered sufficient to represent the relationship between the variables studied and is a significance level commonly used in research status.Then conclusions are made regarding whether the hypothesis is accepted or not after being compared between t count and t table with the following criteria:

   a. Reject H0 if t count > t table at 5% alpha for a positive coefficient.
   b. Reject H0 if t count < t table at 5% alpha for negative coefficients.
   c. Reject H0 if the value of t – sign < S 0.05.

Coefficient of Determination (R²)
The coefficient of determination (R²) is to measure how far the model's ability to explain the variation of the dependent variable. The value of the coefficient of determination is between zero and one. (Ghozali, 2016).

Research Sites
The research location is on the IDX (Indonesian Stock Exchange) with its address at Indonesia Stock Exchange Building Tower 1 on Jalan Jendral Sudirman Kav. 52-53 Jakarta 12190 Indonesia.

IV.   RESULT/FINDING

    One of the ratios used to determine the ratio of investment decisions is the price earnings ratio (PER). By knowing the size of the Price Earnings Ratio of a company, investors can estimate the position of a stock relative to other stocks, so that the stock is worth buying or not. According to (Tandelilin, 2010), to find out the Price Earnings Ratio (PER) can be calculated using the following formula:

$$Price\ Earning\ Ratio\ (PER) = \frac{Stock\ Market\ Price}{Earnings\ per\ Share}$$

    As for knowing investment decisions measured using the Price Earnings Ratio (PER) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, it is presented in table 4.1 as follows:

Table 4. Price Earnings Ratio (PER) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020

No.	Code Company	Price Earning Ratio (PER) (X)								Average
		2013	2014	2015	2016	2017	2018	2019	2020	
1	INDF	16,9	11,5	11,6	13,3	12,5	11,1	11,6	7,1	11,95
2	MYOR	7,1	7,4	20	25	32	33	21	28	21,68
Average		12	9,45	15,8	19,15	22,25	22,05	16,3	17,55	16,82

Source: www.idx.co.id data reprocessed 2022

    For more details regarding the price earnings ratio (PER) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020 can be seen through the following chart 4.1:

Fig 4. Chart of Average Price Earnings Ratio (PER) in manufacturing companies listed on the Indonesia Stock Exchange 2013-2020

    Based on table 4.1 and figure 4.1, it can be seen that the average Price Earnings Ratio (PER) from year to year has changed, this is due to:

    In 2013 the average Price Earnings Ratio (PER) was 12 times and then decreased in 2014 to 9.45 times, this is due to a decrease in Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk has a price value per share and earnings per share actually increased so that the result of the division between price per share and earnings per share decreased, but PT. Mayora Indah Tbk experienced an increase in Price Earnings Ratio (PER) caused by the value of the price per share and earnings per share both decreased. so that the result of the percentage division between price per share and earnings per share increases.

The average Price Earnings Ratio (PER) in 2015 has increased to 15.8 times, this is due to an increase in Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk due to the decline in the price per share and earnings per share. So that the result of the percentage division between price per share and earnings per share increases. But the cause of PT. Mayora Indah Tbk experienced an increase due to the increase in the price per share.

The average Price Earnings Ratio (PER) in 2016 has increased again to 19.15 times, this is because the Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk and PT. Mayora Indah Tbk has increased. Improvement in PT. Indofood was caused by an increase in earnings per share, but at PT. Mayora's price per share decreased and earnings per share also decreased. In 2017 the average Price Earnings Ratio (PER) has increased again to 22.25 times, this is due to an increase in Price Earnings Ratio (PER) at PT. Mayora Indah Tbk caused by increased earnings per share, but PT. Indofood Sukses Makmur Tbk experienced a decline due to declining earnings per share. In 2018 the average Price Earnings Ratio (PER) decreased to 22.05 times. This is due to a decrease in Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk caused by declining earnings per share, but the Price Earnings Ratio (PER) at PT. Mayora Indah Tbk experienced an increase caused by increased earnings per share.

The average Price Earnings Ratio (PER) in 2019 has decreased again to 16.3 times. This is due to a decrease in the value of the Price Earnings Ratio (PER) at PT. Mayora Indah Tbk caused by the declining share price, but the Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk experienced an increase due to the increase in earnings per share.

In 2020 the average Price Earnings Ratio (PER) has increased to 17.55 times, this is due to an increase in Price Earnings Ratio (PER) at PT. Mayora Indah Tbk caused by the increase in earnings per share, but the Price Earnings Ratio (PER) at PT. Indofood Sukses Makmur Tbk experienced a decline due to the declining stock market price.

Based on the explanation above, it can be concluded that manufacturing companies for the last 8 years have fluctuated increases and decreases every year, where the increase in Price Earnings Ratio (PER) is due to the increase in earnings per share, so that the company is able to maximize the return on equity to generate net income, which means the company can satisfy the interests of shareholders, while the decrease in Price Earnings Ratio (PER) is due to the decrease in the level of earnings per share obtained by the company on the company's invested capital. This is in line with the opinion of Ramadhani et al., (2019) that: "If the company is able to book large profits, investors will be attracted to its shares because the projected profit for the current year is likely to rise, and vice versa".

According to (Suffah & Riduwan, 2016) states that: "The higher the stock price, the higher the value of the company". In this study, firm value was measured using Price To Book Value (PBV). The higher the Price To Book Value ratio, the more successful the company is in creating value for shareholders. To find out Price to Book Value (PBV) can be calculated using the formula according to (Harmono, 2014) as follows:

$$Price\ to\ book\ value\ (PBV) = \frac{price\ per\ share}{company\ book\ value}$$

As for knowing the value of the company measured using Price to Book Value (PBV) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, it is presented in table 4.2 as follows:

Table 5. Price to Book Value (PBV) for manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020

No	Code Company	Price to Book Value (PBV) (X)								Average
		2013	2014	2015	2016	2017	2018	2019	2020	
1	INDF	1,5	1,4	1	1,5	1,3	1,1	1,2	0,77	1,25
2	MYOR	0,20	0,21	4,8	5,7	7,1	6,8	4,4	5,3	4,51
Average		0,855	0,805	2,9	3,6	4,2	3,95	2,8	3	2.76375

Source: www.idx.co.id data reprocessed 2022

For more details regarding Price to Book Value (PBV) in manufacturing companies listed on the Indonesia Stock Exchange in 2013-2020, see the chart 4.10 below:
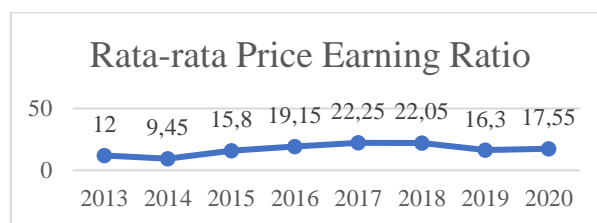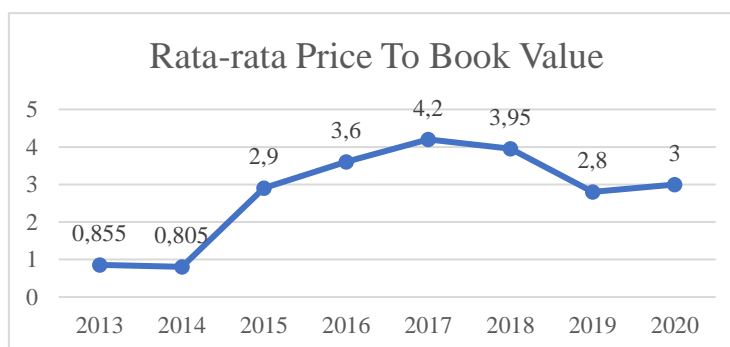

Fig 5. Chart of Average Price to Book Value (PBV) of Manufacturing Companies Listed on the Indonesia Stock Exchange 2013-2020

Based on table 4.2 and figure 4.2, it can be seen that the average Price To Book Value (PBV) has changed from year to year, this is because:

In 2013 the average Price To Book Value (PBV) was 0.85 times and then decreased in 2014 to 0.80 times. This is because the Price To Book Value (PBV) at PT Indofood Sukses Makmur Tbk has decreased but in fact the results of the share price and book value of the company both have increased so that the result of the percentage distribution between stock price and book value has decreased from the previous year and PT Mayora Indah Tbk has increased but the price per share has decreased.

The average price to book value (PBV) in 2015 increased to 2.9 times. This is because the Price To Book Value (PBV) at PT Mayora Indah Tbk has increased due to the increase in stock prices, but the Price To Book Value (PBV) at PT. Indofood Sukses Makmur Tbk experienced a decline due to the decline in stock prices.

In 2016 the average Price To Book Value (PBV) has increased again to 3.6 times, this is because the Price To Book Value (PBV) in the two companies, namely PT. Indofood Sukses Makmur Tbk has increased. Increase in PT. Indofood caused by rising stock prices. But the increase in PT. Mayora Indah Tbk's stock price and book value actually decreased.

The average Price To Book Value (PBV) in 2017 has increased again to 4.2 times, this is because Price To Book Value (PBV) at PT. Mayora Indah Tbk experienced an increase due to the increase in its share price, but Price To Book Value (PBV) at PT. Indofood Sukses Makmur Tbk experienced a decline due to the decline in stock prices.

In 2018, the average Price To Book Value (PBV) decreased to 3.95 times. This is due to a decrease in the value of Price To Book Value (PBV) at PT. Indofood Sukses Makmur Tbk caused by the decline in stock prices. But the decrease in PT. Mayora Indah Tbk actually increased the stock price and book value of the company.

In 2019, the average Price To Book Value (PBV) decreased again to 2.8 times. This is due to a decrease in the value of Price To Book Value (PBV) at PT. Mayora Indah Tbk caused by the stock price has decreased. At PT. Indofood experienced this increase due to the increase in the price per share.

The average Price To Book Value (PBV) in 2020 has increased to 3 times, this is due to an increase in Price To Book Value (PBV) at PT. Mayora Indah Tbk caused by the stock price has increased. But the Price To Book Value (PBV) of PT Indofood Sukses Makmur Tbk experienced a decline due to the declining stock price.

Based on the explanation above, it can be concluded that manufacturing companies for the last 8 years have fluctuated increases and decreases every year, where the increase in Price To Book Value (PBV) is due to the company's stock price increasing so that profits increase, so that the company is able to maximize the return on equity to generate net income, which means the company can satisfy the interests of shareholders, which means that the value of the company will increase, while the decrease in Price To Book Value (PBV) is due to a decrease in stock prices which causes the value of the company to decrease. According to (Brigham, 2018) that: "If the value of the company is higher, the greater the level of prosperity of the shareholders, so that the company is said to have achieved one of its goals, and vice versa".

V. DISCUSSION

A. Data Analysis

Descriptive statistics can be seen from the average value (mean), standard deviation, maximum value and minimum value to provide an overview of a data. The variable used in this study investment decisionsas independent variables and firm value as the dependent variable.

Table 6. Descriptive Statistical Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
PER	16	20.0	169.0	78.750	48.3246
PBV	16	1.0	77.0	33.750	25.2837
Valid N (listwise)	16				

Source: SPSS Version 20 output, processed 2022.

Based on table 4.3 above, the results of descriptive statistics on investment decision variables as independent variables as measured by Price Earnings Ratio (PER) and firm value as measured by Price To Book Value (PBV) are as follows:

1. Price Earnings Ratio (PER) shows a minimum value of 20, namely PT. Mayora Indah Tbk. The maximum value of 16.9 is PT. Indofood Sukses Makmur Tbk. It has a mean value of 78.750 and a standard deviation of 48.3246. This means that the mean is greater than the standard deviation, thus identifying a good result in generating earnings per share.

2. Price to Book Value (PBV) shows a minimum value of 1, namely PT. Indofood Sukses Makmur Tbk. The maximum value of 7.7 is PT. Mayora Indah Tbk. Has a mean value of 33.750 and a standard deviation of 25.2837. This means that the mean is greater than the standard deviation, thus identifying a good result in firm value.

Based on the results of descriptive statistics, it shows that compared to the standard deviation, all variables produce a larger average. This means that the data has a fairly good quality, because the standard deviation value is smaller than the average value which indicates that the standard error of the variable is low.

B. Classic Assumption Test

The following is a normal P-Plot image in the normality test, which can be seen in Figure 4.3 as follows:
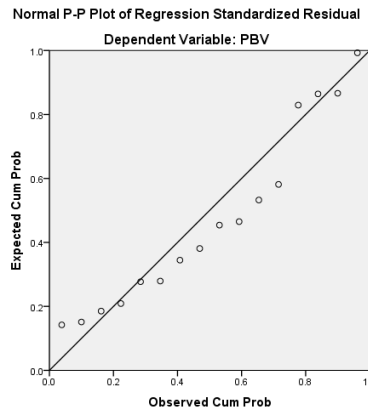
Figure 5. Normality Test of Data with Normal P-Plot *(Source: SPSS Version 20 Output Results, processed 2022)*

The Kolmogorov Smirnov (K-S) non-parametric statistical test is equipped with a statistical test which can be seen in table 4.4 as follows:

Table 7. Normality Test Results
One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			16
Normal Parameters^{a,b}		Mean	0E-7
		Std. Deviation	15.84669914

Most Extreme Differences	Absolute		.166
	Positive		.166
	Negative		-.134
Kolmogorov-Smirnov Z			.663
Asymp. Sig. (2-tailed)			.771

a. Test distribution is Normal.
b. Calculated from data.

Source: SPSS Version 20 output, processed 2022.

The results of the normality test, it can be seen from table 4.4 that the Kolmogorov-Smirnov value shows that the Price Earnings Ratio (PER) and Price to Book Value (PBV) are 0.200 where this result shows that the above results are significant, namely 0.771 > 0.05. regression meets the assumption of normality.

C. Autocorrelation Test

The results of the Run Test test analysis can be seen in table 4.5 as follows:

Table 8. Autocorrelation Test Results

Runs Test

	Unstandardized Residual
Test Value^a	-3.43276
Cases < Test Value	8
Cases >= Test Value	8
Total Cases	16
Number of Runs	9
Z	.000
Asymp. Sig. (2-tailed)	1.000

a. Median

Source: SPSS Version 20 output, processed 2022

Based on table 4.5 above, the Asymp value is obtained. Sig. (2-tailed) of 1,000 or 10% greater than the specified significance value of 0.05. So it can be concluded that there is no autocorrelation so that it meets a good regression model.

D. Heteroscedasticity Test

For the heteroscedasticity test with a scatterplot graph which can be seen in Figure 4.5 as follows:
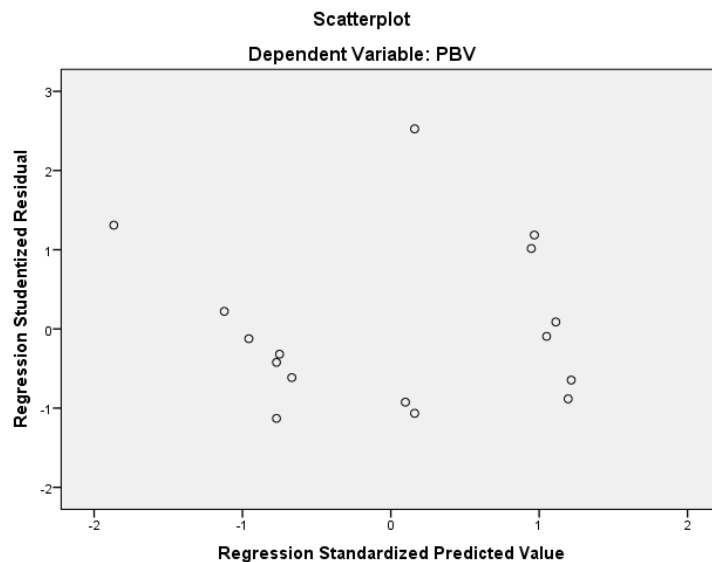
Fig 6. Scatterplot Graph (*Source: SPSS Version 20 output, processed 2022*)

Based on Figure 4.5, it can be seen that there is no clear pattern, with the points spreading above and below the number 0 on the Y axis. It can be concluded from the scatterplot graph that there is no heteroscedasticity in this research model.

E. *Multicollinearity Test*

The criteria for the value of Tolerance and the amount of Variance Inflation Factor (VIF), are (Ghozali, 2016):

1. If the Tolerance value > 0.10 or VIF value < 10, then the level of collinearity can be tolerated or there are no symptoms of multicollinearity.

2. If the Tolerance value is < 0.10 or the VIF value is > 10, then the level of collinearity cannot be tolerated and multicollinearity symptoms occur.

Based on the results of data processing with the help of SPSS statistical software version 23, the following results were obtained:

Table 9. Multicollinearity Test Results

Coefficients^{a}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	65.856	8.028		8.203	.000		
	PER	-.408	.088	-.779	-4.652	.000	1.000	1.000

a. Dependent Variable: PBV
Source: SPSS Version 20 output, processed 2022

Based on table 4.6 above, it can be seen that the tolerance value of the three variables is investment decision (PER) X 1,000. So it can be seen that the tolerance value of all the independent variables above has a variable value of > 0.10. Furthermore, the value of the VIF above to meet the requirements is less than 10. In the investment decision (PER) X has a yield of 1,000 < 10. So the VIF results for the independent variables have results less than 10. Based on the results of the multicollinearity test above, it can be concluded that this study does not occur multicollinearity.

F. *Multiple Linear Regression Analysis*

Technique of multiple linear regression analysis was chosen to be used because the multiple regression technique can conclude directly about the effect of each independent variable which is used partially and simultaneously.

Table 10. Multiple Linear Regression Analysis

Coefficients^{a}

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	65.856	8.028		8.203	.000
	PER	-.408	.088	-.779	-4.652	.000

a. Dependent Variable: PBV
Source: SPSS Version 20 output, processed 2022

Based on table 4.7 multiple linear regression equation, what is read is the value in column B, the first row shows the constant (α) and the next row shows the coefficient of the independent variable.

Based on table 4.7 the regression model used is as follows:

$$Y = a + b_1 X_1 + b_2 X_2$$
$$Y = 65{,}856 + (-0{,}408X \ )$$

The constant value with the regression coefficient in table 4.7 can be explained as follows:

a. The constant value is 65.856. This means that if the investment decision (PER) as X is 0, then the firm value (PBV) as Y is 65.856.
b. The variable coefficient (X) of investment decisions (PER) is negative, which is -0.408. This means that investment decisions (PER) have a negative effect on firm value (PBV), if there is an increase in

investment decisions (PER) by 1 unit, it will be accompanied by a decrease in firm value (PBV) of -0.408.

G. Hypothesis Test

Partial Test (t Test)

Partial testing aims to determine the magnitude of the influence of each independent variable individually (partial) on the dependent variable. Partial testing is done by looking for tcount and comparing with t-table with a significant level of = 0.05. The hypothesis in this partial test is that if tcount < ttable then H0 is accepted and Ha is rejected, which means that individually (partial) each independent variable does not affect firm value. And, if tcount > ttable then H0 is rejected and Ha is accepted, which means that each independent variable affects firm value (Ghozali, 2016:97). T-table is calculated by: t (n-k) then t-table = t (0.05 ; 14) = 2.145. Where n is the number of data and k the number of independent variables. The value of the t-count results can be found using the statistical software SPSS version 20 which is presented in table 4.8 as follows:

Table 11. Partial Test Results (t Test)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	65.856	8.028		8.203	.000
	PER	-.408	.088	-.779	-4.652	.000

a. Dependent Variable: PBV

Source: SPSS Version 20 output, processed 2022

Based on the partial test results (t-test) in table 4.8 above, the t-value for each independent variable is obtained. So as to produce the following hypothesis:

From the results of the calculation of investment decisions proxied by the Price Earnings Ratio (PER) with a partial test, it is obtained that tcount is -4.652 and ttable is 2.145 with a significance of 0.000. Because tcount is smaller than ttable, namely (-4.652 < 2.145) where the significance value is 0.000 > 0.05. So it can be concluded that the investment decision variable partially has no significant effect on firm value.

Coefficient of Determination Testing (R2)

The results of the determination coefficient test can be seen from the Adjusted R Square value which is presented in table 4.9 as follows:

Table 12. Coefficient of Determination Test Results (R2)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.779[a]	.607	.579	16.4029

a. Predictors: (Constant), PER

b. Dependent Variable: PBV

Source: SPSS Version 20 output, processed 2022

Based on table 4.9, it is known that the amount of Adjusted R Square is 0.579 or 57.9%. This shows that the percentage contribution of the influence of all independent variables (Investment Decisions) to the dependent variable (Company Value) is 57.9% while the remaining 42.1% (100% - 57.9% = 42.1%) is influenced or explained by other variables not included in this study such as funding decisions, company external factors such as: inflation rates, currency exchange rates, economic growth, politics and market psychology.

The Effect of Investment Decisions on Firm Value in manufacturing companies listed on the Indonesia Stock Exchange

Based on table 4.8 partially obtained t value of -4.652 with a significance of 0.000. Investment decisions have no partial effect on firm value, because tcount -4.652 < ttable 2.145 and significant at 0.000 <0.05.

This identifies that changes that occur in the ratio of investment decisions have no effect on firm value. The ineffectiveness of investment decisions is due to the uncertainty factor in the future, the uncertainty is in the form of changes in technology, socio-economic conditions and government policies. This is also because investment decisions are more related to factors other than company value, such as profit-taking by investors when stock prices increase or decrease, due to uncertainty in economic and political conditions, as well as sentiment from the stock market itself. Because investment decisions are the expectations or expectations of investors on the performance of a company expressed in ratios. The results of this study are in line with the results of research conducted by Sari & Jufrizen (2019) that: "Partially proves that investment decisions have no significant effect on firm value".

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the study, the conclusion that can be drawn is that investment decisions have no partial effect on firm value in manufacturing companies listed on the Indonesia Stock Exchange. In addition, the author will provide some suggestions as follows:

a. For further researchers, this research is only limited to the level of profit by using investment decision indicators as factors that affect firm value. There are still many factors that have not been discussed in this study.
b. For investors, it is hoped that it will be useful as material for consideration and provide information that in investing, they must pay attention to investment decisions and company value and pay attention to other indicators as considerations in making investments such as liquidity level, company size, and ratios related to investment. .
c. For the company, it is expected to provide a broad perspective so that the company's value can be optimal. Then the company to maintain investment decisions and company value in the company. In addition, companies can increase sales and invest in profitable projects that are expected to gain the trust of internal and external parties.

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Analysis of the Economic Potential of the Base Sector Using the Location Quotient to Improve Industrial Competitiveness in Ciamis Regency

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Abstract

The Location Quotient (LQ) method is used in the primary economic model as a first step to understanding the sector of activity that triggers regional economic growth. This research is based on the problem of income inequality caused by differences in the potential of human resources, infrastructure, and the possibility of natural resources, which hurt economic stability. This study differs from previous research, which attempts to provide a conclusion from the sectors identified as strategic sectors and industrial competitiveness by taking into account the availability of raw materials both in terms of land and productivity, as well as the condition of the existing industry which is made from strategic sector commodities that previously had not been developed. Carried out by other studies. The research method used is a descriptive analysis that seeks to answer problems by collecting, classifying, and analyzing data that aims to create an objective picture of a situation by identifying only commodities based on business fields taken from Gross Regional Domestic Product (GRDP) according to Constant Prices. The results showed that Ciamis Regency has a base sector that was selected based on the results of Location Quotient with the calculation results obtained that the LQ value > 1. Based on the results of the study, it can be concluded that the selected business field as the base sector has met local needs so that it can be developed into a business field and superior products that have a high selling value, and the primary sector business fields will provide added value to increase the competitiveness of the industry.

Keywords— Economic Base Sector; Location Quotient; GRDP; Industrial Competitiveness

I. INTRODUCTION

Economic growth is one of the critical indicators in analyzing economic development in a country or region. Increased economic growth and equitable income distribution are needed to improve people's welfare. However, rapid economic growth will lead to inequality in income distribution because there is a difference in income between people or areas that are developed and places that are lagging. The more significant the income gap, the greater the variation in income distribution that causes income disparities. (Indrawati, 2021). The natural fluctuations in the economic growth of a region from year to year will be seen in the Gross Regional Domestic Product (GRDP), i.e., positive growth will indicate an increase in the economy; on the contrary, if it is negative, it will show a decline in the economy. Gross Regional Domestic Product (GRDP) is a macroeconomic indicator that can be used to see the level of success of a region's economic development. For this reason, economic development planning should emphasize development policies based on regional peculiarities and optimize the potential of human resources, institutions, and local/regional natural resources, as well as the development of industrial growth centers that will be the prime movers. mover) that will bring progress or improvement to the surrounding area. (Nugraheny, 2016)

Based on data from the Central Statistics Agency for Ciamis Regency, GRDP based on constant 2010 prices, the value of GRDP in Ciamis 2021 has increased, from 21.97 trillion rupiahs in 2020 to 22.77 trillion rupiahs in 2021. The GDP growth rate is based on constant price in 2020, which is -0.14 percent, with the highest contribution from the information and communication sector at 32.81 percent. Realizing the economic growth rate in 2021, Ciamis Regency recorded a realization of 3.66% (YoY), occupying the 2nd (two) highest position among cities/regencies in East Priangan, with a 1.50% share of West Java's economic growth. As a result, West Java's economic growth in 2021 was recorded at 3.74% (YoY), higher than 2020, which experienced a contraction of -2.56% (YoY). Meanwhile, Gross Regional Domestic Product (GDP) based on current prices in the third quarter of 2021 reached Rp. 555.06 trillion, and based on constant prices in 2010, it reached Rp. 377.54 trillion.

Below is the Gross Regional Domestic Product Growth Rate of Ciamis Regency based on Constant Prices by Business Field, as follows:

Table 1. Growth Rate of Ciamis Regency's Gross Regional Domestic Product based on Constant Prices by Business Field in 2017-2021

	Business Fields	2017	2018	2019	2020	2021
1.	A. Agriculture, Forestry, and Fisheries	2.21	1.67	2.87	1.47	3.82
2.	B. Mining and Quarrying	0.13	2.99	-2.55	0.57	8.44
3.	C. Processing Industry	5.18	7.14	5.06	-1.63	4.35
4.	D. Electricity and Gas Procurement	2.07	8.77	4.64	2.51	11.19
5.	E. Water Supply, Waste Treatment, Waste and Recycling	7.12	9.90	9.47	9.72	9.79
6.	F. Construction	7.23	9.25	6.24	-7.41	6.45
7.	G. Wholesale and Retail, Car and Motorcycle Repair	4.98	4.99	5.84	-5.42	3.06
8.	H. Transportation and Warehousing	5.24	5.72	6.53	-0.41	0.43
9.	I. Provision of Accommodation and Food and Drink	6.92	6.90	8.22	-7.87	-1.56
10.	J. Information and Communication	11.81	9.13	9.22	32.81	7.27
11.	K. Financial Services and Asuransi	2.89	4.05	0.74	5.42	6.49
12.	L. Real Estate	9.26	9.62	9.55	8.24	9.94
13.	M, N. Corporate Services	8.36	8.99	9.11	-13.11	8.53
14.	O. Government Administration, Defense, and Social Security	0.94	0.10	1.18	-1.03	-1.51
15.	P. Education Services	8.57	5.99	5.17	5.13	2.40
16.	Q. Health Services and Social Activities	8.35	8.09	8.19	-5.36	7.47
17.	R, S, T, U. Other services	9.63	6.71	7.15	-2.24	0.80
	Gross Regional Domestic Product	5.21	5.31	5.38	-0.14	3.66

Source: Central Bureau of Statistics Ciamis Regency, 2022

Acceleration of economic growth in the Ciamis Regency, there are fifteen business fields except for two categories of business fields, namely Provision of Accommodation and Food and Drink as well as Government Administration, Defense, and Mandatory Social Security which experienced a decline in production. The highest economic growth in 2021 was achieved by the Electricity and Gas Procurement business category, which was 11.19 percent, and only one of these categories grew above ten percent. Furthermore, there are eight categories of business fields whose growth is between five and ten percent, namely the Real Estate business category of 9.94 percent, the sort of Water Supply, Waste Management, Waste and Recycling of 9.79 percent, the Corporate Services category of 8.53 percent, the Mining and Quarrying category at 8.44 percent, the Health Services and Social activities class at 7.47 percent, the Information and Communications category at 7.27 percent, the Financial and Insurance Services category at 6.49 percent, and the construction category at 6 .45 percent. Based on these data, it has not been seen that the base/leading sector has the potential and high added value for economic growth in Ciamis Regency.

Efforts to encourage economic growth through economic transformation carried out by the Ciamis Regency Government continue to be pursued by encouraging domestic industries to increase industrial value added downstream of natural resource products. Downstream efforts not only support the strengthening of the economic structure but also support inter-sectoral and inter-regional integration and realize the development of an independent, sovereign, advanced, just, and inclusive industrial sector. This is by the Ciamis Regency Long-Term Regional Development Plan (RPJMD) for the 2019-2025 strategy is directed at achieving prosperity through the creation of a solid social and economic structure of society based on independence and competitive advantage supported by competitive human resources, infrastructure. Good governance and efficient and effective governance.

This research is directed to look at various potential natural resources and other potentials that exist in Ciamis Regency that can be developed and have high added value by determining the primary economic sector and leading sector through the Location Quotient Method to increase regional competitiveness to achieve economic growth and level of economic growth. High and sustainable welfare. The Location Quotient method is an analytical tool that can be used easily, quickly, and precisely to determine the base (leading) economic sector with high competitiveness. The research questions posed are:

1. What are the economic potentials that include leading sectors and sub-sectors in Ciamis Regency,
2. To what extent are the leading sectors able to increase industrial competitiveness in Ciamis Regency.

II. Literature Review

A. *The Economic Base Sector*

The theory of Regional Economic Development, known as Economic Base Theory, is based on the view that a region's economic growth rate is determined by the magnitude of the increase in exports from that region. In regional economic theory, economic activities are grouped into primary and non-basic activities. Basic activities export goods and services outside the economic boundaries of the community concerned. Meanwhile, non-basic activities are activities that only provide goods and services needed by people who live within the edges of the community's economy. These activities do not export, so they have a broad product scope, and the market area is only local. The weakness of this theory is that the economy is based on external demand, which can lead to a very high dependence on market forces nationally and globally (Ananda, 2018).

The basic premise of the economic base theory is that the primary sector produces goods and services for regional markets. Outside the region concerned, sales outside the area will generate income for the part, increasing demand for goods and services in it, and increase the demand for goods and services. The volume of non-basic activities. The flow of income from outside the region causes an increase in consumption and investment, which will increase revenue and create new job opportunities. (Ridwan, 2016)

The basic (leading) sector is an economic activity that serves the domestic market and markets outside the region. The primary sector can produce products and services that will later bring profits. This means that the area can export goods and services produced by the sector to other regions. (Posner, 2020).

The primary sector is a sector that has great potential in determining the overall development in the region, while the non-base industry supports the overall result. Finally, the primary sector is a sector or economic activity that serves both the market in the area and outside the region. Indirectly, the region can export goods and services produced by the industry to other places. (Shmygol et al., 2020).

The method used to determine the basis and non-base sectors is the location quotient (LQ) method. Meanwhile, shift-share analysis is used to determine the forward or backward industry. The sectors analyzed in the base sector, and the non-base sector is commodities. Commodities in each region have differences that can later become the region's characteristics. (Prats, 2018).

B. *Location Quotient*

Location Quotient (LQ) is an indirect method of the basic economy that compares the share of employment or added value of specific sectors in the desired area with the percentage of jobs or added value of the same industry nationally. (Wati et al., 2019). The Location Quotient technique is widely used to analyze economic conditions by identifying the specialization of economic activity and measuring the relative concentration of economic activity to get an overview of the determination of the leading sector as the top sector in economic activity. The LQ technique is one of the approaches commonly used in the primary economic model as a first step to understanding the industry of action that triggers growth. (Jumiyanti, 2018). This technique has advantages and limitations in its use. The LQ technique is relatively straightforward to use. However, the burden of this technique is that it requires high data accuracy because good data collection is complicated to do in the field, making it challenging to collect data. In addition, the LQ technique has not been able to provide conclusions from the sectors identified as strategic sectors. However, for the first stage, it is sufficient to give an overview of the capabilities of a region in the specified industry. (Mo, et.al, 2020; Hidayah & Tallo, 2020).

LQ analysis provides a relative comparison between sectors through a specific area with the comparison area. By comparing closely, a reliable base sector will be found in economic growth and optimizing the economic development of a region. ((Fracasso et al., 2018; Firmansyah, 2021) The formula used to determine the value of LQ by using the Value Added/Income Approach (GDP) is as follows: Haryanto, 2021)

$$LQ = \left[\frac{X_{ir}/X_r}{X_{in}/X_n} \right]$$

Where: *Xir* = sector *I* in area

Xr = number of all sectors in the area

Xin = industry *I* on the broader area

Xn = the number of all sectors in the wider area

One aspect of LQ analysis is as an indicator for determining the leading sector, where the LQ coefficient value > one means that the sub-sector is leading and very prospective if developed to improve the regional economy. LQ = 1. The commodity is classified as non-basic and does not have a comparative advantage. Its production is only sufficient to meet the region's needs and cannot be exported. LQ < 1 this commodity is also classified as non-basic, meaning that the production of commodities in a region cannot meet their own needs, so they need to be supplied or imported from abroad r (Basuki & Muji Raharjo, 2017).

C. *Gross Regional Domestic Product (GRDP)*

GRDP, or in other terms *Gross Regional Domestic Product,* is the amount of added value for goods and services produced by various production units in the territory of a country within a certain period (usually one year). (Karim et al., 2017). Gross Regional Domestic Product is the amount of gross added value arising from all economic sectors in the area. In other words, GRDP is the total value of final goods and services produced by all production units within a region or region in a certain period without taking into account ownership. (Son et al., 2018). Gross Regional Domestic Product (GRDP) at the regional (district) level describes the ability of a region to create an output (added value) at a particular time. (Jaya & Kholilah, 2020).

One of the benefits of GRDP is to determine the level of net product or added value generated by all industrial factors, the rate of economic growth, and the pattern of economic structure in a certain period in a country which is usually one year. Calculating GRDP is to help make regional policies or plans, evaluate development results and provide information describing regional economic performance. (Karim, 2017).

To formulate GRDP, two approaches are used, namely production and use. Both of them present the composition of value-added data broken down according to the source of economic activity (business field) and the components of its use. Gross Regional Domestic Product and its derivative aggregates are presented in 2 (two) valuation versions, namely based on "current prices" and based on "constant prices." Referred to as current prices because all aggregates are valued using prices in the current year, while constant prices are based on costs for a specific base year. (Septiana & Thai, 2021). The function of GRDP according to current prices is used to determine the ability of economic resources, shifts, and the economic structure of a region. Meanwhile, constant GRDP is used to determine real economic growth from year to year or economic growth that is not influenced by price factors. (Susanto & Zairin, 2020)

In general, the approaches used for calculating GRDP are the production approach, income approach, and expenditure approach, with the formula for each system as follows: (Ektiarnanti & Fauziah, 2021).

a. The production approach is a calculation method that takes into account the amount of production from various sectors, with the following formula:
$$Y = NTB1 + NTB2 +..........etc$$
Where: Y: Income
NTB: Value added from each economic sector

b. Approach income is a method for calculating GRDP by adding up all factors of production receipts in the form of rent, wages, investment, and profit. The formula for calculating GRDP is:
$$Y = r + w + i + p$$
Where: r : Rent   i : Investment
p: Profit   w: Wages

c. An expenditure approach is an approach to calculating GRDP by loading various kinds of expenditures made by economic actors, with the formula as follows:
$$Y = C + G + I (XM)$$
Where : Y: National income   G = Government expenditure
C: Household consumption   X = Exports
I: Investment   M = Imports

D. *Industrial Competitiveness*

Industrial competitiveness is defined as the ability of an industry to show excellence in certain respects by offering the most favorable situations and conditions and better work results compared to other sectors. In other words, industrial competitiveness is the ability of a company or industry to face the challenges of

competition from its foreign competitors. (Hendrawan, A. 2020). In addition, to the Center for Urban and Regional Studies (CURDS), regional competitiveness is defined as the ability of the company sector in an area to generate income more evenly for the community. The dimensions of a company's competitiveness consist of cost, quality, delivery time, and flexibility (Almira, 2020).

As Michael Porter proposed, Industry Competitiveness Analysis explains that measuring an industry's productivity competitiveness becomes essential in producing goods and services. Productivity can increase per capita income, followed by the economic growth of a country. According to Porter, competitiveness for an industry can increase financial capacity that can boost economic growth in the long term, which can be used as a stimulator to increase productivity and the ability of independent businesses. There is a belief that market mechanisms can lead to efficiency. (Arifin, 2021)

The Competitiveness Diamond model proposed by Porter says that the industry in a region excels not from its suitability but the group's success with the linkages between companies and supporting institutions. In the industrial cluster, the companies involved are not only large and medium-sized but also small. (Tirtayasa, (2021). There are four critical elements in Porter Diamond's concept of competitiveness. These elements include factor conditions, demand conditions, related supporting industries, strategy, structure, and competition. In addition, the idea of competitiveness is indirectly influenced by the role of the government and the opportunities. (Marwa & Yulianita, 2021).

Porter introduced the theory of a country's competitive ability, which is depicted in the diamond model as shown in the following figure:
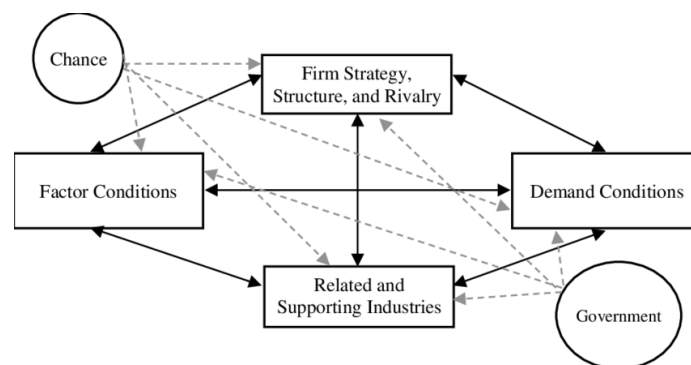
Fig 1. Porter's Diamond Competitive Advantage Model

According to Porter, the importance of competitiveness for three things, namely increasing productivity and self-reliance, can increase economic capacity, both in terms of regional economic conditions and economic actor entities, so that economic growth increases; the last is the belief that market mechanisms create more efficiency. (Princess, 2022). In the theory of competitiveness, the theory of comparative advantage and competitive advantage is known, which is used to measure the level of competitiveness. Four factors determine competitiveness in competitive advantage: factor conditions, demand conditions, supporting and related industries, strategic conditions, company structure, and competition. In these four factors, two factors influence the interaction: the role of government and the role of opportunity. (Kharub & Sharma, 2017).

III. RESEARCH METHODOLOGY

This study uses a descriptive analysis method with a qualitative approach, namely how to solve problems or answer problems that are being faced by collecting, classifying, and analyzing data to make an objective picture of a situation. (Winarno Surakhmad in Herdayati, & Syahrial, 2019). Data collection was carried out using a survey based on secondary data. Secondary data collection is sourced from documents owned by the Central Bureau of Statistics of Ciamis Regency and BPS of West Java Province related to GRDP (Gross Regional Domestic Product) data based on Constant Prices based on Business Fields in 2017 - 2021. In this study, the primary research variable is the Potential Base sector economy and increasing industrial competitiveness with an intermediate variable, namely the Location Quotient Method. The analytical technique used to identify the economic potential of the leading sector and sub-sector is by using the Location Quotient Method with the help of Data processing conducted within a spreadsheet from Excel.

IV. RESULT / FINDING

In this section, the research results on Location Quotient are explained to determine the essential (leading) and non-basic economic sectors in Ciamis Regency based on GRDP data based on constant prices according to business fields in Ciamis Regency and West Java Province in 2017-2021. First Phase What is done is to compare the GRDP of Ciamis Regency (as presented in table 1) and the GRDP of West Java Province as follows:

Table 2. West Java Province Gross Regional Domestic Product Growth Rate   Based on Constant Prices by Business

	Fields 2017-2021 Business Fields	2017	2018	2019	2020	2021
1.	A. Agriculture, Forestry, and Fisheries	1.60	2.09	2.80	2.30	1,31
2.	B. Mining and Quarrying	-2.02	-4.13	-2.75	-4.11	0.82
3.	C. Processing Industry	5.32	6.52	3.95	-4.36	4.22
4.	D. Electricity and Gas Procurement	-11.42	0.02	-1.20	-7.62	11.66
5.	E. Water Supply, Waste Treatment, Waste and Recycling	7.13	4.96	3.03	10,80	9.63
6.	F. Construction	7.24	7.48	6.12	-5.96	6.47
7.	G. Wholesale and Retail Trade, Repair of Cars and Motorcycles	4.52	4.21	7.51	- 7.95	3.19
8.	H. Transportation and Warehousing	4.83	5.36	4.97	-4.18	-0.17
9.	I. Provision of Accommodation and Food and Drink	8.37	8.15	7.25	-5,60	-0.04
10.	J. Information and Communication	11.85	9.14	9.31	34.09	7.30
11.	K. Financial Services and Insurance	3.48	4.53	2.16	1.14	5, 69
12.	L. Real Estate	9.31	9.61	9.55	1.92	11.75
13.	M, N. Corporate Services	8.42	8.64	9.16	-18.38	8.54
14.	O. Government Administration, Defense, and Social Security	4.64	1.59	4.91	-6.92	-2.02
15.	P. Education Services	8.67	5.69	5.22	6.69	0.02
16.	Q. Health Services and Social Activities	8.38	7.90	9.48	-5.39	7.55
17.	R, S, T, U. Other services	9.78	6.68	7.15	-2.63	0.81
	Gross Regional Domestic Product	5.33	5.65	5.02	-2.53	3.74

Source: Central Bureau of Statistics of West Java Province, 2022

In stages Next, based on the data of Gross Regional Domestic Product in Ciamis Regency and West Java Province in 2017-2021, data processing is carried out with the help of Microsoft Excel to determine the Location Quotient Value with the following results:

Table 3. Location Quotient Analysis of Economic Sector

	Business Field	Location Quotient						Ket.
		2017	2018	2019	2020	2021	Average	
1.	Agriculture, Forestry, and Fisheries	1.41	0.82	1.05	0.65	2.98	1.38	Base Sector
2.	Mining and Quarrying	-0.07	-0.74	0,87	-0.14	10.53	2.09	Base Sector
3.	Manufacturing Industry	1.00	1.12	1.20	0.38	1.05	0.95	Non-Basic Sector
4.	Electricity and Gas Procurement	-0.19	448,60	-3.61	-0.34	0.98	89.09	Base Sector
5.	Water Supply, Waste Treatment, Waste and Recycling	1.02	2.04	2.92	0.92	1.04	1.59	Base Sector
6.	Construction	1.02	1.27	0.95	1.27	1.02	1.11	Base Sector
7.	Wholesale and Retail Trade, Car and Motorcycle Repair	1.13	1.26	0.73	0.70	0.98	0.96	Non-Basic Sector
8.	Transportation and Warehousing	1.11	1.14	1.23	0.10	-2.59	0.20	Non-Basic Sector
9.	Provision of Accommodation and Food and Drink	0.85	0.87	1.16	1,44	2.85	1.43	Base
10	Information and Communication	1.02	1.06	0.92	0.98	1.02	1.00	Non-Base Sector
11.	Financial Services and Insurance	0.85	0.95	0, 32	4.86	1.17	1.63	Base Sector
12.	Real Estate	1.02	1.07	0.93	4.39	0.87	1.65	Base Sector
13.	Plus Services Performance	1.02	1.11	0.93	0.73	1.02	0.96	Non-Base Sectors
14.	Government Administration, Defense, and Social Security	0.21	0.07	0.22	0.15	0.76	0.28	Non-Base Sector
15.	Education Services	1.01	1.12	0.92	0.78	122.62	25.29	Base Sector
16.	Health Services and Social Activities	1.02	1.09	0.81	1.02	1.01	0, 99	Non-Based Sector
17.	Other Services	1.01	1.07	0.93	0.87	1.01	0.98	Non-Based Sector

From the results of the analysis of the economic sector potential of GRDP based on constant prices on a field basis Business In 2017-2021, it can be seen that business or industrial fields that have contributed to the regional economy in Ciamis Regency based on the Location Quotient Method Analysis are:

a. There are 9 (nine) sectors with an LQ value > 1, so the financial industry is included in the Base Sector category. Or superior, namely the agriculture, forestry, and fishery sectors; Mining and excavation; Electricity and gas procurement; Water Supply, Waste Treatment, Waste and Recycling; construction; transportation and warehousing; provision of accommodation and food and drink; financial and insurance services; real estate; and Education Services;

b. There is 1 (one) economic sector has an LQ value = 1, namely the information and communication industry. Where this sector is included in the category of Non-Based

c. Sector. Wholesale and retail trade; repair of cars and motorcycles; transportation and warehousing; Company Services; Government Administration, Defense, and Social Security; Health services and Social Activities; and other services.

Meanwhile, to see the achievement of the value of each sector of the Business Field during the 2017-2021 period, it can be explained as follows:

a. Agriculture, Forestry, and Fisheries Sectors; in the period 2017-2021 has an average value of LQ > 1, meaning that this sector as a whole becomes the base/leading sector in Ciamis Regency; it is also by the direction of Ciamis Regency's development potential in the field of Agriculture and Horticulture. Except in 2018 and 2020, the LQ value was < 1, so in those two years, this sector was not included in the base sector but did not affect the average value acquisition, so it was still included in the base sector.

b. Mining and Quarrying Sector; In the Ciamis district, the Mining and Quarrying Sector is not a leading sector/base; it can be seen from the LQ value every year < 1 even though economic growth tends to be negative because LQ pays attention to Economic Growth at the Provincial Level, it causes the average LQ value to reach value > 1, so it is included in the base sector.

c. Processing Industry Sector: During the 2017-2021 period, the LQ value > one is included in the base sector except in 2020 LQ < 1, but overall the average LQ value is < 1, so in Ciamis Regency, the Manufacturing Industry is included in the non-basic economic sector.

d. Electricity and gas Procurement Sector; In the last five years (2017-2021 period), this sector has had an LQ value of < 1, except in 2018, it has an LQ value of> 1, which is quite large so that it dramatically affects the calculation of the overall LQ average value which results in a value > one so that it is included in the primary economic sector.

e. Water Supply, Waste Treatment, Waste, and Recycling Sector: In the Ciamis district, this sector has always been the primary economic sector because, in the 2017-2021 period, the LQ value is > 1 except in 2020 along with the Covid 19 pandemic, this sector is no longer a sector basis sector, but in the next period this sector is again included in the category of the

f. construction sector base sector: based on the calculation results, the LQ value of the Construction sector gets an average value of > 1 so that this sector is included in the primary economic sector, although, in 2019, the LQ value is < 1; however, this does not affect the overall average value of the construction sector which still gets an LQ > one including the base sector (Leading)

g. The wholesale and retail trade, car and motorcycle repair sector; The LQ value of the Trade and Retail sector based on the results of the assessment obtained an average value of LQ < 1 so that this sector is included in the non-base sector (not superior) even though in 2017 and 2018 this sector had become the base sector (leading) because the value was > 1.

h. The transportation and warehousing sector; In the 2017-2021 period, the transportation and warehousing sector is included in the non-base (not superior) sector, although in 2017 and 2018, this sector received an LQ value > 1 in the following years, the LQ value obtained < 1 even there was an LQ value. quite a significant negative, namely in 2021

i. the sector of providing accommodation and food and drink; The results of the calculation of the LQ value in the 2017-2021 period obtained an average value of > 1 so that this sector is included in the base sector (leading), although in the 2017-2018 period the LQ value was < 1, it did not affect the overall average value.

j. Information and Communication Sector: Based on the calculation results of the information and communication sector, it gets a value of LQ = 1, where based on the provisions, if LQ = 1, then it is

included in the category of the non-basic sector (not superior) because it is only able to meet the needs in the Ciamis Regency area itself and cannot be exported.

k. Services and Insurance Sector; This sector, based on the calculation results, get an LQ value > 1, so it is included in the base sector (Featured), although if you look at the LQ from 2017 to 2019, the LQ value < 1 means that it is included in the non-base sector, but in 2020 and 2021 the LQ value is substantial, so that affects the overall average value where LQ > 1.

l. Real Estate Sector: Calculation results for 2017-2021 obtained an average value of LQ > 1 so that the real estate sector is included in the base sector (leading)

m. The Company's service sector; because the results of the LQ calculation during the 2017-2021 period get a value of < 1, this sector is included in the non-base (not superior)

n. The sector of the Government Administration, Defense, and Social Security Sector; based on the results of calculations during the period 2017-2021, this sector gets an LQ value < 1, so it is not included in the leading sector (non-base sector)

o. Education Sector: This sector in the last five years (201-2021) got an average LQ value > one, which means that the Education sector is included in the primary (leading) economy.

p. Sector, the Health Services and Social Activities Sector; The average LQ value for this sector is < 1, meaning that it does not include the base sector (not superior), although the annual LQ value gets a deal> one but with a relatively small value so that it affects the overall average value.

q. Other Service sectors: in Kabupaten Ciamis, other service sectors get a value from the calculation of LQ < 1, which shows that this sector is not included in the leading sector (non-base sector). Although the annual LQ value has an LQ value > 1, it does not affect the calculation of the average value because the value is small.

V. DISCUSSION

Based on the results of research from 17 economic sectors based on business fields in Ciamis Regency for the 2017-2021 period, as many as 9 (nine) sectors, including the Basic Economic Sector category, where the economic sector/business sector is the basis or a source of growth. The results of this study are in line with several previous studies, which revealed that the primary economic sector is a leading sector that can encourage growth or development for other sectors, both sectors that supply inputs and industries that use outputs as inputs in the production process. In addition, this business field has a comparative advantage, meaning that the results from this field can not only meet the needs of the region concerned but can also be exported outside the region. In addition, from this study's results, 8 (eight) sectors are included in the non-basic economic sector category with a value of LQ = 1 and LQ <1. For the value of LQ = 1, it is classified in the non-basic sector because it does not have a comparative advantage. In contrast, production in the Business is only enough to meet the region's needs and cannot be exported. Another study also revealed that LQ = 1, indicating that there is balanced productivity, which means this sector is still unsuitable for export (the sector's role is the same in the region and nationally). While the value of LQ < 1 is included in the non-base sector because production in the business field in an area cannot meet its own needs, so it needs supplies or imports from outside. (Prats, 2018). Several previous studies have shown that business fields, commodities, and raw materials included in the primary economic sector are designated as leading sectors that are the mainstay of economic growth and can support industrial competitiveness. (Fracasso & Vitucci, 2018; Panagiotopoulos & Kaliampakos, 2021).

By looking at the various research results and discussions that have been carried out, this research supports the theory revealed by previous research. However, the coverage of the base and non-base sectors produced has differences from the previous study both in terms of the business sector and the distribution of the value of the Location Quotient. This happened because the scope of the discussion and the content and data of the GRDP used were also different. Even so, the advantages of this study can explain the sectors identified as strategic sectors and industrial competitiveness by paying attention to the availability of raw materials both in terms of land and productivity, as well as the condition of existing industries made from strategic sector commodities that have not previously been carried out by other studies.

VI. CONCLUSION AND RECOMMENDATION

From the results of research and discussion conducted using the Location Quotient Method, which aims to analyze economic conditions to determine the base sector in an area with data sources from Gross Regional Domestic Product (GRDP) GRDP based on Constant Prices based on Business Fields in 2017 - 2021 and referring to the research, the question shows that the primary and non-basic economic sectors in Ciamis Regency consist of 9 (nine) primary sectors and 8 (eight) non-base sectors. This means that most of

these business sectors can be a source of growth, has a comparative advantage, and the results can not only meet the needs of the Regency itself but can also be exported outside the economic area, which can generate added economic value. (Mo & Park, 2020). Even so, from the analysis results, there are also business fields that are included in the non-base sector category, meaning that the sector is only able to meet the needs of its region, cannot export to other areas, or has not even met the requirements of its place, so it needs to be imported from the different sizes so that these sectors need to be imported from other regions. The industry does not yet have competitiveness and has not been able to become a source of economic growth. (Panagiotopoulos & Kaliampakos, 2021). For this reason, based on the research results and conclusions, the following can be recommended:

a. The Ciamis district government must continue to seek synergy with provincial and central government policies so that essential sectors will continue to be a source of growth and non-basic sectors. Can be transformed into a primary sector,

b. The Ciamis Regency Government continues to strive to improve the quality of policies and focus on non-basic sectors so that these sectors are increasingly competitive and able to become sources of economic growth.

c. The author realizes that in this study, there are still shortcomings where the sample data used is still limited and less representative, as well as less objective measurements. For this reason, other researchers are expected to be able to improve these deficiencies as material for further improvements.

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Analysis of Factors Affecting Human Growth Index in North Maluku

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Abstract
The Human Development Index is a comparative measurement of life expectancy, literacy, education and standard of living (Handalani, 2018; Nafi'ah, 2021). This study aims to animate and determine the pattern of HDI in North Maluku Province in 2011-2021. Panel data analysis was performed using the e-Views 10 program using multiple linear regression methods. Model determination was carried out using chow test and hausman test, and the selected model was Fixed Effect Model (FEM). The results of the analysis show that the HDI pattern in the region studied shows that economic growth, poverty, minimum wage and open unemployment have a positive and significant effect on the Human Development Index (HDI) partially.

Keywords— Economic Growth; Poverty; Minimum Wage; Open Unemployment; Human Development Index; and Literacy

I. INTRODUCTION

In a country, development is carried out to make a country a more developed country. Development in a country is also carried out to alleviate poverty that exists in the country. This is the case in various developing countries that are carrying out development. Development in a country also shows the initiative of the country to meet the needs of its people in everyday life. Development is also carried out to increase foreign exchange from a country because a country's profits will increase if a development is carried out (Fortuna et al., 2021). In other words, the development carried out in a country can alleviate the poverty that exists in the country so that it can develop into a more developed country.

So far, developed, developing, or undeveloped countries have only been measured through per capita income, therefore HDI applies aspects of human quality development with a more comprehensive measure. In a country, broadly and various measures of human quality are studied by researchers using HDI as one of the study materials or discussion topics. Human development intended in HDI is not the same as human resource development that is usually intended in economic theory. As a workforce whose productivity must be increased is a designated thing from human resources to humans as one of the factors of production. In this case to achieve the goal of increasing the output of human goods and services only as a tool (input) (Suciati et al., 2015).

The problem of poverty is currently a problem that must be overcome in developing countries. This is due to the large population in most developing countries in the world. Population growth in developing countries is not balanced with economic growth, resulting in low welfare of the population in developing countries. Poverty in developing countries is a multidimensional problem, covering various dimensions such as social, economic, cultural, political, and legal. Poverty in developing countries also occurs due to the unmet needs and rights of the people of developing countries. In addition, poverty also limits people's ability to develop skills, resulting in hampering the development process (Nurlana et al., 2020).

HDI can also access development outcomes, namely poverty, economic growth and open unemployment. The existence of economic growth can help increase the human development index, reduce the number of unemployed and poverty, in addition to seeking the expansion of human resources in all fields for choice to the population who are superior in their skills, prioritizing the improvement of basic human abilities in order to fully participate in all fields of development to reduce unemployment and poverty. (Izzah, 2015).

According to Faelassuffa & Yuliani, (2022), the Human Development Index is also influenced by other factors, such as the availability of job opportunitieswhich are further determined by many factors, especially economic growth, infrastructure and government policies. Infrastructure is built by the state through capital expenditure. In the Regulation of the Ministry of Finance Number 101 / PMK.02 / 2011 capital expenditures can

be in the form of: land, equipment and machinery and buildings, roads, irrigation and other capital shopping networks, and capital expenditures of the General Service Agency (BLU).

In addition, to improve the quality of human resources, the government as the implementing agent of national development certainly needs capital as the basis of development. The government makes investments or investments aimed at human development. Government spending is a reflection of the policies taken by the government. In this case, the government expenditure is used to finance the public sector which is more important and becomes a priority in improving the quality of human resources which is reflected in the Human Development Index (HDI) (Rangkuti, 2019). Based on the background presentation above, the purpose of this study is to find out and also analyze whether Poverty, Open Unemployment Rate, Provincial Minimum Wage and Economic Growth, and Government Spending have an influence on

II. LITERATURE REVIEW

A. Poverty

Chamber in Sajogyo, (2017) poverty is a condition in which a person experiences a shortage of money and goods to ensure survival. In a broad sense, poverty is an integrated concept that has five dimensions, namely: 1) Poverty, 2) helplessness 3) the problem of facing an emergency situation, 4) dependence, and 5) alienation both geographically and sociologically. Furthermore, Niswati (2014), revealed that there is an absolute core of poverty. The famine that plagues them becomes a perspective from poverty, as well as the inability to social disgrace and the inability to educate children (education) and care for children's health The absolute poverty line is very important for assessing the effects of anti-poverty policies between times, or estimating the impact of a project on poverty (for example, the provision of small-scale credit). The poverty rate will be compared between one country and another only if the same absolute poverty line is used in both countries. The World Bank needs absolute poverty lines in order to compare poverty rates between countries. This is useful in determining where to channel existing financial resources (funds), as well as in analyzing progress in the fight against poverty. In general, there are two measures used by the World Bank in measuring poverty, namely: a.) US\$1 per capita per day where it is estimated that there are about 1.2 billion people in the world living below that size; b) US\$2 per capita per day of which more than 2 billion people live less than that limit. The US dollar used is US\$ PPP (Purchasing Power Parity), not the official exchange rate (exchange rate). These two boundaries are absolute poverty lines (BPS, North Maluku Regency, 2022).

B. Open Unemployment

Unemployment is a macroeconomic problem that affects human beings directly and is the most severe. For most people, losing a job means a decrease in living standards and psychological stress (Mankiw, 2017). According to Sukirno in Ardian et al., (2021) unemployment is someone who is already classified as a labor force, who is actively looking for a job at a certain level of wage, but has not yet obtained the job he wants. In addition, Pradipta & Dewi, (2020) also classifies unemployment by its characteristics, which are divided into: 1) open unemployment, 2) incurable unemployment, 3) underemployment, and 4) seasonless unemployment. More specifically, in this study, the type of unemployment that will be used in this study is open unemployment. Open unemployment can mean a labor force that is not yet employed and is actively looking for work (Adam et al., 2020). The open unemployment rate can be calculated as follows:

$$\text{TPT} = \frac{Jumlah\ Pengangguran}{Jumlah\ Angakatan\ Kerja} \text{ x } 100\%$$

C. Provincial Minimum Wage

Upah merupakan faktor yang sangat berpengaruh dalam masalah ke tenagakerjaan. Hal this karena keinginan orang bekera adalah to menda patkan upah yang layak guna memenuhi kebutuhan hidup (Sari, 2021). Bila tingkat upah yang ditawarkan by pengusaha dinilai t idak mencukupi by pekerja, maka pekerja tersebut tidak akan men erima pekerjaan yang ditawarkan (Garnella et al., 2020).

The provincial minimum wage is the smallest amount of wage that employers give to their workers. The minimum wage consists of (Helvira & Rizki, 2020):

a. Minimum wage based on provincial or district/city area
b. Minimum wage by sector in the province or regency/city area

D. Economic Growth

According to Hidayat & Woyanti, (2021) and Nugraeni & Aji, (2021) economic growth is a process of continuous increase in capita output in the long term and is one of the indicators of development results, the higher the economic growth, usually the higher the welfare of the community. (Ardian et al., 2021) said that there are three factors or components, especially in the economic growth of each country. The three factors are:

a. Capital accumulation, which includes all forms or new types of investments invested in land, physical equipment, and capital or human resources.
b. Population growth, which will eventually increase the number of the labor force.
c. Technological advances, in the form of new ways or improving old ways of dealing with jobs.
d. The economic growth formula is as follows:
e.

$$\text{Growth} = \frac{PDRB_t - PDRB_{t-1}}{PDRB_{t-1}}$$

E. Human Development Index

HDI is used to measure the extent of the success of the quality of human life and) serves to measure the achievement of human development based on a number of basic components of quality of life. As a measure of quality of life, HDI is built through a basic three-dimensional proximity. i.e. longevity and healthy living, knowledge, and standard of living. Each dimension is represented by indicators. The dimensions of longevity and healthy living are represented by life expectancy indicators at birth. Meanwhile, the average length of schooling and the expectation of length of school are indicators that represent the dimension of knowledge. Finally, the dimensions of Indonesia's decent standard of living are represented by an adjusted indicator of per capita expenditure. (BPS, North Maluku Regency, 2022).

The formula used in calculating the Human Development Index is as follows:

$$\text{HDI} = \frac{1}{3} (\text{Index X1} + \text{Index X2} + \text{Index X3})$$

Where:
X1 : length of life
X2 : level of education
X3 : decent standard of living that uses the indicator of purchasing power ability.

There are 3 groups of human development status based on HDI values, namely: (1) HDI < 50 is said to be low, (2) 50 ≤ HDI < 80 is said to be medium/ medium, and (3) HDI ≥ 80 is said to be high.

F. Relevant Research

Some of the previous studies that are in line with this research between laian were conducted by Subayil & Lalu, (2020) who examined the relationship and influence of poverty, economic growth, and capital expenditure on the Human Development Index (HDI). This research was processed using a regression of panel data where the results of this study revealed that poverty has a negative effect, economic growth and capital expenditure have a positive effect. The second study was conducted by Seran, (2017) which examined the relationship and influence of economic, educational and technological growth on the human development index using panel data. The results of the research obtained show that economic growth and education have a significant effect on HDI. Further research was written by Sania et al., (2021) who examined the relationship and influence of GRDP, Poverty Rate, economic growth, local indigenous income, and capital expenditure on the Human Development Index (HDI). The results of this study show that GRDP has a positive and significant influence on HDI in D.I.Yogyakarta and the poverty rate has a negative and significant influence on HDI in D.I.Yogyakarta. While other variables have no effect on HDI. The last research was conducted by (Faelassuffa & Yuliani, 2022; Hidayat &Woyanti, 2021) who examined the relationship and influence of opinion distribution, unemployment rate, and government spending on HDI. Using panel data, the results of this study the distribution of government income and expenditure had an insignificant positive effect on HDI. Meanwhile, the unemployment rate negatively affects the HDI.

III.RESEARCH METHODOLOGY

This research is a quantitative study by taking time series data, while the data used is time series data from 2011-2021 North Maluku Province.

This study used time series data analysis as a data processing tool. Gujarati, (2018) states that to describe time series data

The regression model is as follows:

$$IPMit = \beta 0 + \beta 1 TMis + \beta 2 TAng + \beta 3 UM + \beta 4 EG + \varepsilon t$$

Where:

HDI= Human Development Index

TMis= Poverty Rate

TAng = Open Unemployment Rate

UM = Minimum Wage

EG=Economic Growth

$\beta 0$ = Intercept

$\beta 1,2,3,4$ = Independent variable regression coefficient

εt = Error component

IV. RESULT/FINDING

Hypothesis testing is carried out in order to correctly interpret the regression results. Hypothesis testing is carried out simultaneously using simultaneous tests (F *Statistical* test), as well as partially using t-tests. The results of the F test, t test and dtermination coefficient test are shown in Tabel 1.

Table 1. Fixed Effect Model Estimation

HDI = 1.211 + (-0.011)TMis + (-0.027)TAng + 0.005UM + 0.017EG			
(0.078)**	(0,069)**	(0.000)**	(0.075) **
R^2=0.878	Adj R^2=0.889	F Stat=17.827	Prop Fstat=0.000

Description: **Significant on α = 0.0510.
The number in parentheses is the t-statistical probability value.
Source: Secondary Data Processed, 2022

a. *Simultaneous Test (Statistical F Test)*

The F test is a significance test used to test the simultaneous influence of all independent variables on dependent variables. The hypotheses in this study are:

$H_0 : \beta_1 = \beta_2 = \beta_3 = 0$, meaning that simultaneously independent variables have an insignificant effect on dependent variables.

$Ha : \beta 1 \neq \beta 2 \neq \beta 3 \neq 0$, meaning that simultaneously independent variables have a significant effect on dependent variables.

The decision-making criteria are if the significance of the < 0.05, then H_0 is rejected and if the significance of the > 0.05 then H_0 is accepted. From Table 1 it can be seen that the probability level (*F-statistic*) of 0.000 which is smaller than α (0.05), so H_0 is rejected and H a is accepted. It can be concluded that the variables of poverty rate, open unemployment rate, provincial minimum wage and economic growth simultaneously had a significant effect on the HDI in 2014-2018.

b. *Partial Test (T test)*

The t test is used to partially test the influence of independent variables on dependent variables. The hypotheses of this study are:

a. Testing of Poverty Rate Variables

H_{01}: $\beta_1 = 0$, meaning that partially the poverty rate has no effect on the HDI.

Ha1: $\beta_1 \neq 0$, meaning that partially the poverty rate has an influence on the HDI.

b. Testing of Variables of The Rate of Leverage

H01:$\beta_2 = 0$, meaning that partially the open unemployment rate has no effect on the HDI.

Ha1: $\beta_2 \neq 0$, meaning that partially the open unemployment rate has an influence on the HDI.

c. Provincial Minimum Wage Variable Testing

H01: $\beta_3 = 0$, meaning that partially the provincial minimum wage has no effect on the HDI.

Ha1: $\beta_3 \neq 0$, meaning that partially the provincial minimum wage has an influence on the HDI.

d. Testing of Economic Growth Variables

H01: $\beta_3 = 0$, meaning that partially economic growth has no effect on HDI.

Ha1: $\beta_3 \neq 0$, it means that partially economic growth has an influence on HDI.

The criteria for acceptance and rejection of H_0 and H_a are carried out by looking at the degree of significance or calculated value of t. If the significance of < 0.05, then H_0 is rejected and H_a is accepted, then H_0 is rejected and H_a is accepted or partially the independent variable has a significant effect on the dependent variable. Conversely, if the significance of the > 0.05, then H_0 is accepted and H_a is rejected or partially the independent variable has an insignificant effect on the dependent variable.

Based on Tabel 1 , the test of the hypothesis of the influence of each independent variable on the dependent variable can be explained as follows:

a. The Poverty Rate variable with a coefficient value of -0.011 and its significance value (Prob.) is 0.078, so the first hypothesis (H_0 is accepted). The conclusion that can be processed is that the Poverty Rate has a negative and significant influence on HDI.

b. The Open Unemployment Rate variable with a coefficient value of -0.027 and its significance value is 0.069 so the second hypothesis (H_0 is accepted). The conclusion that can be cultivated is that the open unemployment rate has a negative and significant effect on HDI.

c. The Minimum Wage variable with a coefficient value of 0.005 and its significance value is 0.0 00 so the third hypothesis (H_0 is accepted). The conclusion that can be cultivated is that the provincial minimum wage has a positive and significant influence on hdi.

d. The Economic Growth Variable with a coefficient value of 0.017 and its significance value is 0.075 so the fourth hypothesis (H_0 is accepted). The conclusion that can be processed is that economic growth has a positive and significant influence on HDI.

c. *Coefficient of Determination Test (R2)*

The coefficient of determination (R^2) essentially measures how far the model's ability to explain the variations of independent variables is. The greater the coefficient of determination, the greater the variation of its independent variable affects the dependent variable.

Based on Tabel 1 obtained the value of the coefficient of determination (R^2) of 0.878. The figure shows that the HDI variable in North Maluku Province in 201 1-2021 can be explained by the variables of poverty rate, open unemployment rate, provincial minimum wage and economic growth, of 87.8 0%, while the remaining 12.2 0% is explained by other variables that are not included in this study.

V.   Discussion

A. Effect of Poverty Rate on Human Development Index

The results showed that the poverty rate had a significant effect on HDI, this was in line with previous theories and research in this study. According to Widayanti et al., (2022) stated that there is a very close influence between the high level of poverty and HDI. "For most people, those who do not have permanent jobs or are only part-time are always among the very poor groups of people". People who work for a fixed fee in the government and private sectors are usually among the upper middle class.

It is also explained more explained (Yuniarti & Imaningsih, 2022), the adverse effect of the high poverty rate is the ability of people's purchasing power which ultimately reduces HDI. The decrease in people's welfare due to

the high poverty rate will have an impact on lower HDI. If the poverty rate in a country is very bad, political and social chaos always prevails and has a bad effect on people's welfare and the prospects for economic development in the long term.

This result is also supported by research conducted by Yuniarti & Imaningsih, (2022) with his research entitled Inflation, unemployment and poverty, which concluded that an increase in the poverty rate resulted in a decrease in HDI This research was also supported by research (Setyawan, 2001) which resulted in a strong influence between the poverty rate and various macroeconomic variables such as the unemployment rate

B. Effect of Open Unemployment Rate on Human Development Index

The results showed that the unemployment rate had a significant effect on HDI, this was in line with previous theories and research that became the theoretical basis in this study. According to Lincolind Arsyad (in Subayil & Lalu, 2020) states that there is a very close influence between the high unemployment rate and the HDI. "For most people, those who do not have permanent jobs or are only part-time are always among the very poor groups of people". People who work for a fixed fee in the government and private sectors are usually among the upper middle class.

Also explained more broadly by Sukirno, (2017), the adverse effect of unemployment is to reduce people's income which ultimately reduces the level of prosperity that a person has achieved. The decline in people's welfare due to unemployment will certainly increase their chances of being trapped in poverty because they have no income. If unemployment in a country is very bad, political and social turmoil always prevails and has a bad effect on people's welfare and the prospects for economic development in the long term.

This result is also supported by research conducted by Seran, (2017) with his research entitled Inflation, unemployment and poverty, which concluded that an increase in the unemployment rate results in an increase in the poverty rate and vice versa with a coefficient of 0.183. Seran's research , (2017) is also supported by research by Pradipta & Dewi, (2020) which resulted in findings of a strong influence between HDI and various macroeconomic variables such as the unemployment rate.

C. The Effect of the Minimum Wage On The Human Development Index.

The minimum wage has a positive effect on the human development index. In general, the development of the population in developing countries is very high and large in number. The problem of population growth is not just a matter of numbers, the problem of population also concerns the interests of development and the welfare of mankind as a whole. In the context of development, the view of the population is divided into two, namely some consider it as an obstacle to development and some consider it as a spur of development. One of the factors affecting the human development index is the wages received by workers. On the other hand, the minimum wage is related to the standard living needs of a province. In North Maluku Province, the minimum wages received are above the standard of living needs, so that with the purchasing power of the people who are above the standard of living needs, the human development index will also be better.

According to Todaro (2017) which is also proven in research conducted by Fitria Andriani & Westi Riani, (2022), Nurlana et al., (2020), and Soekapdjo & Oktavia, (2021), penduduk as a driver of development because a larger population is actually a potential market that is a source of demand for various kinds of goods and services which will then drive various kinds of economic activities so that it can create a scale an economy in production that will benefit all parties, lower the cost of production and create a source of supply or supply of cheap labor in sufficient quantities so that it will be able to stimulate improving the welfare of society which means that poverty will decrease (Sania et al., 2021).

D. The Effect of Economic Growth on the Human Development Index

Economic growth has a positive effect on the human development index (Hidayat & Woyanti, (2021), and Nurlana et al., (2020)). Income level and HDI have a broad correlation. But revenue growth does not automatically increase HDI. Similarly, the improvement of health and education that led to an increase in HDI did not necessarily

lead to an increase in income. This is because the resources generated by economic growth cannot be used to promote the improvement of other indicators. In addition, the structures and processes occurring in society cannot provide benefits to the poor. For example, various increases in yields benefit only landowners and not labor. However, conditions may change. The poor can benefit dually from income growth as well as increased HDI if the government is willing to use the benefits of growth to finance health services and access to education for the poor. In addition, the existing structures and processes in the community are appropriate, so that the benefits of economic growth are also enjoyed by the poor. According to the World Development Report, progress on both areas reinforces each other and one without the other is not enough (Nurlana et al., 2020). The direction of the relationship betweeneconomic growth and human development indexes found in this study is positid which means that if the economic growth of North Maluku Province is getting better / higher, the human development index will also be better.

This is in line with the research conducted by (Ardian et al., 2021; Nugraeni & Aji, 2021) as well as research conducted by (Hanifa, 2019) where in the three studies it is explained that economic growth is a factor that influences the human development index. The three studies explained that the higher the economic growth in an area will be positively correlated with the human development index.

V. CONCLUSION

From the results of the analysis and discussion that has been carried out in the previous chapter, it can be concluded that:

a. From the regression results it is known that the coefficient of the poverty rate is -0.011 with a probability of 0.078. This shows that there is a positive and significant influence of the variable level of diversity on the human development index in North Maluku. This means that every 1% growth in economic growth, the human development index will decrease by 0.011 index figures.

b. From the results of the regression it is known that the coefficient of the open unemployment rate is -0.027 with a probability of 0.069. This shows that there is a positive and significant influence of the open unemployment rate variable on the human development index in North Maluku. This means that every 1% growth in the minimum wage open unemployment rate, the human development index will be reduced by 0.027 index figures.

c. From the results of regression it is known that the minimum wage coefficient is 0.005 with a probability of 0.000. This shows that there is a positive and significant influence of the provincial minimum wage variable on the human development index in North Maluku. This means that every 1% growth in the minimum wage, the human development index will increase by 0.005 index figures.

d. From the results of regression it is known that the coefficient of economic growth is 0.017 with a probability of 0.075. This shows that there is a positive and significant influence of economic growth variables on the human development index in North Maluku. This means that every 1% growth in economic growth, the human development index will increase by 0.075 index figures.

e. The results of the regression analysis showed that the F test value was 17.827 with a probability of 0.000, this shows that the variables of poverty rate, open unemployment rate, provincial minimum wage and economic growth simultaneously have a significant effect on the HDI of North Maluku Province in 201 1-2021.

f. The results of the regression analysis showed the value of the coefficient of determination (R^2) of 0.878. The figure shows that the HDI variable in North Maluku in 201 1-2021 can be explained by the variables of poverty rate, open unemployment rate, provincial minimum wage and economic growth, of 87.8 0%, while the remaining 12.20% is explained by other variables that are not included in the study.

Suggestion

a. The human development index (HDI) is currently represented by the poverty rate, open unemployment rate, provincial minimum wage and economic growth, it is advisable to add the GRDP variable which in the previous study was one of the variables that had a considerable influence on the HDI

b. For further research, it is recommended to add variables that are expected to affect the human development index, or extend the research period so that it can provide a more objective picture of the results.

In the previous study, the open unemployment rate had a positive and significant influence on HDI, in this study the open unemployment rate had a negative and significant influence on HDI. Cultural culture, kinship values and mutual aid culture that still bind strongly to most people in North Maluku are the differences that the unemployment rate is not in line with HDI. (Please provide one statment that shows how this study differs from previous studies)

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Influence Analysis of Human Resource Development On Economic Growth in East Java Province in 2017-2021

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Abstract

Economic growth is an increase in the ability of an economy to produce goods and services. In other words, economic growth refers more to changes that are quantitative in nature and are usually measured using data on gross domestic product or per capita output income. This study aimed to analyze the influence of life expectancy, average length of schooling and per capita expenditure on economic growth in East Java in 2017-2021 Data analysis method used multiple linear regression. The data used was time series data. Model determination was carried out using chow test and hausman test, and the selected model was Fixed Effect Model (FEM). The results of the analysis showed that the influence of life expectancy, average length of schooling and per capita expenditure had a positive and significant influence on economic growth in partial terms as evidenced by the results of the t-test. The results of the influence test together, showed significant values and had a positive effect. The results of the determinant test (R2) also showed that the free variable contributes to the dependent variable.

Keywords—Average Length of Schooling; Economic Growth; Life Expectancy; Per capita Expenditure.

I. INTRODUCTION

In simple terms, development can be interpreted as an effort or process to make changes for the better. In its implementation, development has a wide complexity of problems. The development process occurs in all aspects of people's lives, both economic, political, social, and cultural aspects (Amalia, 2017). Human beings as subjects and at the same time objects of development must be able to improve their quality of life, for this reason, the role of government and society is needed. Man is the real wealth of the nation.

The development of human resources physically and mentally contains meaning as an improvement in the basic abilities of the population. The basic capabilities of such a population are necessary to increase the opportunity to participate in the development process. The improvement of basic abilities can also be done through improving the health degree, knowledge and skills of the population. This is important because it can be reflected in productive economic, socio-cultural, and political activities (Arsyad, 2018). The purpose of development is to realize an Indonesian society that is just, competitive, developed, and prosperous in the container of the Unitary State of the Republic of Indonesia.

Development should be directed in such a way that each stage is getting closer to the goal. Decent living is a universally recognized human right. The Indonesian Constitution,'45, explicitly recognizes this by mandating that the main task of the government of the Republic of Indonesia is to "promote the general welfare, educate the life of the nation and realize a social justice for all Indonesians". That means, living free from poverty or enjoying a decent life is the human right of every citizen it is the duty of the government to ensure the realization of it. National development is basically to improve the general welfare that is fair and equitable for all Indonesians (Asmawani & Pangidoan, 2021; Nugraeni & Aji, 2021; Suryana, 2015).

The human development paradigm developed by the United Nations Development Programme (UNDP) as a process of expanding options for the population. Thus the population is the ultimate goal and development as a means to achieve the goal. To achieve the goal of human development, there are four main things that must be considered, namely productivity, equity, sustainability, and empowerment. However, the development paradigm has drawn a lot of criticism because the results of development have also created inequality and inequality, ecological damage, and shackled human freedom (Rafiqi, 2020). This materialistic development paradigm measures the achievement of development results only from the physical aspects quantified in mathematical calculations and statistical figures, so it tends to ignore the human dimension as the main subject of development and ignore the dignity of humanity.

According to the United Nations Development Programme (UNDP), in Economic Growth (Economic Growth) there are three composite indicators used to measure a country's average achievement in human development, namely: length of life, which is measured by life expectancy at birth; education measured based on the average length of schooling and the literacy rate of the population aged 15 years and over; a standard of living measured by per capita expenditure which has been adjusted to purchasing power parity. In the Indonesian Human Development Report, it is explained that the development of human development so far has been very dependent on economic growth from the early 1970s to the late 1990s.

Such growth allows humans to allocate expenditures for health and education. Meanwhile, government spending on health services and education is relatively small (Nuryan, 2016). As well as the need to increase the allocation of government spending for the social sector, it became increasingly felt when Indonesia experienced an economic crisis. The crisis led to a decline in human development achievements (Muda et al., 2019; Pradipta & Dewi, 2020). The existence of the GNP/GDP economic growth rating that emerged in the 60s, colored our thinking in measuring the success of development. GDP/GNP, indeed, is a macroeconomic measure that is still used by many countries, although the measure does not yet describe the truth, especially the picture of human quality.

Expenditure per capita provides an overview of the level of purchasing power of PPP (Purchasing Power Parity) of the community, and as one of the components used in looking at the status of human development in an area. The amount of income received by households can describe the welfare of a society (Ningrum et al., 2020). However, accurate income data is difficult to obtain, so in Susenas activities this data is approached through household expenditure data. Household expenditures consisting of food and non-food expenditures can illustrate how the population allocates its household needs. Although prices between regions are different, the value of household expenditures can still show differences in the level of welfare of the population between provinces, especially in terms of the economy (Wasista, 2020).

Economic growth factors are influenced by many things, both from the internal environment and the external environment. In this study, the economic growth factors to be studied only consist of life expectancy, average length of schooling and per capita expenditure. This limitation is made so that the research carried out is more focused and the discussion does not become biased.

II. LITERATURE REVIEW

A. Life Expectancy

Life Expectancy (AHH), is used as an indicator in measuring the health of an individual in an area. Life Expectancy (AHH) is the average estimate of the number of years a person can travel during life. Life Expectancy (AHH) is defined as the age that a person born in a given year may reach (Amanah, 2016). Life expectancy is calculated using an indirect estimation approach. There are two types of data used in calculating life expectancy (AHH), namely Children Born Alive (ALH) and Children Still Alive (AMH). Meanwhile, to calculate the life expectancy index, the maximum value of life expectancy is used according to UNDP standards, where the highest number as the upper limit for calculating the index is used 85 years and the lowest is 25 years (UNDP standard). Life expectancy can be long if the health status, nutrition, and environment are good (Adzni, 2015; Asmawani & Pangidoan, 2021; BPS, 2019) .

B. Average Length of School

According to Todaro, (2017), states that education is a fundamental development goal. Where education plays a key role in establish a country's ability to absorb modern technology and to develop capacity to create sustainable growth and development. The average length of schooling indicates the higher formal education achieved by the people of a region. The higher the average length of schooling means the higher the level of education undergone. The average length of schooling is the average number of years spent by the population aged 25 years and over at all levels of formal education followed in the thesis (Widiatma, 2016). The average length of schooling can be formulated:

$$IRLS = \frac{RLS}{total\ people}$$

According to Todaro, (2017), this level of income is greatly influenced by the length of time a person obtains an education. The average length of schooling is an indicator of the level of education in an area (Mahya, 2021; Manurung & Hutabarat, 2021; Pradipta & Dewi, 2020). Education is a form of human capital that shows the quality of Human Resources (HR). To be able to maximize the difference between the expected profit and the estimated costs, the optimal strategy for a person is to try to complete the highest possible education. Investment in human capital will look higher in benefits if we compare the total cost of education incurred during education to the income that will later be obtained when they are ready to work. Highly educated people will start their full-time work at an older age, however, their income will quickly rise compared to people who work early (Todaro, 2017).

C. Expenditure Per capita

The expenditure per capita indicator is used to measure the standard of human living. This indicator is also influenced by existing knowledge and opportunities to realize knowledge in various productive activities so as to produce output in the form of goods and services as income (Putrakunto, 2017). Then the existing income creates expenses or consumption. Expenditure per capita provides an overview of the level of community PPP (Purchasing Power Parity), and as one of the components used in looking at the status of human development in an area (Sukirno, 2018).

D. *Economic Growth*

According to Hidayat & Woyanti, (2021) and Nugraeni & Aji, (2021) economic growth is a process of continuous increase in per capita output in the long term and is one of the indicators of development success, the higher the economic growth, the higher the welfare of the community. Ardian et al., (2021) said that there are three factors or components, especially in the economic growth of each country. The three factors are acapital calculation, which includes all forms or new types of investment invested in land, physical equipment, and capital or human resources (Hidayat & Woyanti, 2021; Nurlana et al., 2020), populationgrowth, which will eventually increase the number of the labor force (Asmawani & Pangidoan, 2021; Yuniarti & Imaningsih, 2022), and the last one isthe advancement of technology, in the form of new ways or improving old ways of handling jobs [i](Asmawani & Pangidoan, 2021; Hepi & Zakiah, 2018).

The economic growth formula is as follows:

$$\text{Growth} = \frac{PDRB_t - PDRB_{t-1}}{PDRB_{t-1}}$$

E. *Hypothesis*

Life expectancy is the approximate average number of years a person can live during a lifetime. Amanah (2016) suggests that life expectancy can be measured from the health status of a community. The degree of health is in line with a person's condition, the better one's economic condition, the longer the life expectancy, and can be used as a benchmark for better economic growth. Until the first hypothesis in this study is that life expectancy has a positive effect on economic growth.

According to Todaro, (2017), the average length of schooling indicates the higher level of formal education achieved by the people of an area. In a study on the level of community welfare by Widiatma (2016) that the perceived length of schooling the higher the level of education taken indicates that the economic growth of an area is getting better. Based on this, the second hypothesis of this study is that the average length of school has a positive effect on economic growth.

F. *Relevant Research*

Studies regarding economic growth, human development, and the factors affecting it have been widely carried out by many researchers. At the beginning of economic development of a country, generally economic development planning is oriented towards growth problems (growth). This is understandable considering that the main barrier to the development of developing countries is the occurrence of capital shortages.

Research by Hepi & Zakiah, (2018) "Determinants of Regional Economic Growth: An Inter-Provincial Study in Indonesia". This study aimed to determine the effect of educational attainment, life expectancy, inflation rate, fertility rate, mortality rate, infants, regional dummy (indicators of human capital: educational attainment & life expetancy), on regional economic growth in 26 provinces in Indonesia (excluding Timtim) in 1975-1995. This

study used the OLS analysis tool. The results of his research were variabel that have a positive effect on economic growth are education, life expectancy, and infant mortality rates. Meanwhile, the fertility rate and inflation rate have a negative effect on economic growth. Provinces that have high human capital will grow faster against their respective steady state positions. Increasing educational attainment by one unit will increase GRDP growth by 1.5% to 2.6%.

Rafiqi, (2020), Economic Growth and Human Development. In this study, the bound variable was Economic Growth (GDP) per capita in 76 developing countries in Latin America for the period 2000-2020. Meanwhile, the free variables included life expectancy, adult literacy, women's education level, public expenditure for the social sector, domestic investment level, and income distribution. This study used a simultaneous equation model. The result of his research was that the initial level of human development has a significant positive effect. Adult literacy and life expectancy have a significant positive effect. Public investment and spending on the social sector has a significant positive effect. A better distribution of income corresponds to a high rate of economic growth. Based on the results of the study, it was suggested that human development should precede or accompany economic growth in order to produce virtuous development patterns/cycles.

Research Muda et al., (2019) presented the results of his study on the economic growth of 87 countries for 2005-220 and 97 countries for 1975-1985. They found a positive correlation between GDP growth rates and the following variables; income per capita, education level, life expectancy, government spending, exchange rate, inflation rate and the index of the rule of law and democracy have a real effect on economic growth. Based on the Barro model above, it showed that human development which is reflected by people's purchasing power (income per capita), education level and life expectancy (health) have a very important role in encouraging economic growth.

Wasista's research, (2020) on Investment Analysis in Human Capital and the accumulation of physical capital against the increase in Gross Domestic Product. The results showed that Human Capital has a positive effect on economic growth. The accumulation of Physical Capital and investment also have a positive effect on economic growth.

Research (Arofah & Rohimah, (2019) "Analysis of the Relationship between Economic Growth and Human Development in West Java period 2003-2013. This study aimed to determine (a) the influence of domestic investment, labor, human development, and economic crisis on economic growth, (b) the influence of economic growth, government spending on social fields, income distribution, enrollment rate of elementary schools of the female population, regional openness and economic crisis on human development, (c) the simultaneous relationship between economic growth and human development in West Java. The results of his research were economic growth, government spending on sausages, income distribution, the level of elementary school enrollment of the female population, regional openness and economic crises have a positive and significant influence on human development, there is a two-way causality relationship between economic growth and human development in West Java.

III. RESEARCH METHODOLOGY

This research was a quantitative study. While the data used was time series data from 201 7-2021 East Java Province.

This study used time series data analysis as a data processing tool. Gujarati, (2018) states that to describe time series data

The regression model is as follows:

$$EG = \beta_0 + \beta_1 HHid + \beta_2 RLSek + \beta_3 PP + \varepsilon_t$$

Where:
EG   = Economic Growth
HHid   = Life Expectancy
RLSek   = Average Length of Schooling
PP   = Per capita Expenditure
β_0 = Intercept
$\beta_{1,2,3}$,   = Independent variable regression coefficient
ε_t = Error component

The estimation stages of the econometric model above will include: estimation of model parameters using the Pooled Leas Square (CEM) approach, Common Effect Model (CEM), or Fixed Effect Model (FEM); selection of the best estimated model with the Chow test and Hausman test; test the goodness of the model on the selected model, and test the validity of the influence of the independent variable on the selected model (Ghozali, and Ratmono, 2019).

IV. RESULT/FINDING

Hypothesis testing was carried out in order to correctly interpret the regression results. Hypothesis testing was carried out simultaneously using simultaneous tests (F *Statistical* test), as well as partially using t-tests. The results of the F test, t test and dtermination coefficient test were shown in Tabel 1.

Table 1. Fixed Effect Model Estimation

EG = 0.987 + 0.047HHid + 0.039RLSek + 0.019PP			
	(0.069)**	(0.069)**	(0.017)* *
R^2=0.796	Adj R^2=0.789	F Stat=21.297	Prop Fstat=0.027

Description: **Significant on α = 0.0510.
The number in parentheses is the t-statistical probability value.
Source: Secondary Data Processed, 2022

A. *Simultaneous Test (Statistical F Test)*

The hypotheses in this study were:

H_0: $\beta_1 = \beta_2 = \beta_3 = 0$, meaning that simultaneously independent variables have an insignificant effect on dependent variables.

H_a: $\beta1 \neq \beta2 \neq \beta3 \neq 0$, meaning that simultaneously independent variables have a significant effect on dependent variables.

The decision-making criteria are if the significance of the < 0.05, then H_0 is rejected and if the significance of the > 0.05 then H_0 is accepted. From Table 1 it can be seen that the probability level (F-statistic) of 0.017 which is smaller than the α (0.05), so H_0 is rejected and H_a is accepted. It can be concluded that the variables of Life Expectancy, Average Length of Schooling, Provincial Per capita Expenditure and economic growth simultaneously had a significant effect on Economic Growth in 2017-2021.

B. *Partial Test (T test)*

The hypotheses of this study were:

a. Life Expectancy Variable Testing
H_{01}: $\beta_1 = 0$, meaning that life expectancy has no effect on economic growth.
$Ha1$: $\beta_1 \neq 0$, meaning that life expectancy partially has an influence on Economic Growth.

b. School Length Average Variable Testing
$H01$: $\beta_2 = 0$, meaning that partially the Average Length of Schooling has no effect on Economic Growth.
$Ha1$: $\beta_2 \neq 0$, meaning that partially the Average Length of Schooling has an influence on Economic Growth.

c. Testing of Per capita Expenditure Variables
$H01$: $\beta_3 = 0$, meaning that part of the province's Per capita Expenditure has no effect on Economic Growth.
$Ha1$: $\beta_3 \neq 0$, it means that part of the province's Per capita Expenditure has an influence on Economic Growth.

The criteria for acceptance and rejection of H_0 and H_a are carried out by looking at the degree of significance or calculated value of t. If the significance of < 0.05, then H_0 is rejected and H_a is accepted, then H_0 is rejected and H_a is accepted or partially the independent variable has a significant effect on the dependent variable. Conversely, if the significance of the > 0.05, then H_0 is accepted and H_a is rejected or partially the independent variable has an insignificant effect on the dependent variable.

Based on Tabel 1, the test of the hypothesis of the influence of each independent variable on the dependent variable can be explained as follows:

a. The Life Expectancy variable with a coefficient value of 0.047 and its significance value (Prob.) is 0.069, so the first hypothesis (H_0 is accepted). The conclusion is that Life Expectancy has a positive and significant influence on Economic Growth.

b. Variable Average Length of School with a coefficient value of 0.039 and its significance value is 0.069 so the second hypothesis (H_0 is accepted). The conclusion is that the Average Length of School has a positive and significant effect on Economic Growth.

c. The Variable Per capita Expenditure with a coefficient value of 0.019 and its significance value is 0.017 so the third hypothesis (H_0 is accepted). The conclusion is that provincial Expenditures Per capita have a positive and significant influence on Economic Growth.

C. Coefficient of Determination Test (R2)

Based on Tabel 1 obtained the value of the coefficient of determination (R^2) of 0.796. The figure showed that the variables of Economic Growth in East Java Province in 201 7-2021 can be explained by the variables of Life Expectancy, Average Length of School, Provincial Expenditure Per capita and economic growth, of 79.6 0%, remained 20.4 0% is explained by other variables not included in the study.

V. DISCUSSION

A. The Effect of Life Expectancy on Economic Growth

Life Expectancy (AHH) is a tool to evaluate the government's performance in improving the welfare of the population in general, and improving the degree of health in particular. In comparing the level of welfare between community groups, it is very important to look at life expectancy (Asmawani & Pangidoan, 2021; Endang & Hermawati, 2018; Reliableani, 2018). In countries where the health level is better, each individual has an average longer life, thus economically having a higher chance of earning an income. A high life expectancy and a larger elderly population will also demand wisdoms that are compatible and appropriate to these changes. It is also a challenge to be able to take advantage of the elderly population who are still potential so that they can be utilized according to their knowledge and experience (Adzni, 2015; Asmawani & Pangidoan, 2021). Health is a fundamental need for every human being, without public health it cannot produce a productivity for the country.

The economic activities of a country will run if there is a health guarantee for each of its inhabitants. Related to the theory of human capital that human capital plays a significant role, even more important than technological factors in spurring economic growth. The health of the population largely determines the ability to absorb and manage sources of economic growth both in relation to technology to institutions that are important for economic growth (Asmawani & Pangidoan, 2021; Manurung & Hutabarat, 2021).

The increase in life expectancy illustrates the improvement in nutrition and public awareness of health and the environment so that it will affect the improvement of population productivity which will have a positive impact on the pace of economic growth. The higher a person's life expectancy, which means that the longer the life span will increase community productivity (Arofah & Rohimah, 2019; Wasista, 2020). Increased productivity will automatically trigger economic growth in South Sulawesi. This condition is as with the results of research by Ranis & Stewart (2001) Economic Growth and Human Development (Amanah, 2016; Hepi & Zakiah, 2018).

B. The Effect of Average Length of School On Economic Growth

Education (formal and non-formal) can play an important role in reducing poverty in the long term, either indirectly through improving productivity and efficiency in general, or directly through training the poor with the skills needed to increase their productivity and in turn will increase their income (Endang & Hermawati, 2018; Pradipta & Dewi, 2020).

The higher a person's level of education and the longer a person goes to school, the knowledge and expertise will also increase so that it will encourage an increase in one's productivity. The company will

get more results by hiring workers with higher productivity, so that the company will be willing to provide higher wages/salaries to the person concerned (Adzni, 2015; Asmawani & Pangidoan, 2021; Mahya, 2021). In the end a person who has high productivity will get better well-being, which can be shown through an increase in his income and consumption.

Such an average condition of length of school has no effect on the level of labor productivity. On the other hand, it can be seen that there is a discrepancy between the qualifications of human resources and the economic structure. However, when viewed from the level of labor productivity that is more dominant towards agricultural sektor is the population who only take education until elementary school and even those who drop out of school. Most of the population who graduated from elementary school and dropped out of school, especially in rural areas, prefer to go directly to the rice fields than agricultural scholars whose average length of schooling is longer but productivity in the agricultural sector is very low even the bachelor's degree in agriculture is not applied, in fact most agricultural scholars choose to work in the service and banking sectors so that the phenomenon that occurs is an educational mismatch (Rafiqi, 2020; Wasista, 2020).

The results of this study were supported by statistical data that try to link the influence of average school length on labor productivity, and the results obtained are insignificant between the average length of schooling and labor productivity (Amanah, 2016; Rafiqi, 2020).

C. The Effect of Expenditure Per capita on Economic Growth

In a broader scope the standard of living deserves to describe the level of welfare enjoyed by the population as a result of the improvement of the economy. The ability of people's purchasing power to a number of basic needs which is seen from the average amount of per capita consumption as an income approach that represents the achievement of development for a decent life (Adzni, 2015; Arofah & Rohimah, 2019; Asmawani & Pangidoan, 2021). The level of welfare is said to increase in the event of an increase in real consumption per capita, that is, the nominal increase in household expenditure is higher than the inflation rate in the same period. Household expenditures consisting of food and non-food expenditures can illustrate how the population allocates its household needs (Muda et al., 2019; Rafiqi, 2020).

To measure the purchasing power of the population between regions, BPS uses data on the average consumption of selected commodities from the National Socioeconomic Survey (SUSENAS) which is considered the most dominant consumed by the Indonesian people and this has been standardized so that it can be compared between regions and between times adjusted to the PPP (Purchasing Power Parity) index. Many reasons cause macroeconomic analysis to need to pay attention to household consumption in depth. The first reason is that household consumption provides income to the national income. In most countries, consumption expenditure is about 60-75 percent of national income. The second reason is that household consumption has an impact in determining fluctuations in economic activity from one time to another (Muda et al., 2019).

A person's consumption is directly proportional to his income. (Asmawani & Pangidoan, 2021). Household decisions affect the overall behavior of the economy both in the long and short term. Consumption decisions are essential for long-term analysis because of their role in economic growth. Fluctuations in consumption are an important element of the boom and recession of the economy, in this case suggesting that changes in consumer spending plans could be a source of shock to the economy.

Per capita consumption has a positive impact on increasing economic growth if there is an increase in real consumption per capita, that is, the nominal increase in household expenditure is higher than the inflation rate in the same period. Where if per capita consumption increases, it means that demand will also increase so that production will also increase. In line with this increase, it will trigger an increase in economic growth in East Java. In accordance with Keynes' opinion that the tendency to consume marginal (marginal propensity to consume) is crucial for policy recommendations to reduce widespread unemployment (Adzni, 2015). Many reasons cause macroeconomic analysis to need to pay attention to household consumption in depth. The first reason is that household consumption provides income to the

national income. In most countries, consumption expenditure is about 60-75 percent of national income. The second reason is that household consumption has an impact in determining fluctuations in economic activity from one time to another. A person's consumption is directly proportional to his income. (Arofah & Rohimah, 2019).

In addition, in line with Harrod Domar's theory, it is argued that even though the capacity to produce increases, national income will only increase and economic growth will be created if people's expenditure increases compared to the past (Wasista, 2020).

V. CONCLUSION

From the results of the analysis and discussion that has been carried out in the previous chapter, it can be concluded that the life expectancy variable as one of the research variables, most of the previous research conducted on economic growth very rarely used the life expectancy variable as an indicator. The longer life expectancy is usually one of the factors inhibiting economic growth due to the unproductive age which is an obstacle to economic growth. In this study, it was proven that life expectancy has a positive and significant influence on economic growth.

For further research, it is recommended to add variables that are expected to affect economic growth, or extend the research period so that it can provide a more objective picture of the results.

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Proposed Product Costing With ABC Method For E-Commerce of Organic Products

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Abstract

This study is to propose a product costing using the Activity-Based Costing (ABC) method. The object of the case study is PT X, an e-commerce company that sells local organic products. The decline in the profitability of PT X is presumed to be due to inaccurate product costs, leading to inappropriate decision-making regarding the selling price. Inaccuracy indicates that currently available product cost information only comes from net purchases. In contrast, overhead costs have not been allocated to products. Therefore, overhead costs must be accurately traced to products to avoid distortion of cost information. Previous studies on the ABC method mainly focused on manufacturing companies. This study traces overhead costs to products using EAD and APD matrices in a case study on e-commerce that has not been widely discussed. This research uses a case study strategy and a qualitative approach. Data collection was done through interviews with eight respondents, plus document analysis. The study found a significant difference between product costs using the ABC method and the costs of products currently available at PT X. The most significant difference of 139% is in the refill product. PT X to adopt the ABC method in product costing because it can accurately trace overhead costs consumed by each product. The implication is that PT X needs to re-price its products based on product costs using the ABC method.

Keywords—Activity-based costing; EAD and APD matrices; e-commerce; product cost

I. Introduction

The worldwide organic food market continues to grow. Global retail sales for organic food and beverages reached more than US$112 billion in 2019, growing by 55% since 2013 and will continue to increase in the years to come (Sahota, 2021). The assumption that organic food is healthier and environmentally friendly is one of the determining factors why consumers prefer organic over non-organic food (Hansmann et al., 2020). In addition, the high number of non-communicable diseases increases knowledge and health awareness and influences consumers to buy organic food (Pacho, 2020). Thus, awareness of health, food safety, and environmental concerns are important reasons why consumers prefer to consume organic food.

The Indonesian interest in consuming organic food increased during the Covid-19 pandemic, rising by 17.4% compared to the pra-pandemic (Wachyuni & Wiweka, 2020). Some organic food providers experienced a marketing growth of 100-300% at the beginning of the pandemic. However, some providers experienced little change, or even a decrease in demand (Organic Institute, et al., 2020). The high price is one of the barriers to customers buying organic food (Hansmann et al., 2020). In Indonesia, price is an important consideration and condition for consumers of organic products in making purchase decisions (Najib et al., 2020). Opportunities, as well as challenges to meet the essential requirements of organic food consumers, are continuously pursued by PT X, an e-commerce company that sells local organic products. PT X strives to provide healthier and environmentally friendly products with reliable availability and competitive prices. The mission of PT X is to make organic vegetables like "regular vegetables" in terms of price to attract consumers. PT X claims that the price of its products is lower than their competitors.

Since price is essential for Indonesian consumers, this must be determined very carefully. However, the price should be in the sweet spot between the desire to attract consumers, the requirement to cover costs, and expected profits (Länsiluoto et al., 2007). PT X experienced a decline in profitability throughout 2021 that was presumed to be driven by inaccurate product costing. Current product costs at PT X come from net purchases and do not allocate other direct costs and overhead costs attributable to their products. When accurate product cost is not available, decision-making errors can occur. Deciding on the best and most profitable strategy is not possible if information about product costs is distorted (Cooper & Kaplan, 1988). It means that product costs that only come from net purchases are no longer relevant to be used as a basis for pricing in PT X; prices can be set too high and are therefore unattractive to consumers, or too low to cover costs. Avoiding errors in analysis and making reliable decisions about prices are critical reasons for PT X to have accurate product cost information.

Activity-Based Costing (ABC) is designed to provide more accurate information about production, activity, and product costs so that companies can focus on products and processes that maximize profits (Cooper & Kaplan, 1990). In brief, ABC is assignment cost based on activities. PT X has three distinct product groups, namely harvest, stock, and refill, each of which require a unique set of product handling activities; by using the ABC

method, it can be seen that each product absorbs different activities and costs. Product costs obtained from ABC are utilized to determine the right price and as the basis for other strategic decisions.

II. LITERATURE REVIEW

Decades ago, distorted cost information was due to choosing an inappropriate costing system; this led Cooper and Kaplan to propose an alternative method called Activity-Based Costing. The theory proposed that almost all company activities support creating a product or service, from production to delivery, excluding research and development and idle capacity costs (Cooper & Kaplan, 1990). Product costs are those costs related to the production of goods or the provision of services, while non-production costs are related to research and development, selling, and administration costs (Hansen et al., 2009). Thus, only costs related to activities to produce goods and services, such as the cost of raw materials, direct labour, and overhead costs, can be assigned to products or other cost objects. In merchandising companies, the cost of purchasing and product transportation is part of the overall product cost (Blocher et al., 2019).

Tracing costs to cost objects is divided into direct and overhead costs. As seen in Figure 1, direct costs are traced straight to cost objects, while overheads go through two stages (Blocher et al., 2019). The two steps in the first stage are i) identifying the activities and cost resources and then ii) assigning the costs of these resources to activities. In the first stage, it is necessary to determine the resources consumed by the activity because it may only consume a small amount of the resources in the cost account on the company's financial statements (Blocher et al., 2019). The second stage is assigning activity costs to cost objects, where an activity is taken to mean the action performed by people or equipment in the organization (Hansen et al., 2009). The overhead cost tracing process uses cost drivers, defined as factors that change or generate activity costs (Cooper & Kaplan, 1990). Tracing overhead costs in stages, as shown in Figure 1, demonstrates that ABC focuses on how to correctly assign overhead costs to products.
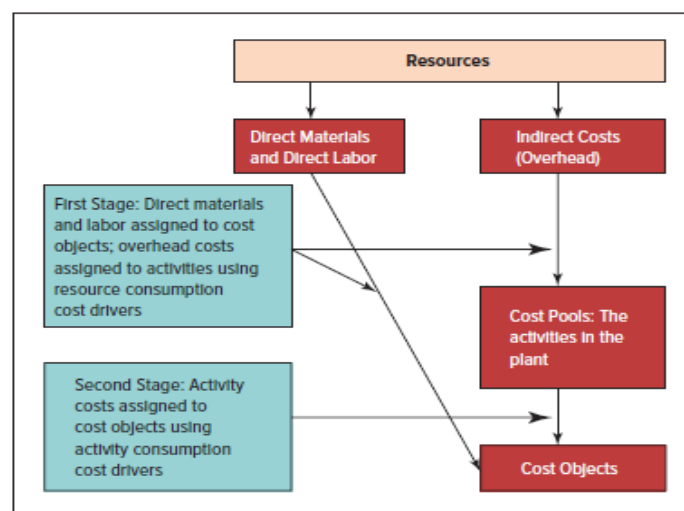
Fig.1. The Activity-Based-Two-Stage Procedure (Blocher et al., 2019)

Some studies state that the application of ABC in organizations has both advantages and disadvantages. The primary obstacle to implementing ABC is that it tends to be a complex and high-cost exercise (Pietrzak et al., 2020). However, the advantage of ABC is as a long-term investment that supports companies focusing on marketing products to profitable customers in order to gain financial benefits through growth and profitability (Jänkälä & Silvola, 2012). ABC is not designed to deliver automated decisions, but rather to allocate costs accurately, and even though only 5% or 10% of costs can be traced to products, it is still more valuable than allocating all costs without any basis (Cooper & Kaplan, 1990).

The conceptual framework in Figure 2 is designed to lay out the logical flow underpinning this research. Tracing overhead costs uses the Expense-Activity-Dependence (EAD) Matrix to link costs to activities, while the

Activity-Product-Dependence (APD) Matrix is used to link activities to products (Roztocki et al., 2004). Tracing direct and overhead costs results in more accurate product costs.
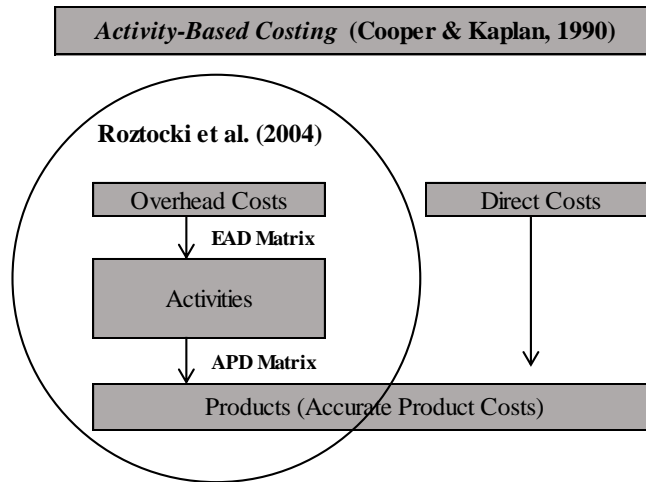
Fig. 2. The Conceptual Framework

Previous studies regarding product costing using the ABC method mainly use manufacturing companies as the object of study. Two studies have been found that utilize the EAD and APD matrices as tools to trace costs; one traces the overhead costs for postal operators' services (Blagojevi & Markovi, 2010), and the other seeks to determine route costs for Italy's national and international transport service companies (Raucci & Lepore, 2020). Both studies found that implementing ABC had a beneficial impact, especially for small and medium-sized companies that still use the traditional cost system. The difference between this study and previous research is in the object of study. This research is based on a case study of ABC implementation utilizing EAD and APD matrices in an e-commerce company to determine its product pricing. Accurate cost assignment using the ABC method provides an opportunity to improve cost allocation, operational performance and business strategy decision making.

III. RESEARCH METHODOLOGY

This research uses a case study strategy and a qualitative research approach. Data collection instruments include interviews and document analysis. Several documents are analyzed in this study, namely the financial statements of PT X for the period January-December 2021, data on product purchases and sales, pick-up and delivery data, and a list of products offered on the PT X web store. Interviews were conducted with eight selected respondents, specifically the director of PT X, the financial manager, and six members of staff. The respondents were selected by PT X to match the criteria the company was given, namely staff who are experienced and have the deepest understanding of the activities in their respective divisions. These criteria are the most standard approach to collecting the information needed to create a list of activities for the ABC method (Hansen et al., 2009). This study divides the implementation of the ABC method into five stages. There follows the details of each stage, in the form of steps taken, designed to understand the causal relationship between activities, costs, and products.

Stage 1. Identify activities and activity drivers. The first step is to understand the company's business processes and then identify and classify each one as either primary or secondary. Based on the definition and details of the activities at PT X, only four are directly related to, and consumed by, the final cost objects which, in this case, are products. These four activities are; (1) purchasing, (2) picking up products, (3) sorting, packaging, and storing, and (4) delivering products to customers.

The next step is to define the activity driver. Understanding the activities at PT X is also intended to assist in determining the activity drivers that are associated with the activity-level classification or cost hierarchy. Purchasing, picking up products, sorting, packaging, storing, and delivering products are batch-level activities that are unaffected by the number of units. However, the number of purchase orders drives purchases; picking up products is driven by the number pick-ups; and the number of invoices drives product deliveries. Furthermore,

the intensity of these activities drives the sorting, packaging, and storing of products. The list of primary activities and activity drivers is shown in Table 1.

Table 1. Primary activities and activity drivers

Primary Activity	Activity Drivers	Activity-Level
Purchasing products	Number of purchase orders	*Batch-Level Activity*
Picking up products	Number of times products are picked-up	*Batch-Level Activity*
Sorting, packaging, and storing products	Intensity of activities	*Batch-Level Activity*
Delivering products	Number of invoices	*Batch-Level Activity*

Source: Respondents MK and S1 (2022)

Stage 2. Identify costs and cost drivers. The first step in this stage is to understand the costs incurred by PT X, and this understanding is derived from examining the financial statements. Then, costs are classified according to their relationship to the product. Costs that can be assigned directly to products are included in direct costs, whereas those that cannot be directly assigned but are consumed by primary activities are classified as overhead costs and are assigned to products on an activity basis. Meanwhile, costs that are neither consumed directly nor indirectly in the purchasing process until the delivery of the product are classified into period costs and are not assigned to any product. The next step is to define the overhead cost driver. Table 2 shows costs and cost drivers.

Table 2. Costs and cost drivers (000's)

Expenses	Amount	Direct costs	Assigned to products based on activities		Period costs
			Overhead costs	Cost drivers	
Net Purchase of harvest products	1.515.768	1.515.768			
Net Purchase of stock products	673.656	673.656			
Net Purchase of refill products	143.826	143.826			
Packaging	37.071	37.071			
Direct labour	19.920	19.920			
Courier	238.804		238.804	Number of drop-off points	
Agent transit	101.012		101.012	Number of agents	
Transportation	285.509		285.509	Distance	
Payment gateway fees	69.372		-		69.372
Advertising and promotion	54.354		-		54.354
Salaries and allowances	1.603.520		519.019	% of working hours	1.084.501
Repair and maintenance	25.213		22.691	Number of assets repaired	2.521
Dues and subscriptions	161.359		-		161.359
Electricity	61.192		42.681	Space size	18.510
Securities and cleaning	66.537		55.775	Space size	10.761
Vehicle rental	29.250		29.250	Number of vehicles	-
Office expenses	70.869		-		70.869
Miscellaneous	36.216		-		36.216
Total	5.193.446	2.390.241	1.294.741		1.508.464

Source: PT X Financial Statement (2021)

Stage 3. Tracing overhead costs to activities. The first step here is to create an EAD matrix using an Excel worksheet. The matrix consists of columns containing a list of activities and rows containing a list of costs. The checkmarks on the matrix, as illustrated in Table 3, shows that the costs incurred can come from several activities or only from specific activities. Marking the matrix looks simple, but it can guide companies in understanding the relationship between costs, activities, and products at the beginning of the ABC implementation (Roztocki et al., 2004).

Table 3. EAD matrix-relationship between cost and activities

Overhead costs	Purchasing products	Picking up products	Sorting, packaging, and storing products	Delivering products
Couriers				√
Agent transit				√
Transportation		√		√
Salaries and allowances	√	√	√	√
Repair and maintenance		√		√
Electricity			√	√
Securities and cleaning			√	√
Vehicle rental				√

Source: Respondent S1 (2022)

The second step is determining the proportion of activity contributions to costs, as shown in Table 4. The proportion was determined in two ways: the educated guess technique and the actual data (Roztocki et al., 2004). The actual data was acquired from accounting staff. For example, delivering products consumes 100% of the courier, agent transit, and vehicle rental costs. Actual mileage data, as the cost driver of transportation, shows that picking up products consumes 19.32% and product delivery 80.68% of the total transportation cost. Thus, this proportion is assigned to activities in the EAD matrix.

An educated guess is used to determine the estimated number of working hours, due to the unavailability of actual data. Each employee has been interviewed about their duties and asked to estimate their working hours. Then, the duties are classified into primary or secondary activities. The percentage of working hours for primary activities is then calculated from the total working hours of each employee.

Then, the checkmarks are replaced with predetermined proportions derived from actual data and the educated guess technique. A 1 in the 'Total' column indicates that the costs identified in that row are assigned 100% to one or more activities.

Table 4. EAD matrix-proportion of activity to costs

Overhead costs	Purchasing products	Picking up products	Sorting, packaging, and storing products	Delivering products	Total
Couriers	0	0	0	1,0	1
Agent transit	0	0	0	1,0	1
Transportation	0	0,1932	0	0,8068	1
Salaries and allowances	0,0553	0,1588	0,4036	0,3823	1
Repair and maintenance	0	0,5000	0	0,5000	1
Electricity	0	0	0,9341	0,0659	1
Securities and cleaning	0	0	0,9341	0,0659	1
Vehicle rental	0	0	0	1,0	1

Source: Respondents S1 & S6 (2022)

The final step in this stage is to calculate the cost consumed, in rupiah, by each activity. The proportions shown in Table 4 are multiplied by overhead cost in Table 5 to obtain the total rupiah. Then each row is summed to get the total activity cost. The amount in the total activity cost row must be equal to the amount in the total cost column of Rp1.294.741 meaning that all costs have been charged to the activity. Table 5 shows the result of activity costs.

Table 5. EAD matrix-activity costs (000's)

Overhead costs	Purchasing products	Picking up products	Sorting, packaging, and storing products	Delivering products	Total overhead costs
Couriers	-	-	-	238.804	238.804
Agent transit	-	-	-	101.012	101.012
Transportation	-	55.162	-	230.346	285.509
Salaries and allowances	28.700	82.397	209.498	198.424	519.019
Repair and maintenance	-	11.346	-	11.346	22.691
Electricity	-	-	39.869	2.812	42.681

Securities and cleaning	-	-	52.101	3.675	55.775
Vehicle rental	-	-	-	29.250	29.250
Total activity costs	28.700	148.905	301.468	815.668	1.294.741

Source: Respondents S1 & S6 (2022)

Stage 4. Tracing activities to products. The steps here are the same as tracing cost to activities on the EAD matrix. The first step is to create an APD matrix using an Excel worksheet. The second step is to determine the relationship between activity costs and product by ticking the checkmark on the matrix. An activity may have no relationship with a specific product, or may even have a relationship with all products, as seen in Table 6.

Table 6. APD matrix-relationship between activities and products

Activities	Harvest	Stock	Refill
Purchasing products	√	√	√
Picking up products	√	√	-
Sorting, packaging, and storing products	√	√	√
Delivering products	√	√	√

Source: Respondents S1 & S6 (2022)

The third step is to obtain the proportion of activity contributions to products from actual data and from educated guesses. For example, the number of purchase orders throughout 2021 is known to be 3.490, consisting of 2.757 (79%) for harvest products, 497 (14,24%) for stock products, and 236 (6,76%) for refill products. The educated guess technique is used to estimate the intensity of the sorting, packaging, and storing activity because each product is handled differently. The proportion of activities to product is then entered into the EAD matrix, as per Table 7.

Table 7. APD matrix-proportion of activity to products

Activities	Harvest	Stock	Refill	Total
Purchasing products	0,7900	0,1424	0,0676	1
Picking up products	0,9349	0,0651	-	1
Sorting, packaging, and storing products	0,3333	0,3133	0,3533	1
Delivering products	0,6022	0,3007	0,0971	1

Source: Respondents S1 & S6 (2022)

The last step is to calculate the activity costs, in rupiah, consumed by each product. The proportions shown in Table 7 are multiplied by each activity cost shown in Table 5. Then, each column is summed up to obtain the total cost of the product. The total in the product cost column must be the same as the total in the activity cost row. After all the stages and steps to this point are carried out, tracing the overhead costs to products, with the help of the EAD and APD matrices, is complete. Table 8 summarizes the results of calculating all activity costs assigned to products.

Table 8. APD matrix-product costs (000's)

Activities	Harvest	Stock	Refill	Total
Purchasing products	22.672	4.087	1.941	28.700
Picking up products	139.205	9.700	-	148.905
Sorting, packaging, and storing products	100.489	94.460	106.519	301.468
Delivering products	491.182	245.274	79.213	815.668
Total overhead costs	753.548	353.521	187.672	1.294.741

Source: Respondents S1 & S6 (2022)

Stage 5. Tracing direct costs to products. Direct costs consist of product purchases, packaging, and direct labour costs. These costs are assigned to products based on actual data absorbed by each product, as shown in Table 9.

Table 9. Assign direct costs to products (000's)

Costs	Harvest	Stock	Refill	Total
Net purchase	1.515.768	673.656	143.826	2.333.250
Packaging	-	25.062	12.009	37.071
Direct labour	19.920	-	-	19.920
Total direct costs	1.535.688	698.718	155.835	2.390.241

Source: Respondents S1 & S6 (2022)

IV. RESULT / FINDING

The product costs resulting from the ABC method are compared to the costs used by PT X to determine the price. Table 10 shows a significant difference of more than 50%, between existing product costs (Row D) and product costs with the ABC method (Row C). The most significant difference, 139%, is in refill products. The difference shows that direct and overhead costs amounting to Rp1.351.732 should be allocated to these products.

Then, the percentage difference between the two product costs is compared with the margin percentage determined when setting prices for each product. Row G shows that the margin percentage set for stock and refill products is smaller than the percentage difference in product costs (Row F). It shows that PT X set a lower price than the cost of the product. Stock and refill products are at a loss. The current margin cannot cover direct costs and overheads, including expected profits.

Table 10. The product costs comparison (000's)

Descriptions	Harvest	Stock	Refill	Total Costs
A. Direct costs	1.535.688	698.718	155.835	2.390.241
B. Overhead costs	753.548	353.521	187.672	1.294.741
C. Product costs (ABC)	2.289.236	1.052.239	343.508	3.684.983
D. Product costs (Existing)	1.515.768	673.656	143.826	2.333.250
E. Difference (Rp)	773.468	378.583	199.681	1.351.732
F. Difference (%)	51%	56%	139%	
G. % of current margin	67%	44%	35%	

Source: PT X Financial Statement (2021)

V. DISCUSSION

The results and findings presented in Table 10 indicate that PT X set prices that are lower than the product cost. The current margin cannot cover the direct and overhead costs, let alone the expected profit. The research findings confirm that the existing product costs are inaccurate. Product costs that only come from net purchases and neglect significant overhead costs cannot be relied upon as a basis for price determination. There are two indications to justify adopting the ABC method as a product cost approach at PT X, namely the existence of a significant cost difference (Hansen et al., 2009) and the tendency towards high overhead costs, which allows for distortion of cost information (Roztocki et al., 2004).

The research findings imply that PT X needs to consider increasing their prices, especially for stock and refill products. The percentage of the appropriate margin requires further study because other influencing factors and confounders must to be identified, such as sales of the product itself, competitor sales, and other strategic considerations (Shapiro & Sawyer, 2003). Any price increase may impact consumers' purchase decisions, given that consumers of organic products are price sensitive. For this reason, PT X needs to review their activity costs. For example, in the APD matrix shown in Table 9, there is a high costs for delivery activities, and these need to be analysed to determine whether some of these activities are actually inessential and do not add value. The same applies to sorting, packaging, and sorting activities. Analysis and elimination of non-value-added and non-essential activities will certainly improve cost efficiency.

VI. CONCLUSION AND RECOMMENDATION

Based on the analysis and discussion, the following conclusions and recommendations are hereby offered. Using the ABC method provides more accurate cost information than is currently the case. The actual costs of each product can be used as the basis for pricing at PT X. The ABC method helps management avoid setting prices lower than product costs. It also provides improvement opportunities for the activities that absorb more costs. PT X can then ascertain which products are profitable and which are not. In order to bring these advantages to fruition, acceptance and support from management and employees is vital to change from the current costing system to the ABC method.

This study recommends applying the ABC method at PT X for several reasons.

a. A significant difference arises from the comparison between ABC product costs and traditional product costs, proving that existing costs are irrelevant as the basis of pricing.
b. This is a small company, with fewer than 100 employees, so the data collection process does not require a significant time investment.

c. Using the EAD and APD matrices does not require investment in high-cost specialized software or applications. The matrices are run on Microsoft Excel, a program commonly used by the finance staff that is easy to operate, and allows for error-free calculations.

There are two limitations to this study. First, actual data on employees working hours are not known. If the actual data is owned, the allocation of salary and allowance costs will be more accurate. The second limitation is that this research was conducted during the Covid-19 pandemic, so the direct observations required to collect data for the ABC method (Hansen et al., 2009) could not be made. Observing activities directly, especially the sorting, packaging, and storing, may lead to more accurately determining activity drivers and proportions.

Further research on implementing ABC could use the Analytical Hierarchical Process (AHP) to determine the proportion for which actual data cannot be obtained; this delivers a higher level of accuracy than the educated guess technique. In addition, different matrices, such as the lattice matrix, could be utilized to trace overhead costs. Future research is expected to improve the reliability of cost information at PT X and other e-commerce companies.

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Performance Improvement Of Outsourced Government Employees Through Organizational Commitment And Organizational Citizenship Behavior (Ocbs)

Abstract

This article addresses the low performance of outsourced employees at the Department of Population Control, Family Planning, Women's Empowerment and Child Protection (PPKBP3A) in Ciamis Regency because the targets set in the government's performance have not been achieved. The employee is allegedly due to the absence of organizational commitment and Organizational Citizenship Behavior (OCB) of employees in meeting work targets and objectives. The aim is to understand and analyze the relationship between organizational commitment and OCB on the performance of outsourced employees at the PPKBP3A Office, Ciamis Regency. The method used is descriptive, where the analysis uses path analysis by lisrel including coefficient of determination, and correlation. The result is that there is a positive and significant relationship between OCB and OC variables on employee performance. where the results of path analysis lisrel structure equation is performance = 0.454 OC + 0.506 OCB + 0.292 e, where R2 is equal to 0.708. Outsourced employees need government treatment in an effort to increase organizational commitment and OCB so that their performance increases. Thus, it is necessary to take a series of simultaneous actions in educating outsourced employees starting from before being accepted as an employee, after being accepted and evaluating performance. This article aims to broaden the point of view of the research object that differs between permanent and outsourced employees in the field study of human resource management—another contribution for the government in implementing employee outsourcing.

Keywords—Organizational commitment; organizational citizenship behaviors; employee performance; outsourcing employees; non-government employees

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I. INTRODUCTION

The success of an organization is strongly influenced by the performance of individual employees individually and collectively, which impacts its society. Therefore, every organization always tries to improve employee performance to achieve its goals through continuous improvement efforts (Luu, 2019; Nahrisah & Imelda, 2019; Pio & Tampi, 2018). However, this process does not just stop there; the classic thing in organizations is that performance targets that are not following the organization's wishes are still a problem always faced in an organization. In particular, the organization must know the factors that influence employee performance to meet the elements of causality by deduction and induction (Graham, 1991; Hanh Tran & Choi, 2019; Vipraprastha et al., 2018; Yohana, 2017). In addition, of course, in the perspective of innovative work behavior, it can be a decision for managers in terms of employee suitability, motivation, and innovative work behavior, especially in autonomous motivation (Saether, 2019).

Several researchers have found that factors affect employee performance in carrying out their duties (Pio & Tampi, 2018; Ribeiro et al., 2018); it can be sourced from individual and organizational environmental factors (Griep & Vantilborgh, 2018). Organizations can improve and maximize employee performance when employees have an exemplary organizational commitment and Organizational Citizenship Behavior (OCB) in carrying out their work (Khan et al., 2020). The development of an attitude of commitment and OCB is undoubtedly essential to encourage the company's growth. On the other hand, high performance comes from organizational commitment and OCB, which provides a strong bond between employees and the organization to carry out their obligations properly according to their roles and positions. This bond is in the form of social citizenship, which is formed due to social transactions and interactions between the company and its employees (Lin et al., 2010; Vipraprastha et al., 2018).

Employees as human resources in an organization are not only required to be able to carry out their duties properly. When an employee joins an organization, it is expected that the employee will have loyalty and concern for the organization's future and is always ready to support the organization in achieving its goals (Luu, 2019). One of the efforts to achieve organizational goals is to have employees committed to the organization. Organizational commitment is needed as an indicator of employee performance in an organization in building loyalty (Podsakoff et al., 2009). Organizational commitment has the meaning of loyalty and involves a dynamic relationship and the desire of employees to make a meaningful contribution to the organization (Pristiwati, 2018). We can conclude that the higher the commitment, the higher a person's tendency to be directed to actions following

employee performance. The existence of a burden will make employees actively support all organizational activities. Therefore organizations need to pay more attention to the presence of their employees so that organizational commitment to the organization is also high. (Hutagalung et al., 2020).

Organizational commitment and OCB within employees are two aspects that organizations highly expect to improve organizational performance. Companies that can encourage their employees always to be obedient to the values and rules in the workplace, helpful behavior, and maintain good relations with coworkers. Companies will be able to provide more significant opportunities to improve the competence of their employees, which will have an impact on work results. And the achievement of organizational goals (Jufrizen et al., 2020; Mahayasa, 2018). However, not all research focuses on outsourcing to district governments, especially those that specifically address reproductive health and control of prosperous and underprivileged families. Non-civil servant officers at the Office of Population Control, Family Planning, Women's Empowerment, and Child Protection (PPKBP3A) in Ciamis Regency are interesting to study because they have no organizational commitment, OCB. They are not permanent employees who have a long future and career path to work in a company organization, but the company also has an assessment of the performance and achievements of these employees. Outsourcing performance assessment at the PPKBP3A Office in Ciamis Regency is based on the Regulation of the Head of the National Population and Family Planning Agency Number: 87/Per/G3/2014, namely: [1] the achievement of the estimated demand for new Family Planning participants; [2] increased prevalence of contraception rate; [3] fostering active family planning participants; [4] increasing family resilience and empowerment programs through group development activities for under-five families, youth family development, elderly family development, and efforts to increase prosperous families.

Achievements of New Active Family Planning (contraception) Participants January-December 2020

District	Value
PAMARICAN	86,63
SUKADANA	84,52
BANJARANYAR	84,38
RANCAH	83,26
CIAMIS	83,06
CIMARAGAS	82,81
BANJARSARI	82,67
CIPAKU	82,31
PANJALU	81,68
PANAWANGAN	81,57
KAWALI	81,29
SUKAMANTRI	80,71
SINDANGKASIH	80,37
LAKBOK	80,25
KAB. CIAMIS	80,22
CIJEUNGJING	79,97
BAREGBEG	79,27
LUMBUNG	78,45
CISAGA	78,32
PURWADADI	78,22
TAMBAKSARI	77,87
PANUMBANGAN	77,51
CIDOLOG	77,50
CIKONENG	77,22
JATINAGARA	77,01
RAJADESA	76,67
CIHAURBEUTI	75,19
SADANANYA	73,57

average regency achievement 80.22

a.

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RAJADESA	76,67
CIHAURBEUTI	75,19
SADANANYA	73,57

average regency achievement 80.22 participant

b.

c.

Fig 1. The performance achievements of the PPKBP3A office from January to December 2020 can be seen from: a. achievement of new family planning participants; b. achievement of active family planning participants; c. KB dropout rate percentage (Source : Dinas KB Kabupaten Ciamis, 2021)

The performance of outsourcing employees at the PPKBP3A Office in Ciamis Regency has not been optimal. Namely: the agency's performance target has not been achieved. The achievement of family planning participants and active family planning participants must be above 100%, and the use of contraception that has dropped out (mean termination) is less than 10%. Figure 1 shows that half of the sub-districts in the Ciamis Regency have not yet reached the target set. In addition, many of the achievements achieved by outsourcing employees in sub-districts are below 100.62% of the district average. Some of these districts are:

Sukadana was 98.77%, Banjarsari 98.47%, Cikoneng 97.41%, Pamarican 97.43%, Sadananya 90.98%, Cijeunjing 95.26%, Rajadesa 93.67%, Cimaragas 92.93%, Tambaksari 89.27%, Cidolog 83.46%, Banjaranyar 79.54%, and Panjalu 78.70%. In achieving new family planning participants, outsourcing performance is still, on average, 80.22%, and almost half of the sub-districts handled by outsourcing employees are still below 80%. In addition, the dropout rate for family planning participants is still high from the target of less than 10%. Still, the average Ciamis District is 13.46%, and almost all sub-districts handled by outsourcing do not reach less than 10%. The low achievement caused disappointment for the government agency because its outsourcing performance affected the government's performance.

The situation shows that the development of active family planning participants is still not optimal. This non-optimality causes a gap. Namely, outsourcing employees are considered temporary employees. Still, they have better abilities and motivation to get good performance to extend employee tenure to benefit the organization. On the other hand, the performance target set by the PPKBP3A Office in Ciamis Regency cannot be achieved, while there are fewer government employees to be able to work in the field in each sub-district. In this case, there are still no disciplined employees; there are not present without prior notification to supervisors. The employees often never helped other employees with tasks other than their respective main tasks. Employees at work are still waiting for orders from superiors, which are less than optimal. Employees' contribution in anticipating problems that occur in the organization and the lack of employee initiative in carrying out their duties.

This study aimed to improve the performance of outsourced employees at the PKBBP3A Ciamis Regency through organizational commitment and OCB. Therefore, the analysis was carried out using the stages of the influence between employee performance and organizational commitment, the impact between employee performance and OCB, and the impact between employee performance and organizational commitment and OCB.

Several researchers have found that there is a positive influence between performance on organizational commitment (Darmawan, 2021; Giyanti, 2020; Nurul Indika, 2020; Saputri et al., 2021), the effect of performance with OCB (Basalamah & Saleh, 2020; Kholifah, 2014; Pratama, 2020; Sompie et al., 2022; Sukandar, 2019), and the effect of performance on organizational commitment and OCB (Farid et al., 2019; Motowidlo, 2000; Nahrisah & Imelda, 2019; Purwantoro, 2019). However, all research by scholars has been carried out on the object of companies, institutions, or organizations where the focus is on permanent employees; this research focuses on outsourcing employees who have duties as field officers who guide the community in implementing Family Planning achievement indicators at the district level. This research is significant for contributing to the field study of organizational management and human resources on the side of outsourcing workers or non-employees of the district government. Furthermore, this research also contributes to managing human resources at the outsourcing of the Family Planning Office in districts/cities in Indonesia, which also faces the same problem as part of problem solving and human resource management policies.

II. Literature Review

Organizational commitment can be interpreted as shown by employees to fulfill organizational goals and objectives by implementing the organization's values with a high sense of belonging and wanting to continue to serve. Organizational commitment can be affiliated with the organization individually and collectively (Luu, 2019; Nahrisah & Imelda, 2019; Pio & Tampi, 2018). That is not transactional work in terms of wages and employment but reflects building social relationships that continue to psychological comfort (Darmawan, 2021; Nurul Indika, 2020; Saputri et al., 2021). Organizational commitment can be considered the level of employee dedication to the organization where he works, the willingness to work on behalf of the organization's interests, and the possibility of maintaining its membership (Helastika & Izzati, 2019; Qurbani & Solihin, 2021). Commitment is considered a person's power over actions related to one or more goals. In another opinion, commitment is the power to bind an individual to a movement relevant to one or more purposes (Gombe & Danladi, 2019; Wei & Tai, 2010). Finally, engagement is an attitude that reflects employee loyalty to the organization and is an ongoing process in which the participants in the organization express their concerns about the organization, its success, and well-being (Luthans, 2011). There are four general behavioral indicators of organizational commitment (Kaswan, 2011), namely: [1] willingness to help colleagues complete administrative tasks; [2] unifying the activities and priorities that are owned to achieve the goals of the larger organization; [3] understand the organization's need to achieve larger organizational goals.

The performance of employees mainly determines the success of various agency activities. The better the performance of the agency's employees, the better the performance of the company/institution. The term performance comes from the term job performance or actual performance. The quality and quantity of work employees perform when they perform their duties following their assigned responsibilities. In other words, performance is prime what employees do or don't do in carrying out their work (Priansa, 2018). The coefficient of psychological ability consists of IQ (intelligence quotient) and potential abilities called actual abilities (knowledge + ability). In addition, motivational factors are formed by employee attitudes in dealing with work situations. The mental attitude itself is a state of mind that encourages employees to do their best at work. Therefore, the mental attitude of employees needs to be prepared mentally (mentally, physically, intentional, and situationally ready). In short, employees must be mentally and physically prepared, understand the main goals and work objectives, and take advantage of the work context (Podsakoff et al., 2009; Purwantoro, 2019; Ribeiro et al., 2018).

OCB is an individual contribution that goes beyond the requirements of a role in the workplace. This OCB contains various actions that help others voluntarily assign additional responsibilities and comply with workplace rules and procedures. This behavior shows the added value of employees, which is a form of prosocial behavior. In short, it encourages positive, constructive, and meaningful social conduct (Titisari, 2014). Another opinion is As an additional role behavior of employees, the most fundamental difference is in compensation. This behavior is usually not rewarded. Individual behavior is not summed up in rewards. There is no additional incentive for employees acting in particular roles (Kurniawan & Alimudin, 2015). Based on the above definition, it can be concluded that OCB is organizational behavior for employees who work beyond the demands of the role (extra-role) outside the job description, which is voluntary and is a personal choice, has a concern for helping colleagues, obeys administrative regulations, tolerates situations that less than ideal, avoid conflicts with coworkers, and play an active role in contributing to the interests of the organization.

OCB has dimensions: [1] altruism, namely the behavior of employees helping coworkers who are having difficulties in the situation at hand regarding tasks in the organization and other people's problems. This dimension refers to giving help which is not an obligation he bears; [2] conscientiousness, showing behavior led by trying to exceed what the company expects. Voluntary behavior that is not an employee's obligation or duty. This dimension reaches far beyond the call of duty; [3] sportsmanship, namely conduct that tolerates less than ideal conditions without raising objections. Someone who has a high level of sportsmanship will increase a positive climate among employees; employees will be more polite and cooperate with others to create a more pleasant work environment; [4] Courtesy, maintain good relations with coworkers to avoid interpersonal problems. A person who has this dimension is a person who values and cares for others; and [5] civic virtue, showing behavior that indicates responsibility in organizational life (following changes in the organization, taking the initiative to recommend how can improve operations or managerial procedures and protecting corporate resources). This dimension refers to the responsibility that the organization gives to a person to improve the quality of the field of work occupied.

The cause of the non-optimal performance of outsourcing employees is the low organizational commitment due to the quiet sense of fairness and employee job satisfaction due to the high workload and inappropriate benefits. In addition, work security is not guaranteed because outsourcing employees can be laid off. Furthermore, some employees do not understand the Family Development and Family Planning program due to a lack of training (Herlina, 2014), lack of employee involvement (Mardiyanti et al., 2019; Yanti et al., 2018), and a crisis of trust within the organization. In addition to organizational commitment, the low level of OCB owned by outsourcing employees is also the cause of the non-optimal performance of the PPKBP3A Office in Ciamis Regency. In this case, there are still employees who are not disciplined, and there are employees who are not present without prior notification to superiors, there are employees who have never helped other employees with tasks other than their respective main tasks, employees at work are still waiting for orders from superiors, less than optimal. Employees' contribution in anticipating problems that occur in the organization and the lack of employee initiative in carrying out their duties.

Another critical factor that can increase productivity and affect performance in a company is behavior that leads to positive things or known as OCB (Mahayasa, 2018; Vipraprastha et al., 2018). Organizations generally believe that to achieve excellence, they must strive for the highest individual performance because, basically, individual performance affects the performance of a team or workgroup and ultimately affects the performance of the organization as a whole (Asih & Dewi, 2017). Therefore, the behavior that is demanded by organizations today is not only in-role behavior but also extra-role behavior. Extra-role behavior is critical because it provides better benefits to support its sustainability. Extra-role behavior is behavior at work that is not contained in the employee's formal job description but is highly appreciated if displayed by the employee because it increases the effectiveness and viability of the organization (Farida, 2021; Hidayati, 2019). This extra-role behavior is also known as Organizational Citizenship Behavior (OCB). OCB is a term used to identify employee behavior. OCB is a form of behavior that is an individual choice and initiative, not related to the organization's formal reward system but, in aggregate, increases organizational effectiveness. This means that this behavior is not included in the employee's job requirements or job description, so it will not be punished if it is not displayed (Srimulyani et al., 2016).

OCB is related to the manifestation of an employee as a social being (Webb, 2018). Of course, he must have good social capital in an environment. The most important is trust (Syarifudin & Ishak, 2020). OCB is a form of voluntary activity from organizational members that support managerial functions. The OCB will be low because of the accumulation of several employees who incite other employees with attitudes usually expressed in actions that show selflessness and concern for others. Employees who have OCB will control their behavior to choose the best behavior for the organization's benefit (Husniati & Pangestuti, 2018; Podsakoff et al., 2009). Successful organizations need workers who are willing to do work beyond what the organization expects. Therefore, OCB behavior in employees deserves special attention and appreciation so that employees are encouraged to do OCB. These behaviors include helping coworkers, obeying workplace rules and procedures, and volunteering for extra tasks (Pristiwati, 2018; Saputri et al., 2021). Thus the variables we chose are depicted in Figure 2.

OC (X₁):
1. Fairness and Job Satisfaction
2. Job Safety
3. Organizational understanding
4. Employee Engagement
5. Employee Trust

(Priansa, 2018)

OCB (X₂):
1. Helpful behavior
2. Behavior that exceed prerequisites
3. Ability to tolerate
4. Courtessy
5. Civic virtue

Titisari, 2014

(Ticoalu, 2013)

(Novella et al., 2016)

(Ticoalu, 2013)

Performnce (Y):
1. Achievement of task
2. Increased CPR
3. Evelopment of active family Planning
4. Increasing family resilience and empowerment

(Perka KKBN Number:87/Per/G3/2014)

Fig 2. Research Framework

Based on the framework, the research hypotheses that we suggest are:

H1 : OC is suspected of partially correlation employee performance.

H2 : OCB is suspected of having a partial correlation on employee performance.

H3 : OCB and OC are suspected to correlation employee performance simultaneously.

III. RESEARCH METHODOLOGY

The research location is the Office of Population Control, Family Planning, Women's Empowerment and Child Protection, Ciamis Regency, located at Jalan Jendral Ahmad Yani, No. 38 Ciamis District. The research schedule that the author uses is for eight months, starting from November 2020 to August 2021. The total population in this study is all outsourced employees in the PPKBP3A Office of Ciamis Regency, with as many as 116 employees. This study simplifies the population, namely the number of outsourced 116 employees, by calculating the sample size using the Slovin technique. The number of sampling are 54 people from all the total outsourcing employees. This study uses a quantitative descriptive approach according to the research problem has two qualitative and quantitative points of view.

Data collection is a systematic and standard procedure to obtain the required data, and data collection can be carried out in various natural settings (Arifin, 2020; Sugiyono, 2017). The data collection activities used in this study are: [1] Literature research is carried out by searching scientific journals, books, data collection, government documents, and reports which will then compile as supporting data; [2] Field search, which was carried out utilizing observation and obtaining perception data using the instrument on the questionnaire. The questionnaire results will be in the form of numbers, statistical analysis tables, and research descriptions and conclusions. This questionnaire contains statements that contain the variables X and Y. The assessment of the questionnaire uses a numerical rating from a weighted value of one to five. Where do not agree (1); disagree (2); hesitant (3); consent (4); strongly agree (5). [3] interviews were conducted by collecting data by asking for an explanation directly from the parties concerned. Collecting data using a questionnaire, namely by asking or making a list of questions addressed to respondents that logically relate to the research problem. Data analysis uses path analysis from Lisrel 8.70 software to facilitate the analysis process. We chose the path analysis to answer the hypothesis and explained its causality through correlation and regression testing through the direct path. The model used is path analysis-multiple regression. We decided this because the sampling was less than 100, in addition to knowing the correlation between two exogenous variables, X_1, X_2, and one endogenous variable, Y, without intervening variables. The variables in this study include OC (X_1) yaitu fairness and job satisfaction, job safety, organizational understanding, employee engagement, employee trust (Priansa, 2018). Untuk OCB (X_2) variabel yang digunakan meliputi helpful behavior, behavior that exceed prerequisites, ability to tolerate, courtessy, and civic virtue (Titisari, 2014). Variabel Performance (Y) adalah schievement of task, increased CPR, evelopment of active

family Planning, and increasing family resilience and empowerment (Perka KKBN Number:87/Per/G3/2014). Adapun rumus yang digunakan untuk path analysis model regresi berganda adalah :

$$Y = \rho yx_1 + \rho yx_2 + \mathcal{E} \qquad (1)$$

Dimana :

ρ = regression coefficient

Y = performance

X1 = OC

X2 = OCB

$\mathcal{E}$ = standard error

The direct effect of X_1 on Y was; H_o: $X_1Y = 0$ (There is no significant effect of OC on performance); H_a: $X_1Y \neq 0$ (There is a significant effect of OC on performance). Criteria: a) H_o is rejected, or H_a is accepted if the significance is < 0.05; H_o is received, or H_a is rejected if the significance is > 0.05. The direct effect of X_2 on Y was; Ho: $X_2Y = 0$ (There is no significant effect of OCB on performance); Ha: $X_2Y \neq 0$ (There is a significant effect of OCB on performance). Criteria: a) Ho is rejected, or Ha is accepted if the significance is < 0.05; Ho is received, or Ha is rejected if the significance is > 0.05.

Secara simultan causalitasnya adalah The direct effect of X_1, X_2 on Y was; H_o: $X_1X_2Y = 0$ (There is no significant effect of OC and OCB on performance); H_a: $X_1X_2Y \neq 0$ (There is a significant effect of OC and OCB on performance). Criteria: a) H_o is rejected, or H_a is accepted if the significance is < 0.05; H_o is received, or H_a is rejected if the significance is > 0.05.

IV. RESULT / FINDING

A. *The effect of organizational commitment on performance*

This analysis is used to predict changes in the weight of certain variables when other variables change (see Appendix 1). The findings in the correlation coefficient test of organizational commitment (X_1) on employee performance (Y) found that the correlation coefficient test above can be seen that the correlation coefficient between organizational commitment variables and the implementation of outsourced employees at the PKBP3A Office in Ciamis Regency is 0.454. the number meaning a positive correlation between the variables of organizational commitment and employee performance with the correlation coefficient in the interval 0.400 – 0.599. The correlation coefficient means between commitment and employee performance has a middle internship. The result (r) is also positive. The correlation value obtained from Performance on OC is positive, it means that the higher the Performance, the stronger the influence on OC. From the correlation results obtained a number of 0.454 with a probability value (sig) = 0.000 (0.000 <0.05). Because sig < 0.05 then Ho is rejected and Ha is accepted. This means that there is a positive and significant relationship between the Performance variable and OC. Showing the relationship between organizational commitment and employee performance has a positive relationship, where the novelty is that if organizational commitment increases, employee performance also increases.

C. *Effect of OCB on employee performance*

Conducted this analysis to see the effect of OCB on the performance of outsourced employees at the PPKBP3A Office in Ciamis Regency (see Figure 2). In the calculation of the correlation coefficient test above, it can be seen that the correlation coefficient between the variable commitment to OCB and the performance of outsourcing employees at the PPKBP3A District Office. Ciamis is 0.506, which means a positive correlation between organizational commitment variables and employee performance with the correlation coefficient in the interval 0.800 – 1,000, so the correlation coefficient between OCB and employee performance has a middle relationship.

From the analysis results above, the value of r is also positive, meaning that the relationship between OCB and employee performance has a positive relationship. The correlation value obtained from Performance on OCB is positive, it means that the higher the Performance, the stronger the influence on OCB. From the correlation results obtained a number of 0.506 with a probability value (sig) = 0.000 (0.000 <0.05). Because sig < 0.05 then

Ho is rejected and Ha is accepted. This means that there is a positive and significant relationship between the Performance variable and OCB.

C. The effect of organizational commitment and OCB on employee performance

Simultaneously analysis was used to determine the relationship between organizational commitment variables (X_1) and Organizational Citizenship Behavior (X_2) together on employee performance (Y) on outsourcing employees at the PKBBP3A Office, Ciamis Regency, through the data generated in Appendix 3. Furthermore, in regression analysis, multiple variables are used to predict the value of the dependent variable (Y) if the independent variables are at least two or more. A multiple linear regression test was used to causalities determine the degree or strength of the relationship between variables X_1 and X_2 with Y. Based on path analysis Lisrel results, it can see that the equation is Performance = 0.454 OC + 0.506 OCB + 0,292 e. The equation means that if OC increases by 1, the value of performance will increase by 0.454, and if an increase in OCB increases by (1), the value of Y will increase by 0.506. If OC and OCB = 0 or do not change then the value of Y = 0.292.
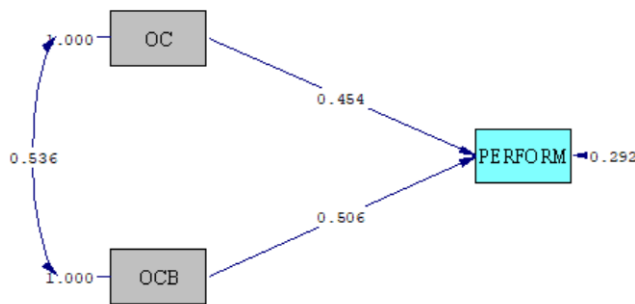
Fig 3. Path Analysis Results

Tabel 1. Covarian Results of OC, PCB to Performance

	Performance	OC	OCB
Performance	1.000		
OC	0.725	1.000	
OCB	0.749	0.536	1.000

Tabel 2. Correlation Matrix of Independent Variables

	OC	OCB
OC	1.000	
	(0.198)	
	5.050	
OCB	0.536	1.000
	(0.159)	(0.198)
	3.375	5.050

The correlation value obtained from the performance of OCB and OC is positive, it means that the stronger the performance, the higher the effect on OCB and OC. From the correlation results obtained numbers of 0.454 and 0.506 with a probability value (sig) = 0.000 (0.000 <0.05). Because sig < 0.05 then Ho is rejected and Ha is accepted. This means that there is a positive and significant relationship between OCB and OC variables on employee performance. From the results above, the value of r is also positive 0,708, which means that the relationship between organizational commitment and OCB on employee performance has a positive relationship. This means that if organizational commitment and OCB increase, employee performance will also increase.

V. Discussion

6. Organizational commitment affects employee performance.

The organizational commitment to outsourcing employees at the P2KBP3A Office in Ciamis Regency is in positif results. The correlation test results show that organizational commitment has a relationship with employee performance of 0.454. That means a positive correlation between organizational commitment variables and employee performance variables with a correlation coefficient between the interval 0.400-0.599. Therefore, it can be seen that the correlation coefficient between organizational commitment variables and employee performance has a moderate relationship.

Correlation illustrates that if organizational commitment is appropriately implemented, the performance of outsourcing employees at the P2KBP3A Office in Ciamis Regency will increase. The results of this study are in line with Priansa's (2016) opinion that organizational commitment is essential because employees who have a solid obligation to the organization will display their best performance and are productive in carrying out their work. Therefore, a strong organizational commitment to employees will affect the performance exhibited by employees.

As an outsourced employee of the Ciamis Regency P2KBP3A Office, the Field Extension Officer can be said to have moderate organizational commitment. Based on the research results on respondents, we can see that this is because there are indicators of organizational commitment that are still low, namely indicators of job security and justice and job satisfaction. However, other indicators include having a good understanding of the organization, high employee involvement, and high trust in the organization. Thus, if the organizational commitment is exemplary, it will support employee performance.

Based on this, can conclude that the results of this study support the hypothesis that there is an influence between organizational commitment on employee performance. In theory, the relationship between the two variables, namely organizational commitment to employee performance, is acceptable. Association means that the higher the managerial responsibility of the employee, the employee's performance will increase. In other words, there is evidence that organizational commitment is one of the factors that affect employee performance.

7. OCB affects employee performance

OCB affects the results. The findings show that the OCB of outsourced employees at the P2KBP3A Office of Ciamis Regency is included in the high category. The correlation test results show that OCB has a relationship with employee performance of 0.506, the number means a positive correlation between the OCB variable and the employee performance variable with the correlation coefficient between the interval 0.800-1,000, so the number means that the correlation coefficient between the OCB variable and employee performance has a strong relationship. Therefore, based on the results of the hypothesis test, the variable that the hypothesis is accepted. Thus, OCB has a positive effect on employee performance. Furthermore, we can illustrate that if OCB is adequately implemented, the outsourcing of the P2KBP3A Office in the Ciamis Regency will increase.

The results of this study are in line with the opinion that the facts show that organizations with employees who have good OCB will have better performance than other organizations (Basalamah & Saleh, 2020; Giyanti, 2020; Nurul Indika, 2020). OCB is a unique aspect of individual activity in performance. Organizations will succeed if employees are not only doing their main tasks (Farid et al., 2019; Pio & Tampi, 2018; Ribeiro et al., 2018) but are also willing to do extra tasks, such as being willing to cooperate, help, give advice, actively participate, provide additional services to service users, and are eager to use their working time effectively (Hanh Tran & Choi, 2019; Yohana, 2017). Prosocial behavior or extra actions beyond the defined role description in the organization or company are referred to as OCB. Successful organizations need employees who will do more than just their formal duties and are willing to deliver performance that exceeds expectations. Organizations want employees to be ready to perform tasks that are not listed in their job descriptions (Kholifah, 2014; Sukandar, 2019).

Based on the explanation above, we can conclude that the results of this study support the hypothesis that there is an influence between OCB on employee performance. In theory, the relationship between the two variables, namely OCB on employee performance, is acceptable. Therefore, we can mean that the higher the OCB owned by the employee, the employee's performance will increase. In other words, there is evidence that OCB is one of the factors that affect employee performance.

8. *Organizational commitment and OCB affect an employee.*

Based on the analysis findings, organizational commitment and OCB of outsourcing employees at the P2KBP3A Office of Ciamis Regency are included in the high category. Furthermore, the results of the calculation of multiple correlation analysis show that the relationship between organizational commitment and OCB has a connection with employee performance sructured Performance = 0.454 OC + 0.506 OCB + 0,292 e. The number means a positive correlation between the OCB variable and the employee performance variable, with a correlation coefficient between 0.800-1,000 intervals. Therefore, We can see that the correlation coefficient between organizational commitment variables and OCB with employee performance has a good relationship.

Therefore, based on the results of the hypothesis test, we can conclude can see that the hypothesis is accepted. Thus, organizational commitment and OCB have a positive and significant effect on employee performance. The result illustrates that if organizational commitment and OCB are appropriately implemented, the performance of employees on outsourcing employees at the P2KBP3A Office in Ciamis Regency will increase. The positive value result is in line with the opinion of Kashmir (2016), which states that the factors that influence the achievement of performance are ability, expertise, knowledge, work design, personality, work motivation, leadership, leadership style, organizational culture, job satisfaction, work environment, loyalty and commitment (Kasmir, 2016).

The results of the research that the author did complement and strengthen the results of research conducted by researchers Novelia et al. (2013), which tested the effect of commitment and OCB on performance (Study on Nursing Personnel at the Regional General Hospital dr. Soegiri Lamongan) with research results showing that simultaneously organizational commitment and OCB have a positive and significant effect on employee performance (Novelia et al., 2016). Based on the discussion above, we can conclude that the results of this study support the hypothesis that there is an influence between organizational commitment and OCB on employee performance. In theory, the relationship between the three variables, namely organizational commitment and OCB on employee performance, is accepted. The better the organizational commitment and OCB, the employee's performance will increase. In other words, there is also evidence that organizational commitment and OCB are factors that affect employee performance.

VI. CONCLUSION AND RECOMMENDATION

Based on the findings and results, can understand that performance on OC is positive and significant, it means that the higher the Performance, the stronger the influence on OC. The correlation test results show that organizational commitment and employee performance have a moderate level of relationship, and the results of the coefficient of determination have a positive influence as well. Based on the results of hypothesis testing, it is known that the hypothesis is accepted.

OCB on outsourced employees of the Ciamis Regency P2KBP3A Service is included in the Very High category. Based on the results of the analysis, it can be concluded that there is a positive and significant relationship between the Performance variable and OCB, it is known that the hypothesis is accepted. Thus, OCB has a positive and significant effect on employee performance, meaning that if OCB is high, employee performance will increase.

The performance of outsourced employees at the P2KBP3A Office in Ciamis Regency is included in the high category. Based on the results of the path analysis, it can be concluded that there is a positive and significant relationship between OCB and OC variables on employee performance. Likewise, based on the hypothesis test results, it is known that the hypothesis is accepted. Thus, organizational commitment and OCB have a positive and significant effect on employee performance. The result means that employee performance will increase if organizational commitment and OCB are high.

Based on the conclusions and results of research regarding the effect of organizational commitment and OCB on outsourcing employees at the P2KBP3A Office of Ciamis Regency, suggestions for the same corporate management policy as managing to outsource in government are based on respondents' responses to organizational commitment. Can See that the job security indicator has the highest score. Low. Organizations should pay more attention to employees, especially on work security, so that employees feel safe and comfortable being part of the organization to increase work productivity. In addition, the organization must also try to maintain and improve the abilities and skills of employees so that they can complete tasks well, and employees who excel need to be appreciated.

Based on the respondent's response to OCB, that is an indicator of sportsmanship, namely behavior that tolerates less than ideal conditions in the organization without raising objections. The test means that the organization must pay more attention to the situation and requirements in the field. Because this dimension of sportsmanship goes well, employees will perform various tasks that far exceed the organization's expectations and can face all conditions and challenges in the field to improve performance achievements. Based on respondents' responses regarding employee performance, it is known that the initiative indicator gets the lowest score. It is hoped that the organization will always provide guidance, routine training, and evaluation aimed at creating employees who have creative and innovative ideas to improve the achievement of the Family Development and Family Planning program following the expected targets.

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Firm Age and Performance: Evidence From Indonesia Islamic Bank

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Abstract

This paper investigates the effect of relationship between firm age and performance. This study using data from annual report especially annual report for Islamic bank. The data collected by purposive sampling and we have 11 islamic banks on Indonesia during the period from 2014 to 2018. This study was conducted using panel data and regression analysis. We find that firm age has a negative effect to performance. The result is consistent with Ali (2020) has negative relationship between age and performance. These result indicate that firm age in Islamic bank of Indonesia is not a benchmark for their companies.

Keywords—age; ROE; islamic bank

I. INTRODUCTION

The financial institution is a convenience that provide various services and facilities such as saving and financing business activities. financial institutions are very important in stabilizing the country's economy. Specifically, in terms of Islamic banking institutions. Islamic banking in Indonesia still has many challenges, one of the first challenges is the level of Islamic banking literacy which is still low in the community, which is 8.93 percent. This literacy is far behind from national financial literacy of 38.03 percent. Meanwhile, the Islamic financial inclusion index is also still behind at 9.1 percent compared to the national financial inclusion of 76.19 percent. However, the growth of the Islamic banking business continues to move in a positive direction.

This can be seen from the increase in assets in 2014, the total assets of Sharia banking, both Sharia commercial banks and Sharia business units, reached Rp. 260.36 T. This figure is only 4.78% of the total assets of conventional banking, which is Rp. 5,445.65 T and continued to increase in December 2015 by Rp.296.26 trillion or an increase of 20.33% to Rp. 356.50 T at the end of December 2016. Then it increased in 2017 to 435 T, and in 2018 it was 489 T. Market Sharia bank share in 2014 was 4.56%, 2015 was 4.87%, 2016 was 5.3%, 2017 was 5.78%, 2018 was 5.96%. Based on this information, the performance of the banking sector is good, marked by the total assets that continue to increase from year to year.

Indonesia has sharia banks namely Muamalat, BNI syariah, BRI syariah, BCA syariah, BSM, and others. Sharia banking in Indonesia are still inferior to conventional bank. when talking about the age of conventional bank that existed earlier than Islamic banks. First islamic bank in indonesia is muamalat. One bank that has a good performance and has the most loyal and engaged bank customers in the Islamic banking industry based on an MRI (Market Research Indonesia) study in the "5th Infobank Satisfaction, Loyalty & Engagement (SLE) Award 2022" event. The first Islamic bank in Indonesia won first place in three categories from the four main categories assessed, namely Loyalty Index, Engagement Index, and Marketing Engagement. The first two categories have been competed from the previous year. While the latter is a new category that measures how emotionally attached customers are in marketing and influencing people they know to become customers of Bank Muamalat. This award is a collaboration between Infobank Magazine and Marketing Research Indonesia (MRI).

Through sustainable services and various financial solutions, these banks are considered capable of maintaining customer trust in the midst of the current pandemic and technological disruption. Bank Muamalat also won the first position in customer satisfaction (customer satisfaction index) for the category of Customer Service, Branch Offices, and ATMs (Auto Teller Machines). Bank muamalat which can still maintain its existence, with the age of the bank being said to be quite long because it is the first Islamic bank in Indonesia and is a senior bank compared to other banks, this shows the company's good performance and is able to survive the competition. When viewed from the age of the banking system, a long age should be able to increase the company's performance.

According to research by Agyei and Marfo-Yiadom (2011), it is stated that companies that have a long age have an effect on performance. Lestari and Juliarto (2017) found a significant positive effect between age and

performance. Rose et al (2010), it is explained that as the age of the company increases, the experience of the company also increases, which is better than the previous year. On the other hand, research conducted by Ali et.al (2020) states that age has a negative effect on performance, this also shows that as Pakistani Islamic banks age, their profitability decreases. In line with Loderer and Waelchli (2009), due to the old age of the company, outdated processes and structures, it may not be able to maintain its competitive advantage.

Business experiences for banks will affect the existence of banks in dealing with financial problems competition. The age of the company is able to show the information that can be obtained by the candidate investors. Newly established banks must take actions that build trust for their stakeholders. From previous research, it was found that company age is one of the most important factors that determine the growth of the company, the diversity of the company's growth and the possibility of company is dissolved. Company age is one of the important attributes of the company. But, many Islamic banks in Indonesia are new and their age is still short. Can it compete with banks that have a longer life than other Islamic banks that existed first? Based on previous research, researchers want to know, does the banking age affects to performance, especially Indonesian Islamic banking.

II. LITERATURE REWIEW

Previous research on the relationship between company age and financial performance. Majumdar (1997) conducted research on the Asian market, the results of the study revealed that companies with an older age were less productive but more profitable than large companies that were productive but less profitable. The company's performance improves as the company ages. Long term business can increase productivity, profitability, and equity ratio but can decrease debt ratio. Coad et.al (2013) stated that older companies are able to generate better sales so that it affects profitability.

Research on age and performance conducted by Ali et.al (2020), found that age has a negative effect on performance, which means that a long age gives low performance. This also happens (Mwangi & Murigu, 2015; Kaya, 2015; Liargovas & Scandalis, 2014; Murigu, 2015) suggesting that long life can make companies less flexible, monotonous, and unwilling to develop by creating changes, which causes growth to decline. Aburim (2014) states that if a new bank is established, it cannot be immediately profitable because it must first break even. As stated by Agyei and Marfo-Yiadom (2011), although bank age can improve its performance, after a certain limit, this relationship can reverse.

Lestari and Juliarto (2017) found a significant positive effect between age and performance. Rose et al (2010), it is explained that as the age of the company increases, the experience of the company also increases, which is better than the previous year. Therefore, along with increasing age, the ability to process management more effectively and efficiently can increase the level of capital increase, thereby realizing higher company performance.

And based on one of the Islamic banks, namely Muamalat bank which is the first bank and has a longer life than other Islamic banks, and is still able to maintain its existence and performance. Based on this explanation, the hypothesis is

H1: Long age has a positive effect on performance

Company size is one of the variables that describe the company and its market power (Almajali, Alamro & Al-Soub, 2012). Murea (2015), a bank with a large size provides a positive performance, because the bank is able to access a wider market and provide a competitive advantage. Saona (2016) argues that banks can maximize their profitability only up to the optimal size. Companies with large sizes are able to achieve economies of scale (Mwangi & Murigu, 2015; Liargovas & Scandalis, 2014). As a result, larger firms can be more efficient in their operations compared to smaller firms (Almajali et al. 2012). Previous research (Al-Qudah & Jaradat, 2013; Masood & Ashraf, 2012) also shows that firm size is positively related to Islamic bank operations. So this research shows the size has a positive effect on performance.

Muturi (2013) argue that high debt in the company's capital structure makes leverage risky and the company goes bankrupt (Matemilola et.al, 2017) if the company is unable to pay its debts (Mazviona, Dube & Sakahuhwa, 2017). Therefore, a significant negative relation is expected between Islamic banks' leverage and performance.

III. RESEARCH METHODOLOGY

These study using panel data from Indonesia Islamic bank during 2014 to 2018 and analysis using regression. The data collected from annual report. namely Muamalat, BNI Syariah, BCA Syariah, BRI Syariah, BSM, Maybank Syariah, Mega Syariah, Panin Dubai Syariah, Bukopin Syariah, BJB Syariah, Victoria. Following Khan (2020), we employ profitability as measurement of financial performance. We set ROE as a proxy for profitability. For control variable, we use size, leverage. Murerwa (2015), bank size is a significant contributor towards its positive performance. Omondi and Muturi (2013) argue that an increase in debt in the capital structure of a firm makes leverage riskier.

We test our hypothesis by using the following model:

$$ROE = \alpha + \beta 1 Age_{it} + \beta 2 SIZE_{it} + \beta 3\ Leverage_{it} + \epsilon it.$$

IV. RESULT / FINDING

Table 1. Descriptive Statistics.

Variable	Obs	Mean	Std. Dev	Min	Max
ROE	55	-0,0034218	0,1106704	-0,3204	0,1197
AGE	55	9,181818	6,098242	4	27
LEV	55	0,224383	0,2200564	0,057381	0,9024065
SIZE	55	29,92535	1,301265	27,2184	32,21946

Table 1 ilustrates that the average ROE variable is -0,0034218. AGE variable is 9,181818. And table 1 shows control variables, namely SIZE, and leverage.

Table 2. Hypthesis Testing.

Prob>chi2 0,0001

Variable	Coef	P>z
AGE	-0,0032264	0,0195
SIZE	0,0590086	0,0000
LEVERAGE	0,0229626	0,3455
_cons	-1,719954	0,3857716

V. DISCUSSION

Base on table 2. It can be seen that age has a negative effect on Roe. These result different with hypothesis, which states that long age has a positive effect to roe. The hypothesis argument with negative effect is that age, are unable to take advantage of their learning experiences as they age. The old companies has a negative effect because of their outdated processes and structures, may not be able to maintain their competitive advantage.

VI. CONCLUSION AND RECOMMENDATION

This study investigates the effect of relationship between firm age and performance islamic banks on Indonesia during the period from 2014 to 2018. We find that firm age has a negative effect to performance, it is mean that a long life can make companies less flexible, monotonous, and unwilling to develop by creating changes. These result indicate that firm age in Islamic bank of Indonesia is not a benchmark for their companies.

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Analysis of the Effect of Inflation, Exchange Rates, Gross Domestic Product and Net Exports on Indonesia's Balance of Payments in 1995-2020

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Abstract

The balance of payments has an important role as a fundamental indicator of a country's economy. This is because the balance of payments relates to a country's ability to absorb foreign exchange and foreign payments. This study aims to determine the effect of Inflation, Exchange Rate, Gross Domestic Product (GDP) and Net Exports on Indonesia's Balance of Payments. The data used is secondary data in the form of a time series from 1995 to 2020 obtained from the Central Statistics Agency, Bank Indonesia and World Bank. The data analysis method used in this research is multiple linear regression analysis with the Ordinary Least Square (OLS) method approach. The results of this study indicate that the variables of Gross Domestic Product (GDP) and Net Exports have a positive and significant effect on Indonesia's Balance of Payments. While the variables of Inflation and Exchange Rate, have no effect on Indonesia's Balance of Payments. The results of the F test indicate that the estimated model used in this study exists, with a coefficient of determination of 0,4152 meaning that 41,52% of the variation in Indonesia's Balance of Payments variable can be explained by the variables of Inflation, Exchange Rate, Gross Domestic Product (GDP) and Net Exports. The remaining 58,48% is influenced by other variables or factors that are not included in the estimated model.

Keywords— Indonesia's Balance of Payments; inflation; Exchange Rates; Gross Domestic Product (GDP); Net Exports

I. INTRODUCTION

The current development and economic stability of each country cannot be separated from global economic conditions. The global economy can be created through international trade relations between countries. Indonesia is a developing country that adheres to an open economic system that requires international trade to boost the country's economy. Without international trade, capital will not flow from developed countries to developing countries, because international trade is needed to meet unproductive domestic needs and increase economic growth. This situation makes competitiveness a determining factor in competition between countries to benefit from an increasingly open world economy and this can be seen through the condition of a country's balance of payments (Astuti et al., 2015).

The balance of payments is a periodic report that summarizes the flow of economic transactions with foreigners. The nature of the balance of payments is balanced and to compensate, it can be covered by foreign loans or by selling state assets which can increase foreign exchange reserves. Transactions included in the balance of payments are current transactions as well as capital and financial transactions (Nwanosike et al., 2017).

Three factors can determine the balance of payments namely, the value of net capital flows, exports and imports. A country's economy will experience problems if its balance of payments is always in deficit. The balance of payments is said to be in deficit when the total payments to foreign countries exceed the total receipts from abroad. A deficit in the balance of payments will cause various kinds of adverse impacts on activities and the balance of the economy in a country. One of the causes of the emergence of a balance of payments deficit is the current account deficit. However, imports that exceed exports are also a very important factor in creating a balance of payments deficit. Meanwhile, The balance of payments is said to be in surplus when the total receipts from abroad exceed the total payments to foreign countries. Therefore, it is very important that the balance of payments and its components are always in a surplus, because it reflects the performance of a country and its people in dealing with international trade and if there is a balance of payments deficit, the country must issue its foreign exchange reserves to cover the deficit (Kahar et al., 2017).

A continuing balance of payments deficit will cause foreign exchange reserves to dwindle, where foreign exchange reserves should be used to import goods and services and to pay debts and interest. Meanwhile, an unstable balance of payments surplus will have a negative impact in the long term because it shows signs of

foreign exchange accumulation which means that the use of foreign exchange is inefficient, thus affecting people's welfare (Jeremy & Hayati, 2019).

Every country will continue to strive to maintain a stable and balanced balance of payments. Therefore, if a country fails to achieve a balance of payments surplus, then at least its balance of payments must be in balance and avoid the deficit as much as possible (Romadhoni & Cahyono, 2016). The balance of payments is said to be balanced when the outflow of money originating from imports of goods and services as well as the outflow of capital equals the inflow of money originating from the export of goods and services as well as the inflow of capital (Sukirno, 2007).
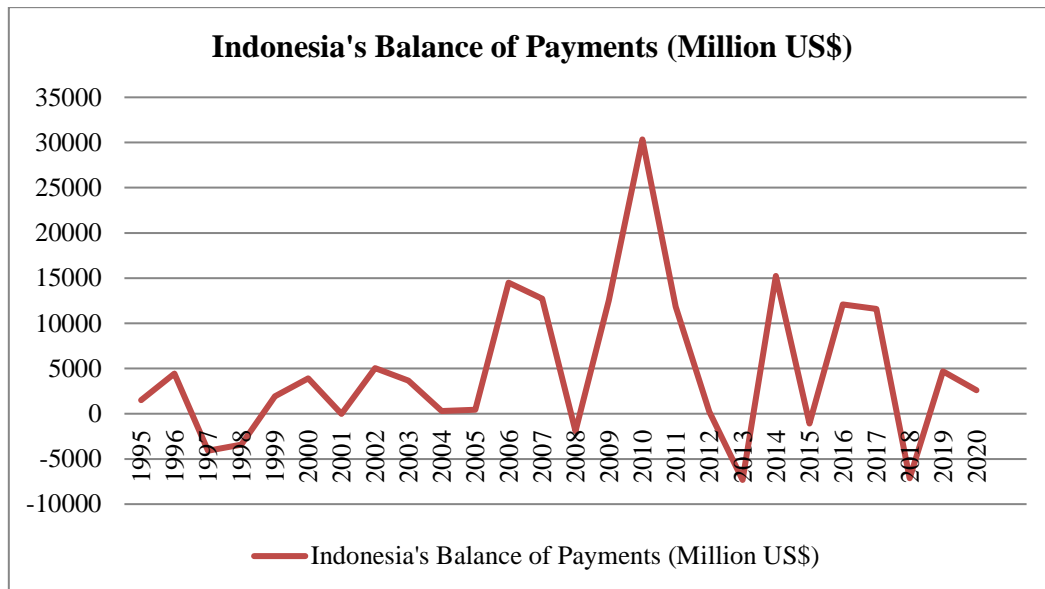
Fig 1. Development of Indonesia's Balance of Payments in 1995-2020 (Source: Bank Indonesia, 2022)

In Fig 1, it can be seen that the development of Indonesia's balance of payments in 1995-2020 showed a fluctuating trend (surplus and deficit). The highest surplus in Indonesia's balance of payments for the last 26 years occurred in 2010 amounting to US$ 30.343 million. The surplus was influenced by the trade balance, which recorded an increase in surplus due to a significant increase in exports of non-oil and gas commodities, especially commodities based on natural resources due to strong global demand and high prices in international markets. In addition, direct investment inflows also increased significantly in line with the improving investment climate and stable macroeconomic situation. Meanwhile, the highest deficit in Indonesia's balance of payments for the last 26 years occurred in 2013 which was US$ 7.325 million. The deficit was influenced by the slowdown in global economic growth and the decline in world commodity prices, which resulted in a decline in Indonesia's exports, which were mostly based on natural resources. On the other hand, the balance of payments deficit was also caused by an increase in the current account deficit and a decrease in the capital and financial account surplus.

From the development of Indonesia's balance of payments, it is important to note that Indonesia's balance of payments continues to fluctuate from year to year. This phenomenon shows that Indonesia is one of the countries that follow international relations to contribute to the Indonesian economy. Indonesia's balance of payments has a very important role in macroeconomic management in Indonesia. Where the balance of payments can be used as a benchmark in measuring the ability of an economy, especially those related to debt payment obligations and export-import transactions. In addition, the balance of payments is also one of the indicators that influence the actions of market participants and the quantities in them, which have an important role in the formation of a country's income. Therefore, the balance of payments is a sector that plays an important role in promoting economic improvement in the country. Indonesia's balance of payments is something interesting to look at further because there are many factors that can affect Indonesia's balance of payments, such as inflation, exchange rates, Gross Domestic Product (GDP) and net exports. When viewed from the aspect of previous research, empirical

studies related to the analysis of a country's balance of payments have been carried out and have shown mixed results.

Afrizal (2020), in his research states that in the long term, inflation has a positive and insignificant effect on Indonesia's balance of payments, the rupiah exchange rate has a negative and insignificant effect on Indonesia's balance of payments, while GDP has a positive and significant effect on Indonesia's balance of payments. In the short term, inflation has a positive and significant effect on Indonesia's balance of payments, while the rupiah exchange rate and GDP have a negative and significant effect on Indonesia's balance of payments.

Aidi et al. (2018), in his research states that the exchange rate and inflation have a statistically significant negative impact on the balance of payments in Nigeria. Meanwhile, real GDP has a statistically significant positive effect on the balance of payments in Nigeria.

Anisa (2017), in her research states that foreign exchange rates have a negative and significant effect on Indonesia's balance of payments. Meanwhile, GDP and net exports have a positive and significant impact on Indonesia's balance of payments.

Astuti et al. (2015), in his research states that the analysis of the international balance of payments using the duasa model showed the results of the study that the exchange rate had a positive and significant effect on Indonesia's balance of payments. Inflation has a negative and insignificant effect on Indonesia's balance of payments. Meanwhile, real GDP has a positive and significant impact on Indonesia's balance of payments.

David & Elijah (2020), in their research state that in the short term, the exchange rate has a positive and significant effect on the balance of payments in Nigeria, while inflation has a negative and significant effect on the balance of payments in Nigeria. In the long run, the exchange rate and inflation have a positive and significant effect on the balance of payments in Nigeria.

Effendy (2014), in his research states that in the long term, the exchange rate has a positive and significant effect on the balance of payments. The same is true in short-term relationships. In the long term, GDP has a positive and significant effect on the balance of payments. However, in the short term, GDP still has a positive but not significant effect. Meanwhile, inflation has a different effect. In the short term and long term inflation has a positive and not significant effect on the balance of payments.

Kahar et al. (2017), in his research states that GDP and net exports have a positive and significant effect on Indonesia's balance of payments, while the exchange rate has a negative and insignificant effect on Indonesia's balance of payments.

Niermasasi et al. (2016), in his research states that in the short term and long term the exchange rate has a positive and significant effect on the balance of payments. Inflation in the short and long term has a negative and insignificant effect on the balance of payments. GDP in the long term has a positive and significant effect on the balance of payments, while in the short term it has a positive and insignificant effect on the balance of payments.

Rangkuty et al. (2020), in his research states that net exports positively and significantly affect the movement of balance of payments developments in Indonesia, South Korea, India, Brazil and Mexico. Inflation positively but not significantly affect the development of the balance of payments in Indonesia, South Korea, India, Brazil and Mexico. Meanwhile, the exchange rate has a negative and significant effect on the balance of payments in Indonesia, South Korea, India, Brazil and Mexico.

Sujianto (2020), in his research states that in the short term, inflation and GDP have a positive and insignificant effect on Indonesia's balance of payments, while the exchange rate has a negative and insignificant effect on Indonesia's balance of payments. In the long term, GDP has a positive and significant impact on Indonesia's balance of payments. Meanwhile, inflation and exchange rates have a negative and significant impact on Indonesia's balance of payments.

Nwanosike et al. (2017), in his research states that the exchange rate has a negative and significant effect on the balance of payments in Nigeria. Meanwhile, Osisanwo et al. (2019), in his research states that in the long term, the trade balance has a positive and significant effect on the balance of payments in Nigeria, meanwhile the exchange rate, inflation rate and GDP have a negative and significant effect on the balance of payments in Nigeria. In the short term, the trade balance and GDP have a positive and significant impact on the balance of payments in Nigeria. Meanwhile, the exchange rate and inflation rate have a negative and significant effect on the balance of payments in Nigeria.

Based on the description above, this study aims to examine and analyze the effect of inflation, exchange rates, Gross Domestic Product (GDP) and net exports on Indonesia's balance of payments from 1995 to 2020.

II. LITERATURE REVIEW

K. Balance of Payments

The balance of payments is a systematic record of all economic transactions, including trade in goods or services, financial and monetary transfers between residents of a country and residents of foreign countries for a specified period of time, usually one year. The balance of payments is generally divided into the current account which includes the goods balance, the services balance and the unitary transfer balance. Capital transactions which include income and financing of a country, as well as financial transactions which include direct investments, portfolio investments, and other investments. The balance of payments can be affected by the balance of goods transactions through exports and imports as well as the capital account through the inflows and outflows of capital which in turn can lead to dynamics in the balance of payments. This dynamic can be observed in situations where the balance of payments at one time can show a deficit or surplus and at other times it can show a balance (Hady, 2009). The balance of payments shows the value and development of imports and exports, as well as the amount of funds flowing between one country and another, so that it can be known whether the country is an exporter of goods and capital, or vice versa as an importer of goods and capital (Apandi et al., 2016).

L. International Balance of Payments Equation

The International Balance of Payments (BOP) equation is the sum of the Current Account (CA) surplus and the Capital and Financial Accounts (CFA) surplus. The balance of payments equation written using a mathematical substitution process is as follows (Astuti et al., 2015):

$$BOP = CA + CFA \tag{1}$$

The current account balance can be influenced by domestic and foreign income, where growth in national income can disrupt the current account balance. Meanwhile, the capital and financial account balances may be affected by real interest rates. Increase in interest rates above the world level can attract external capital so as to increase the balance of capital and financial transactions.

M. Balance of Payment Approach

Three approaches used to study the balance of payments namely, the elasticity approach, the absorption approach and the monetary approach. The elasticity and absorption approach is often referred to as the Keynesian approach. The elasticity approach focuses on changes in exchange rates as a means of change to correct balance of payments imbalances. The absorption approach is a combination of changes in income, expenditure and exchange rates to improve the balance of payments (Jamli, 2001). While the monetary approach is an approach that believes that the balance of payments is a monetary phenomenon related to the money supply and the balance of payments of a country (Jeremy & Hayati, 2019).

N. Relationship of Inflation with Balance of Payments

Inflation is the tendency of general prices to increase continuously or it can also be said to be a symptom of the continuous increase in the prices of goods and various general factors of production, continuously within a certain period (Soebagyo, 2016). Inflation is one of the monetary economic variables that can affect the stability of the balance of payments. High inflation has a negative impact on the economy of a country because it can reduce people's purchasing power and reduce overall national production which in turn can lead to a drastic decline in export activities and affect the performance of the balance of payments (Aidi et al., 2018).

High inflation causes prices of domestic goods and services to increase, causing a decrease in demand for export goods and a tendency to increase demand for imported goods, which in turn can cause a balance of payments deficit (Rangkuty et al., 2020). While according to Sujianto (2020), one of the triggers for inflation is the amount of money circulating in the community is greater than what is needed. If the money supply increases, it will again cause people to spend excess money, for example by importing or buying valuable foreign documents so that capital outflows will occur, which in turn can lead to a balance of payments deficit. In theory, it is stated that if inflation increases, it will reduce the balance of payments. The relationship between inflation and the balance of payments is supported by research from Sujianto (2020), David & Elijah (2020), Aidi et al. (2018) and Osisanwo et al. (2019), which states that inflation has a negative effect on the balance of payments. However, contrary to research conducted by Rangkuty et al. (2020), Effendy (2014) and Afrizal (2020), which state that inflation has a positive effect on the balance of payments.

O. Relationship of Exchange Rate with Balance of Payments

Exchange rate can be defined as the number of units of currency needed to be exchanged for per unit of another currency, or in other words, the price of one currency against another currency. The exchange rate or exchange rate shows how much rupiah is needed to get foreign money. Exchange rate movements serve as a balancing wheel to get rid of imbalances in the balance of payments (Samuelson & Nordhaus, 2004). According to Keynesian theory (elasticity approach), an increase in the exchange rate or depreciation will be able to improve the balance of payments. If the balance of payments can be improved by depreciation, then this is what is called the Marshall-Lerner condition, where depreciation will be able to improve the balance of payments if the combined elasticity of demand for domestic and foreign imports is more than one. However, the opposite will happen (the balance of payments worsens) if the combined elasticity of demand for domestic and foreign imports is less than one (Jamli, 2001). This means that, exports and imports are price elastic, so that every time there is a price change due to depreciation, where the price of goods abroad increases while the price of goods at home decreases, the demand for exports will increase and imports will decrease. Increased exports will increase foreign exchange reserves so as to improve the balance of payments (Astuti et al., 2015).

Meanwhile, according to the theory of the monetarist approach, if a domestic currency depreciates or a foreign currency appreciates, it will cause domestic prices to increase. This depreciation can improve balance of payments performance by increasing capital inflows from investors as a result of rising interest rates in response to rising domestic prices and increasing demand for domestic money (Sujianto, 2020). In theory, it is stated that if the exchange rate increases, it will increase the balance of payments. The relationship between the exchange rate and the balance of payments is supported by research from Effendy (2014), Astuti et al. (2015), David & Elijah (2020) and Niermasasi et al. (2016), which states that the exchange rate has a positive effect on the balance of payments. However, contrary to research conducted by Aidi et al. (2018), Nwanosike et al. (2017), Osisanwo et al. (2019) and Rangkuty et al. (2020), which states that the exchange rate has a negative effect on the balance of payments.

P. Relationship of Gross Domestic Product (GDP) with Balance of Payments

Gross Domestic Product (GDP) is one measure of a country's ability to be able to produce goods and services in one year, manifested by domestic factors, both owned by its own citizens and foreign nationals (Mankiw, 2006). An increase in GDP is able to improve the balance of payments through exports of production and imports of capital which can increase foreign exchange reserves. According to the absorption approach theory, a balance of payments deficit occurs when the absorption (consumption) value is greater than the production level, which can be corrected by increasing income and reducing absorption. One way that can be done to improve the balance of payments is to increase national income, where an increase in national income in the form of an increase in national production will encourage increased exports of production. This will then increase the country's foreign exchange, so that it will improve the balance of payments (Jamli, 2001).

Meanwhile, according to the theory of the monetarist approach, an increase in national income will stimulate an increase in the demand for money. If the demand for money in the short term can still be met by the amount of money in the country, then this will not affect the balance of payments. However, if the demand for money occurs in the long term, it will lead to a lack of money supply which can encourage capital imports to Indonesia. The import of capital will increase the total foreign exchange reserve balance, which means it can increase the balance of payments (Sujianto, 2020). In theory, it is stated that if GDP increases, it will increase the balance of payments. The relationship between GDP and the balance of payments is supported by research from Anisa (2017), Kahar et al. (2017), Astuti et al. (2015), Aidi et al. (2018) and Sujianto (2020), which state that GDP has a positive effect on the balance of payments. However, contrary to research conducted by Afrizal (2020), Romadhoni & Cahyono (2016) and Osisanwo et al. (2019), which states that GDP has a negative effect on the balance of payments.

Q. Relationship of Net Exports with Balance of Payments

Net exports are the value of goods and services exported to other countries minus the value of goods and services imported from other countries. Net exports are positive when the value of exports is greater than the value of imports and negative when the value of imports is greater than the value of exports. Another name for net exports is the trade balance, because it shows how trade in goods and services deviates from the benchmark for equality of exports and imports (Mankiw, 2006).

One component of the balance of payments is the balance of trade. The trade balance plays a larger role than the capital and financial accounts in contributing to the balance of payments surplus. However, a capital and financial account surplus can also support a country's external resilience. The capital and financial account surplus is expected to cover the current account deficit so that the performance of a country's balance of payments is maintained. Export and import activities are the main activities of the trade balance that can affect the balance of

payments. This is because an increase in export and import activities can encourage a balance of payments surplus, where a higher export value compared to the value of imports can cause a trade balance surplus and have an impact on increasing the balance of payments surplus (Salamah & Wahyuni, 2021). In theory, it is stated that if net exports increase, it will increase the balance of payments. The relationship between net exports and the balance of payments is supported by research from Anisa (2017), Kahar et al. (2017), Rangkuty et al. (2020), Salamah & Wahyuni (2021) and Osisanwo et al. (2019), which states that net exports have a positive effect on the balance of payments.

R. Research Hypothesis

Based on the discussion of various theories and previous research, in this study the following hypothesis is formulated, it is suspected that inflation has a negative effect on Indonesia's balance of payments. Meanwhile, the exchange rate, Gross Domestic Product (GDP) and net exports have a positive effect on Indonesia's balance of payments.

III.   RESEARCH METHODOLOGY

In this study, the scope of research is the effect of inflation, exchange rates, Gross Domestic Product (GDP) and net exports on Indonesia's balance of payments. The place of research is in Indonesia. This type of research is descriptive quantitative research namely, research on data collected and expressed in the form of numbers. The data used is secondary data in the form of time series from 1995 to 2020. Secondary data is data that has been collected or processed through research or surveys conducted by certain agencies, agencies or institutions. The data used in this study include data on the dependent variable namely, Indonesia's balance of payments, as well as data on the independent variables, namely inflation, exchange rates, Gross Domestic Product (GDP) and net exports. The data sources are obtained from the Central Statistics Agency, Bank Indonesia and the World Bank.

S. Operational Definition of Research Variables

This study uses one dependent variable namely, the balance of payments Indonesia as well as four independent variables namely, inflation, exchange rates, Gross Domestic Product (GDP) and net exports.

a. Indonesia's Balance of Payments

Balance of payments is a systematic record of all economic transactions, including trade in goods or services, financial and monetary transfers between residents of a country and residents of foreign countries for a specified period of time, usually one year. In this study, Indonesia's balance of payments data obtained from Bank Indonesia was used. The unit used is Million US$.

b. Inflation

Inflation is the tendency of general prices to rise continuously in a certain period. In this study using inflation data obtained from the Central Statistics Agency. The unit used is percent (%).

c. Exchange rate

The exchange rate is the price of one currency against another. The exchange rate used in this study is the exchange rate of the rupiah against the United States dollar. In this study using exchange rate data obtained from the World Bank. The unit used is IDR/US$.

d. Gross domestic product

Gross Domestic Product (GDP) is the total value of final goods and services produced by various production units in the territory of a country within one year. In this study using GDP data obtained from the World Bank. The unit used is Million US$.

e. Export Net

Net exports are the value of exports minus the value of imports. In this study using net export data obtained from the Central Statistics Agency. The unit used is Million US$.

T. Analysis Techniques

This study analyzed the data by statistically testing the variables used. The results of the analysis are expected to be used to determine the relationship and the magnitude of the influence of several independent variables on the dependent variable. This research will observe the effect of inflation, exchange rate, Gross Domestic Product (GDP) and net exports on Indonesia's balance of payments in 1995-2020. The analytical tool used in this research is multiple linear regression analysis with the Ordinary Least Squares (OLS) method approach which is processed using statistical data processing applications Microsoft Excel 2010 and Eviews 2009, with the following econometric model formulation (Gujarati & Porter, 2009):

$$BOP_t = \beta_0 + \beta_1 INF_t + \beta_2 ER_t + \beta_3 GDP_t + \beta_4 NE_t + \varepsilon_t \qquad (2)$$

Description :

BOP	= Indonesia's Balance of Payments (Million US\$)
INF	= Inflation (%)
ER	= Exchange Rate (IDR/US\$)
GDP	= Gross Domestic Product (Million US\$)
NE	= Net Export (Million US\$)
ε	= Error term
β_0	= Constant
$\beta_1 \cdots \beta_4$	= Regression coefficient of independent variable
t	= Year to t

The estimation stages of the econometric model above include estimator model parameter estimation, classical assumption test consisting of multicollinearity test, residual normality test, autocorrelation test, heteroscedasticity test, and specification test or model linearity. Then the results of the regression were tested for the goodness of the model which consisted of a simultaneous significance test or model existence test (F test) and the interpretation of the coefficient of determination (R^2) and then carried out a partial significance test or effect validity test (t test).

IV. RESULT / FINDING

This study observes the effect of inflation, exchange rates, Gross Domestic Product (GDP), and net exports on Indonesia's balance of payments in 1995-2020, using multiple linear regression analysis using the Ordinary Least Squares (OLS) method. The results of the OLS estimation test and all the complementary tests are summarized in Table 1.

Table 1. OLS Estimation Test Results

	Ordinary Least Squares (OLS)			
Variable	Coefficient	t-Statistic	Prob.	Multicollinearity (VIF)
Constant	−3986,3610	−0,7671	0,4515	NA
INF	−9,7856	−0,0864	0,9320	1,3665
ER	−1,1408	−1,6833	0,1071	2,5899
GDP	0,0217	2,7081	0,0132**	4,3000
NE	0,4906	3,5294	0,0020*	1,8117

Diagnostic Test			
R-Squared	0,4152	Residual Normality (Jarque Bera)	0,0601
Adjusted R-Squared	0,3038	Autocorrelation (Breusch Godfrey)	0,1289
F-Statistic	3,7271	Heteroscedasticity (White)	0,3496
Prob. F-Statistic	0,0192	Model Specification (Ramsey Reset)	0,4873
Durbin-Watson Stat.	2,2747		

Source: secondary data (Eviews 9). Description: *significant at $\alpha = 0,01$; ** significant at $\alpha = 0,05$; *** significant at $\alpha = 0,1$.

Based on Table 1, multiple linear regression equations were obtained using the Ordinary Least Squares (OLS) method as follows:

$$\widehat{BOP}_t = -3986,3610 - 9,7856INF_t - 1,1408ER_t + 0,0217GDP_t + 0,4906NE_t \qquad (3)$$

In Table 1, the diagnostic test shows that the estimated model has passed the five classical assumption tests, which include the multicollinearity test, residual normality test, autocorrelation test, heteroscedasticity test, and model specification test. The statistical empirical probability values from the residual normality test, autocorrelation test, heteroscedasticity test, and model specification test, each have a value of 0,0601 (> 0,05),

0,1289 (> 0,10), 0,3496 (> 0,10) and 0,4873 (> 0,10), thus indicating that the estimated model has a normal residual distribution, free from autocorrelation and heteroscedasticity problems, with exact model specifications (linear). All independent variables are inflation, exchange rate, Gross Domestic Product (GDP) and net exports has a VIF value < 10, which means that all these variables do not cause multicollinearity problems in the estimated model.

Based on the model existence test (*F* test) shows that the estimated model exists, it can be seen from the statistical empirical probability value *F* of 0,0192 (≤ 0,05), with a coefficient of determination (R^2) or moderate predictive power, which is 0,4152, which means 41,52% of the variation in Indonesia's balance of payments variable can be explained by the variables of inflation, exchange rate, Gross Domestic Product (GDP) and net exports. The remaining 58,48% is influenced by other variables or factors that are not included in the estimated model.

Separately, based on the validity of the effect (*t* test) shows that the variables that significantly affect Indonesia's balance of payments are Gross Domestic Product (GDP) and net exports with a statistical empirical probability *t* of 0,0132 (≤ 0,05) and 0,0020 (≤ 0,01). Meanwhile, inflation and exchange rate variables have no effect on Indonesia's balance of payments with statistical empirical probabilities *t* of 0,9320 (> 0,10) and 0,1071 (> 0,10).

V. Discussion

Based on the results of this study, it can be seen that Indonesia's balance of payments during 1995-2020, was only influenced by Gross Domestic Product (GDP) and net exports. Meanwhile , inflation and the exchange rate have no effect on Indonesia's balance of payments.

A. Effect of Inflation on Indonesia's Balance of Payments

The results of this study indicate that the inflation variable has a regression coefficient of −9,7856 with a statistical empirical probability value *t* of 0,9320 (> 0,10), meaning that inflation has no effect on Indonesia's balance of payments. So how big a change occurs in inflation, it will not cause a significant change in Indonesia's balance of payments. These results are not in accordance with the hypothesis of this study which states that inflation has a negative effect on the balance of payments. In theory, it is stated that if inflation increases it will decrease the balance of payments.

The results of this study are in line with research conducted by Wulandari (2015), Niermasasi et al. (2016) and Astuti et al. (2015), which states that inflation has no effect on the balance of payments. Inflation is not a factor that has a strong influence on the stability of Indonesia's balance of payments. This may be due to low inflation that does not significantly affect changes in investment so that the balance of payments figures can not capture these shocks. In addition, it could also happen that the implementation of fiscal and monetary policies in dealing with inflation is not able to reduce foreign investment conditions to become conducive again so that foreign investors interest becomes low or it can also occur where the political situation caused by inflation has not been able to convince foreign investors to invest by investing their capital into the country, so that the balance of payments for capital flows is not affected by inflation.

B. Effect of Exchange Rate on Indonesia's Balance of Payments

The results of this study indicate that the exchange rate variable has a regression coefficient of −1,1408 with a statistical empirical probability value *t* of 0,1071 (> 0,10), meaning that the exchange rate has no effect on Indonesia's balance of payments. So how much change occurs in the exchange rate, it will not cause a significant change in Indonesia's balance of payments. These results are not in accordance with the hypothesis of this study which states that the exchange rate has a positive effect on the balance of payments. In theory, it is stated that if the exchange rate increases (devalues/depreciates against foreign currencies) it will increase the balance of payments.

The results of this study are in line with research conducted by Afrizal (2020), Kahar et al. (2017) and Sujianto (2020), which state that the exchange rate has no effect on the balance of payments. The exchange rate is not a factor that has a strong influence on the stability of Indonesia's balance of payments. This is probably due to the current unfavorable exchange rate policy for expansion of productivity and increased exports. Exchange rate depreciation can not be used to support current transactions and this phenomenon can be attributed to the less sensitive nature of exports to changes in exchange rates. In addition, it could also happen that changes in exchange

rates, both depreciation and appreciation, do not significantly affect the prices of goods and services, so that the volume of exports and imports does not change much and is affected. Demand for exports and imports is mainly due to production and consumption needs which are bound by contracts with the company so that the volume must be fulfilled. If the volume of exports and imports does not change, the balance of payments will also not change.

C. Effect of Gross Domestic Product (GDP) on Indonesia's Balance of Payments

The results of this study indicate that the Gross Domestic Product (GDP) variable has a regression coefficient of 0,0217 with a statistical empirical probability value t of 0,0132 ($\leq 0,05$), meaning that the Gross Domestic Product (GDP) has a positive and significant effect on Indonesia's balance of payments. Pattern of relationship between Gross Domestic Product (GDP) and Indonesia's balance of payments is linear-linear. So if the Gross Domestic Product (GDP) increases by US\$ 1 million, then Indonesia's balance of payments will increase by US\$ 0,0217 million. On the other hand, if the Gross Domestic Product (GDP) falls by US\$ 1 million, Indonesia's balance of payments will decrease by US\$ 0,0217 million. These results are in accordance with the hypothesis of this study which states that GDP has a positive effect on the balance of payments. In theory, it is stated that if GDP increases it will increase the balance of payments.

The results of this study are in line with the research conducted by Anisa (2017), Kahar et al. (2017), Astuti et al. (2015), Aidi et al. (2018) and Sujianto (2020), which states that GDP has a positive and significant effect on the balance of payments. An increase in GDP means an increase in income received by the general public. Increasing people's income can improve current account performance by increasing exports. The existence of government policies related to exports can also increase the value of exports. In addition, the increase in people's income will also increase the demand for public money which is assumed to be countermeasures against domestic credit expansion. The government does this by raising the interest rate which in turn is able to attract foreign investors to invest in the country so that capital inflows occur which will later cause a surplus in the balance of payments.

D. Effect of Net Exports on Indonesia's Balance of Payments

The results of this study indicate that the net export variable has a regression coefficient of 0,4906 with a statistical empirical probability value t of 0,0020 ($\leq 0,01$), meaning that net exports have a positive and significant effect on Indonesia's balance of payments. Pattern of relationship between export net with Indonesia's balance of payments is linear-linear. So if net exports increase by US\$ 1 million, then Indonesia's balance of payments will increase by US\$ 0,4906 million. On the other hand, if net exports fall by US\$ 1 million, Indonesia's balance of payments will decrease by US\$ 0,4906 million. These results are in accordance with the hypothesis of this study which states that net exports have a positive effect on the balance of payments. In theory, it is stated that if net exports increase, it will increase the balance of payments.

The results of this study are in line with the research conducted by Anisa (2017), Kahar et al. (2017), Rangkuty et al. (2020), Salamah & Wahyuni (2021) and Osisanwo et al. (2019), which states that net exports have a positive and significant effect on the balance of payments. Export activities of a country will get the value of a certain amount of money in foreign currency which is a source of state income. So if net exports increase, the source of state income will also increase because the increased net exports are indicated by higher exports than imports. This increase in net exports will accumulate later in the increase in the position of foreign exchange reserves because exports are income for the country and imports are expenses for a country. Therefore, an increase in net exports will increase a country's income so that it will increase foreign exchange reserves which means it will improve the balance of payments.

VI. CONCLUSION AND RECOMMENDATION

This study was conducted with the aim of knowing the effect of inflation, exchange rates, Gross Domestic Product (GDP) and net exports on Indonesia's balance of payments in 1995-2020, using multiple linear regression analysis using the Ordinary Least Squares (OLS) method. The results of this study indicate that the variables of Gross Domestic Product (GDP) and net exports have a positive and significant effect on Indonesia's balance of payments. Meanwhile, inflation and exchange rate variables have no effect on Indonesia's balance of payments. The results of the F test indicate that the estimated model used in this study exists, with a coefficient of determination of 0,4152 meaning that 41,52% of the variation in Indonesia's balance of payments variables can be explained by the variables of inflation, exchange rates, Gross Domestic Product (GDP) and net exports. The remaining 58,48% is influenced by other variables or factors that are not included in the estimated model.

Based on the research results and the conclusions that have been described, the suggestions that can be given for this research are specifically for the monetary authority, namely Bank Indonesia to take appropriate policies to stabilize the exchange rate and inflation so that the financial sector in Indonesia is maintained and stable so that exchange rate and inflation no longer have a negative effect on Indonesia's balance of payments position. In addition, the Government also needs to encourage increased export activities and improvement of quality standards of goods to be exported to other countries so that foreign exchange reserves in Indonesia continue to increase so that Indonesia's balance of payments remains stable. Meanwhile, it is hoped that future researchers can dig deeper into the performance of Indonesia's balance of payments and produce more complex research results by adding other independent variables in addition to the independent variables that already exist in this study and can use different methods with a longer time horizon. So as to be able to obtain more accurate, complete and clear information related to the right policy to overcome Indonesia's balance of payments deficit.

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Examining Perceived Benefit of Online Behavioral Advertising on Behavioral Intention

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Abstract

Marketers are taking advantage of the global surge in digital advertising spending, which has been driven by the quick acceleration of consumers to online media, by displaying Online Behavioral Advertising (OBA). OBA is considered as one of keyway to connect with the audience as it can deliver more relevant ads to users (personalization). However, the collection and use of information is frequently hidden away, leading to a situation for which customers perceive the collection and use of personal data as intrusive, resulting in negative perceptions. The purpose of this study is to see how perceived benefit (relevance, credibility, and perceived usefulness) affects OBA acceptability, click intention, and customer behavioral intent. Using an experimental design research through data coming from online questionnaire, analysis of variance was conducted to test 2 (relevance: high DCP vs low DCP) x 2 (credibility: overt vs covert) x 2 (perceived usefulness: more trusted vs less trusted using a between-subject experimental design (n=198). Of the 8 stimuli studied, the results showed that stimuli 8 with high relevance, high credibility and high perceived usefulness resulted in a highest mean value for OBA acceptance. The research also showed that higher degree of benefit on OBA influence higher ads acceptance. OBA acceptance then has a positive effect on click intention and behavioral intention. This study provides academic contributions and managerial implications regarding in form of marketing strategies through the display of an effective OBA to encourage consumer purchase intentions.

Keywords— Display Ads; Online Behaviour Advertising; Perceived Benefit

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I. INTRODUCTION

The widespread acceptance of technology and the internet in society is in line with the increase in online shopping activities. According to data from NielsenIQ, the number of online shopping consumers in Indonesia who use e-commerce reach 32 million in 2021. This number has increased by 88% compared to 2020 (CNN INDONESIA, 2021). This ultimately encourages companies to compete with each other to increase online marketing activities by diplaying online ads.

According to eMarketer in 2021, digital advertising spending globally increased by 20.4% compared to 2020 to reach US$ 455.30 (eMarketer, 2021). Data from Nielsen shows that digital advertising spending in Indonesia has also increased by 67% compared to 2020. Total digital advertising spending reached 15.9% of total advertising spending with a value equivalent to IDR 41.18 trillion (Kompas, 2021.)

Recent development in online monitoring and profiling technologies have transformed the way individuals, particularly consumers, are communicated with, allowing real-time targeting and personalization while user accesses the internet (Moore et al., 2015). Firms can target consumers based on their general interests using analysis of technology of the editorial content of the web page on which the ads would be displayed (Goldfarb et al., 2018). The technique of showing digital ads to consumers based on their online behavior is referred as Online Behavioral Advertising (OBA) (Aiolfi et al., 2021). It tracks and compiles data on user's online behavior such as visited websites, duration, and activities on those websites (Lee et al., 2016).

OBA's mechanism started with a simple cookie which placed on the user computer that helps identify recently visited pages to infer the needs of the user; on the other times, the ads to be displayed are determined dynamically by the use of analytical profiling techniques based on data collected from a big data that combines the click history stream of each user and complex algorithms that allow real time bidding for an ads space (Försch & de Haan, 2018; Qin et al., 2017; Sinclair, 2016). These ads can appear on various websites and social media.

Aguirre et al., (2015) claims that OBA practices are becoming increasingly common as industry claims that they increase advertising effectiveness and enable experimentation for marketers at relatively lower costs (Alreck & Settle, 2007). OBA provides benefits for companies to predict the specific interests and preferences of consumers in a timely manner and result selectively expose consumers to specially tailored advertisements (Ham, 2017). From the standpoint of the consumer, OBA has the advantage of higher relevance and fit, in that it provides

the right product or service at the right time and streamlines the information search process by removing the need for customers to further search.

On the one hand, personalization should render a banner more relevant and thus increase its effectiveness (Anand & Shachar, 2009; Ansari & Mela, 2005), on the other hand the use of more personal information may induce feelings of intrusiveness that interfere with the consumer's cognitive processing and interrupt goal pursuit (Li et al., 2002) such that it prevents the consumer from taking notice of the ads contents. Intrusive ads also may be perceived as annoying and result in reactance, such that consumers behave in the opposite way to the one intended by the advertiser (Clee & Wicklund, 1980; Ying et al., 2009).

Several previous studies have focused on the effect of OBA and how to measure acceptance and resistance to OBA (Boerman et al., 2017; Ur et al., 2012). The theoretical background of OBA research tends to be fragmented and perceptions of OBA appear to be differed (Varnali, 2021). When it comes to risk, consumers perceive the collection and use of personal data as an invasive tactic that leads to negative perceptions of loss of privacy (Moore et al., 2015; Phelan et al., 2016; Smit et al., 2014; Summers et al., 2016; Ur et al., 2012; Varnali, 2021). On the other hand, when it comes to benefits, OBA makes advertising more relevant to consumers with personalized advertising (Aiolfi et al., 2021; Ur et al., 2012).

Aiolfi et al., (2021) found that acceptance of the OBA is positively related to relevance, perceived usefulness, and credibility of the personalized advertisements, while the intention to avoid personalized ads is strictly related to the privacy concerns. Consequently, OBA acceptance and avoidance affected the click intention on the ad and the behavioral intention that are decisive for the success of data-driven digital advertising. However, in previous studies investigating the acceptance and avoidance of OBA was limited to one intensity of advertising personalization. Prior research in OBA, the survey-based methodology has not been able to describe the actual situation since participants are limited in their ability to remember what has been experienced before. That is, experimental research design is the most appropriate research to determine the causal relationship between variables (Kotler and Keller, 2009), the experimental research design is considered the most valid and widely used research in marketing (Malhotra, 2007). Also, consumer's reaction to a personalized message depends on both the degree of customization and the potential benefits of the offer (van Doorn & Hoekstra, 2013a). Thus, this study will be conducted with an experimental approach to determine the effect of the perceived benefits of OBA on OBA acceptance by using different factor intensities. Therefore, a research that can discuss how the perception of benefits in online behavioral advertising (OBA) on OBA acceptance with the use of different factor intensities is needed.

Prior research also showed that the effects of OBA on purchase intentions and identified click intention as predictor of the behavior of consumer's purchasing process. If the level of click intention increases, the likelihood of purchasing a product will increase (Urban et al., 2014). Finally, this study will examine how perceived benefits of OBA at different levels of distinctiveness affect OBA acceptance and click intention and ultimately behavioral intention in Indonesian consumers.

II. LITERATURE REVIEW

Display ads are the placement of paid ads using graphic or multimedia ads units on website pages to achieve the goal of providing brand awareness, familiarity, favorability, and purchase intention. Most display ads that available today are programmatic, based on real-time auctions, so ads can be targeted at the individuals who are fit the campaign objectives. Since new technologies allow companies to identify their target audience, monitor and collect data about the individuals behavior, the new advertisements are more customizable and engaging as well as better equipped to understand consumers' behaviors and intention (Van Doorn & Hoekstra, 2013).

OBA allows advertisers to target ads at visitors as they move across the website or visit other sites in the ads (Chaffey & Chadwick 2018), OBA is the process of tracking people activities on internet and then showing them individually targeted advertising based on that data (Boerman et al., 2017). There are numerous definitions of OBA in the literature, but they all have two things in common: monitoring and tracking of consumer online behavior and the use of data acquired through targeted advertising.

The theoretical background of OBA research is highly fragmented, and many of the OBA studies use a variety of theories from different disciplines, such as social and cognitive psychology, communication, and marketing to better understand and explain this type of practice. Several studies focus on the effects of the OBA and how to

measures acceptance and resistance to the OBA (Boerman et al., 2017; Mcdonald & Cranor, 2010; Smit et al., 2014; Ur et al., 2012). However, the perceptions about the OBA seem to be divergent. Specifically, previous studies state that the OBA is characterized by a continuous contrast between benefits and risks.

Research that conducted by Aiolfi et al., (2021) confirmed the direct and positive effect of relevance and credibility of OBA-promoted content on personalized ads acceptance, which results in higher levels of click intention and consequent positive behavioral intentions in terms of actual buying behavior. This study also explains how privacy concerns about data-driven advertising positively affect the intention to avoid implementing OBA which results in lower click intention ratios.

In terms of OBA relevance, experimental study that was conducted by Bleier & Eisenbeiss (2015a) confirmed that banners with a high degree of content personalization (DCP) are most effective when a consumer has just visited the advertiser's online store, but quickly lose effectiveness as time passes since that last visit. Personalization increases click-through irrespective of whether banners appear on motive congruent or incongruent display websites and also in terms of view-through, personalization increases the ad effectiveness only on motive congruent websites, but decreases it on incongruent websites.

Another experimental study was conducted by Aguirre et al., (2015) that revealed that when firms practice overt information collection strategies, personalization leads to greater click-through intentions. This study claims covert strategies do not change click-through intentions because participants unaware of the information collection felt more vulnerable in the face of a highly personalized advertisement. This means that advertisers may increase the credibility of their ads and the likelihood that users would view and click on personalized ads by giving customers more control over their personal information (Tucker, 2014).

Aiolfi et al., (2021) found that perceived usefulness is not significantly impact the acceptance of OBA. A system with a high perceived usefulness is one for which the user believes there is a favorable use-performance relationship (Davis, 2011). Study conducted by Bleier & Eisenbeiss (2015b) conducted to investigate on how trust moderates in influence the ad personalization on consumers' internal and external responses in the lab more trusted retailers can increase the perceived usefulness of their ads through a combination of high depth and narrow breadth of personalization without eliciting increased reactance or privacy concerns. Otherwise, less trusted retailers, banners with higher depth are not perceived more useful, but instead trigger increased reactance and privacy concerns, regardless of their personalization breadth. The suggestion for the future research, researcher suggest to conduct these studies with experimental approach.

III. Research Methodology

Advertisers are increasingly recognizing the OBA as one of the most effective ways to reach their target demographic. Furthermore, the OBA is designed to deliver more relevant advertising to users on a theoretical basis. However, because customers ignore of the procedures underpinning the OBA, the gathering of information and its usage is frequently veiled, resulting in ethical issues (Boerman et al., 2017). Although numerous theories have been utilized to further our understanding of the OBA's antecedents, it is critical to comprehend how and in what measure consumers value the OBA's benefits (e.g. relevance, credibility, perceived usefulness) in order to embrace the OBA.

The study aims to identify the potential contents able to provide value for individuals in terms of OBA, and therefore capable of influencing them in degree of customization. Thus, it may result in a behavioral intention to purchase the products promoted by the OBA. Specifically, the conceptual framework is based on the following hypotheses.

Relevance – OBA Acceptance

Several prior studies have shed light on how advertisement content influences consumer responses to OBA. Many studies agree that ad relevance is one of the primary reasons why OBA outperforms non-personalized advertising in terms of performance. The attention and visibility of an advertisement are affected by changes in its relevance (Bellman et al., 2013). The Elaboration Likelihood Model states that the more personal and relevant a message is, the more likely it is to be recognized, and hence more effective (Petty et al., 1983). It is possible to learn the general interests and demands of the audience through monitoring and profiling, allowing for the presentation of targeted adverts at the proper time, resulting in more relevant exposure. When a person is engaged,

he or she is more likely to commit cognitive effort to evaluating the value of a product; conversely, when engagement is low, a person is less likely to dedicate cognitive effort to analyzing the value of a product (Petty et al., 1983). Thus, based on these things, the following hypotheses can be drawn:

H1 : The higher the level of relevance of OBA, the higher the level of acceptance of OBA.
The level of relevance (relevance) of OBA has a positive influence on OBA acceptance

Credibility – OBA Acceptance

According to the literature, OBA is more effective than non-targeted commercials, however the result is dependent on audience and advertiser conditions. This refers to the data that is utilized to adjust advertising and transparency, also known as advertising credibility (Aiolfi et al., 2021; Boerman et al., 2017). By providing consumers more control over their personal information, advertisers may boost the credibility of their ads and enhance the likelihood that users will see and click on tailored ads (Tucker, 2014). Furthermore, advertisers should be more honest in their data acquisition and use in order to customize ads, taking advantage of open communication. In particular, Jai et al., (2013) state that Consumers' negative reactions to the use of cookies can be mitigated by providing accurate information. As a result, more trustworthy advertising should not just focus on alerting users about this technique, but also on attempting to alleviate their anxieties, particularly among the elderly and the less educated (Smit et al., 2014). As suggested by Aguirre et al., (2015), Higher OBA acceptance rates can be achieved by gathering information openly. In reaction to tailored advertising, there has been an increase in click intention. Based on these things, the following hypotheses can be drawn:

H2 : The higher the level of credibility of the OBA, the higher the level of acceptance of the OBA. The level of credibility of OBA has a positive influence on OBA acceptance

Perceived Usefulness – OBA Acceptance

The effectiveness of OBA depends on factors controlled by advertisers such as information used to personalize advertisements and advertiser transparency and consumer-related factors (Aiolfi et al., 2021; Boerman et al., 2017). Consumer factors influencing OBA acceptance include the perceived usefulness of advertising, which is influenced by designing commercials that thoroughly represent interests (Bleier & Eisenbeiss, 2015b). Perceived usefulness is the degree to which a person believes that using a particular system will improve his or her job performance (Davis, 2011). From the OBA perspective, data-based advertising obtains high usability benefits, which in turn are believed by users to have a positive acceptance-performance relationship (Aiolfi et al., 2021). Thus, OBA acceptance is positively related to the benefits of advertising, so the hypothesis is drawn:

H3 : The higher the level of perceived usefulness of OBA, the higher the level of acceptance of OBA. The level of perceived usefulness of OBA has a positive influence on OBA acceptance.

OBA Acceptance – Click Intention

The process of monitoring people online activity, i.e., click-intention responses to ads, is one of the primary pillars of OBA (Boerman et al., 2017; Zuiderveen Borgesius, 2015). According to recent research on OBA, click intention is one of the key consequences of ad acceptance or avoidance among OBA outcomes. OBA acceptability appears to positively increase click intention rates due to perceived levels of personalisation, relevance, and usefulness (Aguirre et al., 2015; Aiolfi et al., 2021; Bleier & Eisenbeiss, 2015a; Boerman et al., 2017; Tucker, 2014). When transparency and consumer understanding of OBA have a beneficial impact on OBA adoption, it changes customer responses to on behavioral advertising, resulting in increased levels of click intention (Aguirre et al., 2015). Thus, click intention is positively related to OBA acceptance, so the hypothesis is drawn:

H4 : The higher the OBA acceptance rate, the higher the click intention level on the OBA. Acceptance of OBA (Acceptance) has a positive influence on Click Intention

Click Intention – Behavior Intention

The effect of OBA acceptance or avoidance on click intention (Bleier & Eisenbeiss, 2015a; Boerman et al., 2017) is in line with a stimuli-organism-response model in which stimuli influences an individual's cognitive and affective responses, which are then translated into specific behaviors (Aiolfi et al., 2021; Bleier & Eisenbeiss, 2015a; Boerman et al., 2017; Jai et al., 2013). The first consumer response is click intention, which is followed by behavioral intention, which is operationalized as the user's intention to buy or not buy: the consumer first clicks on the ad, and then decides whether or not to buy a product or service (Aiolfi et al., 2021). Thus, click intention is said to be a predictor of consumer buying process behavior (Urban et al., 2014) Click intention can enable consumers browse websites for more information and conduct detailed searches on consumer website pages by allowing them to seek more details or information about a product or service (Urban et al., 2014). According to the theory of planned behavior (Ajzen, Icek, 1985), behavioral intention refers to the intention to perform a behavior that is a proximate cause of the behavior. In specifically, intentions represent the motivational component of a behavior, i.e., how much conscious effort a person will put forth to do a behavior (Ajzen, Icek, 1985). As far as OBA is concerned, behavioral intention refers to the likelihood that a user will click on an ad and make a product purchase. The literature has examined the effects of OBA on purchase intention and actual purchase, identifying them as a measure of OBA effectiveness. In particular, intention to click is an excellent predictor of behavior in this stage of the consumer buying process (Urban et al., 2014). If the click intention rate increases, the likelihood of buying the product increases. In addition, the relationship between click intention and behavioral intention is more effective, resulting in a higher likelihood of purchase, when advertisements match consumer needs Van Doorn & Hoekstra, 2013) and even more so when consumer preferences are defined more carefully and they are more focused. on specific and detailed information (Lambrecht et al., 2013). This finding is in line with the stimuli-organism-response model, in which the intention on to use an ad in the future to make a purchase is positively influenced by the intention to click on the ad in relation to consumer awareness. OBA benefits due to the relevance, usefulness, and credibility of personalized messages (i.e. stimuli) (Aiolfi et al., 2021; Bleier & Eisenbeiss, 2015c; Boerman et al., 2017; Jai et al., 2013).

H5 : The higher the level of click intention on the OBA, the higher the level of behavioral intention to purchase the product offerings promoted by the OBA. Click Intention has a positive influence on behavioral intention

Research model
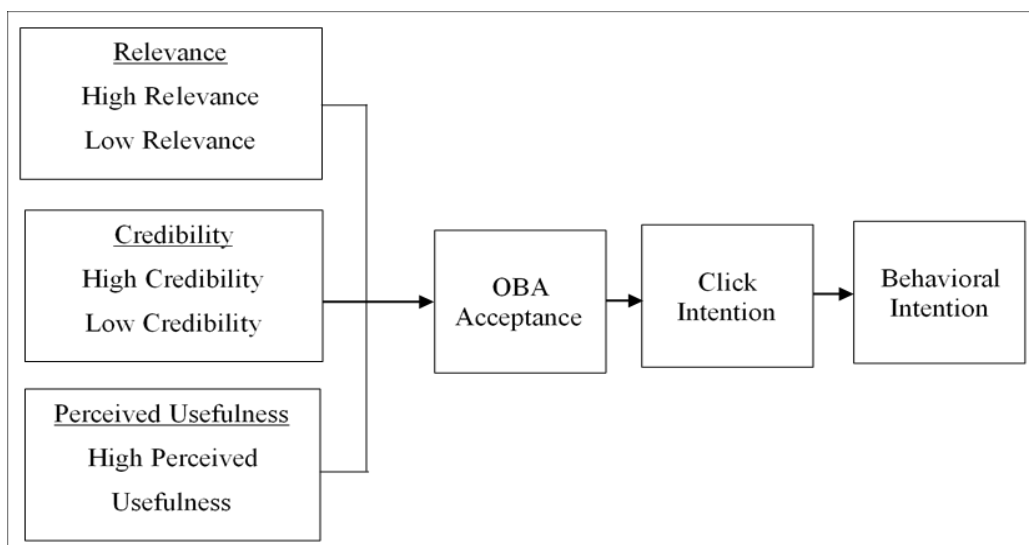
Fig.1. Research Framework

IV. RESEARCH METHODOLOGY

The appropriate method to be used in this research is experiment. The experimental design was used in this study with the aim of controlling the factors or variables that influence the causal relationship between the manipulated variable and other dependent variables. In this study, the manipulated variables were; relevance at the high DCP and low DCP levels, credibility at the overt (high credibility) and covert (low credibility) levels and perceived usefulness at the more trusted (high perceived usefulness) and less trusted (high perceived usefulness) levels. While the dependent variables to be measured are OBA acceptance, click intention and behavioral intention. This study uses an experimental method to control for other factors that can affect the causality relationship that has been built. The object of this research is the display of OBA which is processed by the researcher with reference to the manipulation of the stimuli. To build a research stimuli, the researcher will edit the advertisement image by displaying the manipulation of relevance, credibility and usefulness in verbal and non-verbal forms.

The design of this research is 2x2x2 which consists of three manipulated independent variables, namely OBA relevance, OBA credibility and OBA perceived usefulness. Thus, by referring to the characteristics of the experimental research design above, the researchers built eight stimuli sets based on a combination of three manipulated independent variables. Research participants will be presented with eight types of stimuli that have been created by researchers which will then be tested for their effects on OBA acceptance, click intention and behavioral intention. In accordance with the type of experimental design, in exposing the stimuli to each research participant, the researcher will conduct a randomization process. The randomization process was carried out to maintain objectivity in the research process. In the procedure, the researcher will give a random Stimuli to the research participants by using a randomizer tool that will constantly randomize the questionnaires that will be obtained by the participant. There are eight types of stimuli that have been described previously, where the participant will receive one stimuli at random.

Pilot test

The pilot test aims to determine the product category, product type, brand, e-commerce or e-marketplace that will be used in the research. In this pilot test, researchers collected several general products, brand names and prices to be used as product objects in the OBA stimuli.

To find the components that make up the stimuli, a pilot test will be carried out with the following steps:

- Pilot test 1: The researcher collects product categories that are commonly used as objects in the OBA stimuli by giving several participants the opportunity to choose the product category that is most frequently searched or purchased online.
- Pilot test 2: The researcher gives the participant the opportunity to choose three types of products from the product category obtained from the results of the pilot test 1. Then the participant is asked to choose one of several fictitious brand names given by the researcher.
- Pilot test 3: Researchers collect online information on e-commerce or marketplaces that are most often used in online purchases by giving participants the opportunity to choose one of 8 options.

The findings from this pilot test will be continued to the stimuli development stage by referring to the structure and manipulation text that will be used in the study.

Manipulation Check

We use ANOVA to check the stimuli that be used in the research is in the form of advertising images containing product images, brand names, prices, and manipulated text. The OBA relevance manipulation used in this research stimuli was adapted from Bleier & Eisenbeiss, (2015a). The OBA credibility variable will be manipulated by text adapting the research Aguirre et al., (2015) and the perceived usefulness variable was manipulated with text and visuals referring to the research of Bleier & Eisenbeiss, (2015c) The manipulation check stage was carried out to test the effectiveness of independent variable manipulation in experimental research.

Data

The primary data was obtained by researchers through a survey by distributing questionnaires to be filled out by participants online. The online questionnaire will be made in Google Forms format which will be distributed through several social media. 184 online questionnaires were given with 3 scenarios (relevance—ads are displayed

according to the last product and brand viewed, advertisements display different products with the same brand) ×2 (credibility—text regarding data collection for marketing purposes, without text) x2 (perceived usefulness) – advertising with trusted sellers, less trusted sellers). On average, 23 participants answered each of the eight scenarios, by random assignment. Participants begin by reading the text containing the scenario and instructions.

Procedure

First, the researcher subjected each participant to a text briefly the mechanism of the emergence of OBA. Second, the researcher participants are given text in the form of scenarios for participants to imagine the flow of the advertisements that are displayed. Scenario video is also presented visual Stimuli representing an example of online behavioral advertising associated with the decision-making process of searching for a product on a company's website. The researcher then gave a screening statement about the product used in the advertisement to ensure that the participants really remembered the scenario of the OBA advertisement. After the Stimuli, participants answered manipulation check questions and continue to answer questions regarding their attitude toward the online behavioral advertising such as relevance, perceived usefulness, and credibility of this type of advertising. Furthermore, participants were asked to fill in the level of agreement on the twelve statements given. The statements given are all indicators of the variables studied. The fourth stage is divided into 8 parts. In the last stage, participants were asked to fill out a participant's profile including gender, age, last education, occupation, online shopping spending per month, and frequency of online shopping in the last month.

Measures

All the considered variables measured with multiple-item scales with Likert measurement scale from 1 (disagree) to 7 (agree). Data on sex and marital status using a nominal scale. Meanwhile, data on age, latest education, monthly expenditure, monthly online shopping expenditure, frequency of accessing e-marketplace sites in the last month using an ordinal scale. Specifically, all the scales used in the online survey come from previous research adapted from Aiolfi et al., (2021). Specifically, click intention three items adapted from Gironda and Korgaonkar, 2018; Aguirre, et al., 2015.

V. RESULT / FINDING

Pilot Test

Total 30 participants consisting of 15 men and 15 women participated on every pilot test. The participants profile on the pilot tesst are expected to represent participants in the main test. Through a survey using Google Forms, participants were asked to choose what product categories might be purchased or searched online. Result from Pilot Test show that the clothing/apparel category is the most chosen category with 12 answers (40%). 22 answers from pilot test 2 choose T-Shirt product type 43,3% participants choose "Weargenics" as fictitious brand. Furthermore, Tokopedia is used as e-marketplace as 62.1% participant's selection.

Manipulation Check

The first manipulation check was carried out on 48 participants consisting of 22 males and 26 females. Manipulation check was carried out using a short questionnaire through the google form media, where each participant received one image of a stimuli advertisement at random. Based on the results obtained, it can be concluded that the manipulation of high relevance, high credibility and high perceived usefulness can be accepted by participants. On the other hand, manipulation of low relevance, low credibility and low perceived usefulness credibility has not been accepted by the participants.

The second manipulation check was carried out on 24 participants who filled out a short online questionnaire. This second manipulation check aims to determine the success rate of the revised manipulation stimuli. At this stage, manipulation of low relevance, low credibility and low perceived usefulness is observed again by displaying a stimuli. They identified the OBA with high relevance as significantly has higher mean than low relevance OBA ($M_{low\ relevance}$= 6.13, $M_{high\ relevance}$= 13.54; p = .0000). Participants in the overt condition also agreed that their OBA is credible (M_{overt}= 6.96, M_{covert} = 11.67; p = .0000). Participants also identified the OBA with high perceived usefulness as significantly has higher mean than low perceived usefulness ($M_{high\ perceived\ usefulness}$= 4.71, $M_{low\ perceived\ usefulness}$ = 18.25; p = .0000). Based on the results of the manipulation check 2, the researchers got results where the majority of participants gave a change in their assessment of low relevance, low credibility and low perceived usefulness and the result show that the stimuli already accepted.

Pretest

Pretest is conducted to measure the validity and reliability of each indicator on each variable used as an experimental instrument. Validity and reliability of the variable indicators were tested using SPSS. Validity test of the indicators was carried out using data collected from a total of 35 participants using a 7-point likert scale. It showed that all KMO values of each variable are > 0.500 and the significance value of each variable obtained is <0.001. The KMO value and significance value describe the correlation between variables so that it is feasible for factor analysis to be carried out. In addition, the results of validity test of each indicator on each variable value shows a value above 0.500. This shows that the indicators used in this study passed the test of statement indicators for each variable measured in this study. Reliability test showed that all Cronbach's alpha values in each variable are > 0.600. The Cronbach's alpha value shows the consistency between each variable indicator. Cronbach's alpha also shows that the indicators used in this study passed the reliability test and were declared reliable for use in the main test.

Hypothesis Testing

We used three-way ANOVA to analyze hypothesis 1, 2 and 3 and regression analysis to analyze hypothesis 4 and 5. The results of hypothesis testing are shown in Figure 2. Results allow us to support all hypothesis. Specifically, the final analysis alow us to confirm the evidence of a positive and direct effect of the relevance (p-value < 0.000) and the credibility (p-value < 0.004) of the contents promoted by the OBA on the acceptance of the personalized advertising. This results in a more click intention rate (H4: β = 0.455, p-value < 0.000) and consequently in a positive behavioral intention in terms of actual purchase behavior (H5: β = 0,741, p-value < 0.000).

Table. 23 Hypothesis Testing

Hypothesis	Indicator	Degree (Level)	EMM	Coefficient	P-Value	Remarks
H1	REL -> OA	High	33.863			
		Low	27.612		0.000	Significant
H2	CRED -> OA	High	32.615			
		Low	28.725		0.001	Significant
H3	POU -> OA	High	31.802			
		Low	29.731		0.047	Significant
H4	OA -> CI	-	-	0.455	0.000	Significant
H5	CI -> BI	-	-	0.741	0.000	Significant

Source: Author (2022)

We also compare mean value from each stimuli condition Fig.2 to find out which stimuli that has the highest mean value, resulted on most influence OBA acceptance. The result show us that stimuli-1 (high relevance, high credibility and high perceived usefulness) give the strongest influence to OBA acceptance among all stimuli condition while stimuli 8 has the lowest mean value.

Mean Comparison Each Stimuli to OBA Acceptance

37.200	31.434	31.167	35.478	29.625	31.958	29.393	20.111
High relevance, high credibility, high perceived usefulness	High relevance, high credibility, low perceived usefulness	High relevance, low credibility, high perceived usefulness	High relevance, low credibility, low perceived usefulness	Low relevance, high credibility, high perceived usefulness	Low relevance, high credibility, low perceived usefulness	Low relevance, low credibility, high perceived usefulness	Low relevance, low credibility, low perceived usefulness

Finally, by using Three Way ANOVA, all stimuli will be compared to see the difference in the OBA acceptance value through the Pos Hoc Dunnet test Table 2.

Stimuli 8 (low relevance, low credibility, and low perceived usefulness) is used as a reference condition that will compare it's results with other stimuli by giving different treatments. It is obtained that the largest comparison is between stimuli 8 vs stimuli 1 with a mean difference of 17,089 with a negative value. This value shows that mean value of OBA acceptance on Stimuli 1 is higher 17,089 compared to stimuli 8. We also see closer the difference between stimuli 8 and other stimuli by comparing the difference in every treatment (high level) on every stimlu. Compared to stimuli 4 (high relevance, low credibility, low perceived usefulness) it is showed that mean difference is 15,367. On this condition, credibility and perceived usefulness are in the low category and relevance is only in the high category. It can be said that relevance in the high level gives a big and dominant influence. Compared to stimuli 6 (low relevance, high credibility, low perceived usefulness) it showed that given a different treatment, by increasing credibility to high, the mean difference of OBA acceptance is 11,847. This shows that there is a difference between the two stimuli conditions. Last, compared to stimuli 7 (low relevance, low credibility, high perceived usefulness) given a different treatment, by increasing perceived usefulness to high, mean difference to OBA is 9,281. As a conclusion with these three results, it can be said that giving relevance, credibility and perceived usefulness at a high level can increase OBA acceptance with high relevance giving the biggest impact among other independent variable.

Table. 24 Stimuli Comparison

OBA Acceptance	Dunnett T3	Mean Difference (I-J)	Sig.
	Stimuli 4 HR, LC, LPU	-15.36715*	0.000
	Stimuli 6 LR, HC, LPU	-11.84722*	0.000
Stimuli 8 (LR, LC, LPU)	Stimuli 7 LR, LC, HPU	-9.28175*	0.001
	Stimuli 2 HR, HC, LPU	-11.32367*	0.000
	Stimuli 3 HC, LC, HPU	-11.05556*	0.001
	Stimuli 5, LR, HC, HPU	-9.51389*	0.003
	Stimuli 1 HR, HC, HPU	-17.08889*	0.000

Source: Author (2022)

VI. CONCLUSION AND IMPLICATION

Our research contributes to advance the state of knowledge about the importance of perceived benefit on OBA to influence actual behavior of online shoppers and its application in online retail environment such as e-marketplace. Prior research came up SEM approach to seek both the benefits (relevance, credibility, and perceived usefulness of personalized online behavioral advertising) and the risks (privacy and ethical concerns) of the OBA. While in practice, companies use a large number of algorithms to be able to personalize their advertisements in different conditions among each consumer (Bleier & Eisenbeiss, 2015a). Filling the gap in the existing literature, the research, through experimental design, seeks to see how benefits (relevance, credibility, and perceived usefulness) in OBA influence OBA acceptance with the use of different factor intensities is needed.

On the theoretical perspective, the results showed that the relevance at the higher-level treatment give significant effect on OBA acceptance compared to OBA with low relevance treatment. This finding confirms the Elaboration Likelihood Model theory which states that the more personal and relevant a message is, the more likely it is that the message will be noticed, thus making it more effective (Petty et al., 1983). The results also showed that in the overt condition (high credibility treatment) it would have a significant effect on OBA acceptance. This is related to if advertisers give users more control over their personal information, it can increase the credibility of advertisements and increase the likelihood of users to receive and click on the OBA (Tucker, 2014). OBA acceptance affected positively the intention on click intention and the behavioral intention confirming a significant effect of click intention on behavioral intention. Our results are consistent with literature that examined the effects of OBA on purchase intentions and identified click intention as predictor of the behavior of consumer's purchasing process. If the level of click intention increases, the likelihood of purchasing a product will increase (Urban et al., 2014).

On the managerial perspective, the research suggests marketers to focus attention on intensify the benefit (relevance, credibility, and perceived usefulness) on OBA to optimize the acceptance of OBA.

The results show that the combination of high relevance, high credibility and high perceived usefulness has a higher effect on ad acceptance. The findings of this study support marketing managers to display ad combinations that are more acceptable to users. OBA relevance at high level is the factor that gives the highest OBA acceptance effect. These findings can be used by advertisers as a reference in displaying OBA by making efforts to tailor ads to user interests.

High credibility on OBA acceptance suggests marketeers to pay attention to display the information sources and intermediaries, especially nowadays when the consumer is more concern about data privacy. The research also showed that high perceived usefulness with display of more trusted seller will affect OBA acceptance compared to less trusted seller. Less trusted seller still able to promote their content through OBA if combine with high relevance ads to expect for more acceptance. Once the benefit optimized, it will affect click intention and actual purchase intention of online customer.

VII. LIMITATION AND FUTURE RESEARCH

Some limitations are associated with the experimental design. This research study uses a fictitious brand in the displayed OBA but the e-marketplace used is the result of the majority of participants' answers to the pilot test (Tokopedia) and not a fictitious brand. Further research can examine OBA originating from e-marketplaces or fictitious websites to avoid the influence of brand familiarity between participants and advertisers.

In addition, the manipulation of variables in the research is limited to high and low levels, while the relevance of advertising has a wider dimension of personalization. Future research can conduct variable manipulation at several levels, such as the relevance of advertisements using the participant's name or information about participants that is explicitly displayed in the OBA. On our experiment, the types of ads displayed in OBA are static while in practice OBA has displayed dynamic ads with different sizes. We also suggest further research examine OBA by using dynamic advertising displays or comparing ad receipts based on the appearance and location of advertisements on the website.

Finally, we invite all the researchers who want to investigate this topic to see the effect of OBA on purchase intentions such as multiple touchpoints, attribution, social media, and influencer marketing. Further research also can add a control group to confirm that the research results are caused by the manipulation of the independent variables and there is no influence from external variables that are not included in the study.

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APPENDIX

Appendix A. All Stimuli

Stimuli 1 :High Relevance, High Credibility, High Perceived Usefulness
Link video: https://youtu.be/6fladQhfgFo
Link website: https://newspedia.asia/
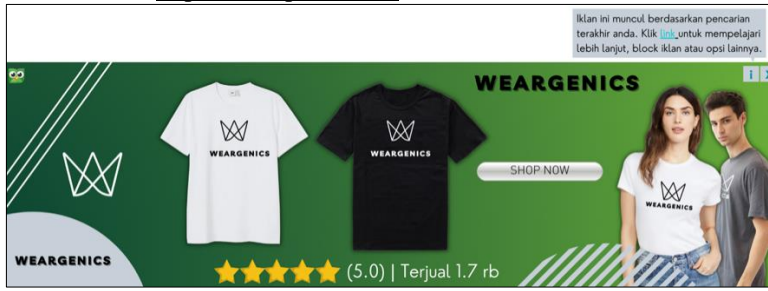
Stimuli 2 :High Relevance, High Credibility, Low Perceived Usefulness
Link video: https://youtu.be/Tb6nlyTmXCc
Link website: https://newspedia1.asia/
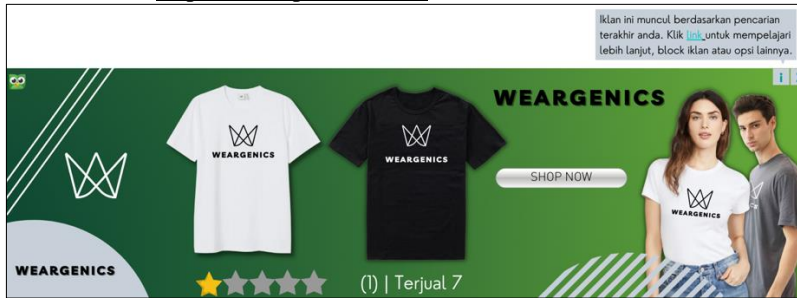
Stimuli 3 :High Relevance, Low Credibility, High Perceived Usefulness
Link video: https://youtu.be/Zy2AkU2HnaI
Link website: https://newspedia2.asia/

Stimuli 4 :High Relevance, Low Credibility, Low Perceived Usefulness
Link video: https://youtu.be/zhuEn_kdtdw
Link website: https://newspedia3.asia/
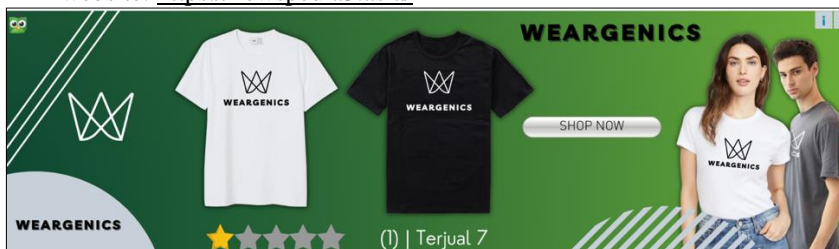
Stimuli 5 :Low Relevance, High Credibility, High Perceived Usefulness
Link video: https://youtu.be/fttbyktC2hQ
Link website: https://newspedia4.asia/

Stimuli 6 :Low Relevance, High Credibility, Low Perceived Usefulness
Link video: https://youtu.be/N7tSAqeh-VU
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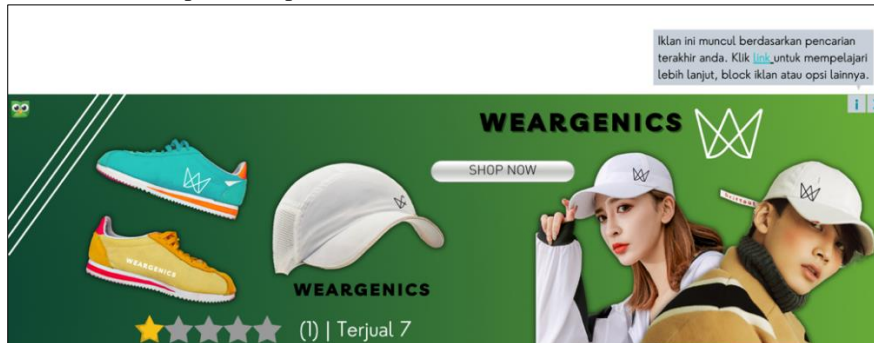
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Factors Affecting Income Inequality In The Province Of South Kalimantan 2017-2020

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Abstract

Income inequality is a major problem that is often faced in developing countries. High income inequality results in delays in development, economic resources and increasingly high inequality between rich and poor groups of people. This study aims to analyze the factors that influence income inequality in the province of South Kalimantan in 2017-2020 using three independent variables, namely Human Development Index, open unemployment rate and population. The analytical method used is the panel data regression method. The results obtained from the panel data regression analysis, namely the Fixed Effect Model (FEM) that the right approach to explain the effect of the dependent variable with the independent variable in this study. Based on the validity test, the Human Development Index variable has a significant effect, while the open unemployment rate and population have no significant effect on income inequality.

Keywords— Income Inequality; Human Development Index; Total Population; Panel Data.

I. INTRODUCTION

In the economic development of a developing country, it is not far from the problems that must be faced, because economic development is a benchmark to see the development of a region or region. The purpose of doing economic development is to create economic growth, unemployment, reduce poverty and income inequality [1].

One of the problems that are often faced in economic development is income inequality. In addition, income inequality is a reality that exists in the midst of the world community, both in developed and developing countries is also an important issue for review [2].

Economic development is not always evenly distributed, income inequality between regions is a serious problem. There are some areas that experience fast economic growth, but also areas that experience slow economic growth. The area did not experience the same development and progress due to development and progress, this was due to the lack of resources [3].

The Gini index is a measure that describes the level of income inequality in the province, the Gini index has a number level from 0 to 1, which means that if inequality is above one, it means that the inequality is very high. The following can be seen in table 1 data on the Gini index in the province of South Kalimantan:
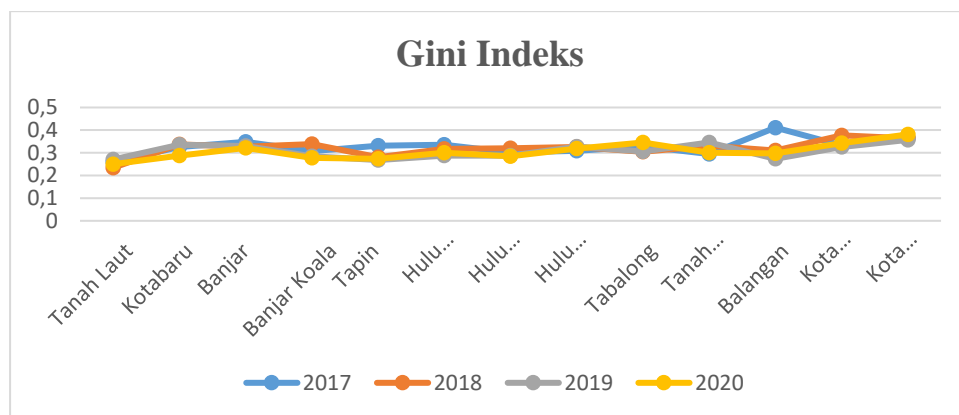
Fig 1. Comparison of the Gini Ratio in South Kalimantan Province (Source: BPS South Kalimantan Province)

Based on the data in Figure 1 above, it can be concluded that each region in South Kalimantan has various Gini ratio levels, which means that the level of income in various regions of South Kalimantan cannot be said to

be evenly distributed. In 2020, the City of Banjar Baru has a Gini ratio index value higher than other regions, which is 0.381, while Tanah Laut Regency has the lowest Gini ratio index value with a value of 0.250.

Inequality in South Kalimantan Province is that most regions or regions are still relatively underdeveloped, with a total of 13 regencies/cities. Based on the problems described above, the purpose of this study is to determine the factors that influence income inequality in the province of South Kalimantan in 2017-2020.

II. LITERATURE REVIEW

A. Income inequality

Income inequality is the difference between the rich and the poor, which results in differences in prosperity due to income inequality (Baldwin, 1986).

Inequality occurs in each region due to differences in the resources owned by each region where inequality occurs. As a result, the income earned by the residents of each region experiences differences in resources that create inequality. In addition, differences in resources can also distinguish the development process in an area. This difference in the development process causes differences between regions that are considered advanced and those that are backward (Sjafrizal, 2012).

To measure income inequality, there are measuring tools to measure income inequality, namely the Williamson index and the Gini index. In this study, the authors chose to use the Gini index measuring instrument in measuring income inequality in South Kalimantan Province.

B. Gini Index

Gini index is a calculation tool to measure income inequality. The Gini index has an average number in the range from 0 to 1. At this level, it can measure the inequality of income obtained by the community. Based on the Gini index class, it is divided into several classes, as follows:

Table 1. Income inequality

Score	Description
< 0.4	Low Inequality Rate
0.4 – 0.5	Moderate Inequality
>0.5	High Inequality

In its own calculation, the Gini index has the following formula:

$$GR = 1 - \Sigma f_i[Y_i + Y_{i-1}]$$

Information:
GR   : Gini coefficient
F_i : Number of people who receive income class-i
Y_i : Cumulative amount of income of class-i
Y_{i-1} : Cumulative amount of total expenditure of class-i

C. Lorenz Curve

The Lorenz curve is a curve that describes the cumulative income description function. This curve is located in a square where the tense side represents the cumulative percentage of national income, while the bottom side represents the cumulative percentage of the population. The Lorenz curve which is closer to the diagonal (straighter) implies a more even distribution of national income. On the other hand, if the Lorenz curve is further away from the diagonal (more curved), then it reflects a worsening situation, the distribution of national income is increasingly unequal or uneven. The further the Lorenz curve is from the diagonal line (perfect equality), the higher the inequality shown. The most dangerous situation from perfect inequality, for example a situation where all income is only received by one person, will be indicated by the overlap of the Lorenz curve with the bottom horizontal axis and the right vertical axis (todaro, 2003).

D. Kuznet theory

Kuznet presented a hypothesis regarding the relationship between a country's economic growth and the inequality of income distribution among the population in the inverted U-shaped form. This indicates that at the beginning of growth, the income distribution gap was even higher (Djojohadikusumo, 1994). However, at a certain stage the income distribution gap will decrease (Todaro, 2003). As in the following image:
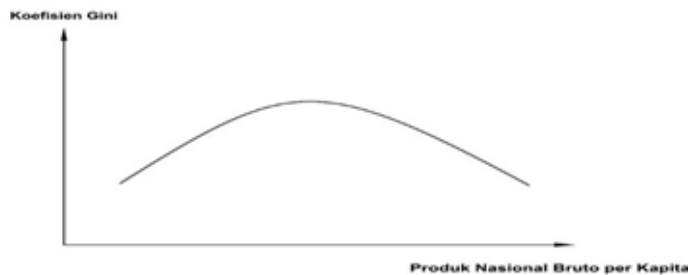
Fig 2. Kuznet Hypothesis (Source: Todaro, 2003)

E. Relationship between Human Development Index and Income Inequality

That the human development index has a positive and significant influence on income inequality in the province of East Java. The level of life expectancy that is quite high can form and create a productive workforce and in the end it will increase the income per capita of the community, it is clustered in areas that are central to economic activity, especially in industrial centers or areas with high incomes, causing rapid growth. Uneven and triggers economic inequality [4].

F. The Relationship of the Open Unemployment Rate to Income Inequality

Unemployed people cannot produce economic products. This situation is clarified that urbanization towards areas that are more economically developed has led to the emergence of open unemployment so that many big cities are burdened by an increasing labor force but limited employment opportunities and creates greater inequality [5].

G. Relationship between Population and Income Inequality

In ancient literature and Maltus theory, population is generally seen as an obstacle to development. Its existence in large numbers and high growth is considered to only add to the burden of development. That is, a large population reduces per capita income and creates employment problems, while in modern literature, the population is actually seen as a trigger for development. The continuity of production activities is because there are people who buy and consume the goods produced. An increase in aggregate consumption allows productive enterprises to develop, as well as the economy as a whole (Dumairy, 1996).

III. RESEARCH METHODOLOGY

This study discusses the factors that influence income inequality in South Kalimantan Province in 2017-2020. The data used in this study is panel data where this data uses time series data for 4 years and a cross section of 13 districts/cities.

A. Research Variable

Income inequality (Y) is the difference in an area with other areas that are in a certain area. The Human Development Index (X1) is a composite index used to measure the average achievement of a country in three basic aspects of human development including the life expectancy index, education index and income index. The Open Unemployment Rate (X2) is the percentage of the number of unemployed to the total workforce in each year.
Total Population (X3) is a group of individuals who live in a certain area.

B. Data Collection Technique

The data taken in this study used secondary data. Data on independent and dependent variables were obtained from the Central Statistics Agency of South Kalimantan Province.

C. Data Analysis Technique

The regression model estimation method using panel data is carried out with three approaches, including the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). The basic model equations used in this research are as follows.

$$GI_{it} = \beta_0 + \beta_1 HDI_{it} + \beta_2 OUR_{it} + \beta_3 TP_{it} + \varepsilon_{it}$$

Description:
GI   : Gini Indeks
HDI   : Human Development Index
OUR   : Open Unemployment Rate
TP   : Total population
β_0 : Constant
$\beta_1\beta_2\beta_3$: Regression Coefficient
i   : District/City
t   : Year
ε : *Error term*

D. Common Effect Model

The Common Effect Model is an approach the simplest panel data model because it only combines time data series and cross sections. By simply combining the data without looking at differences between time and individuals, the OLS method is used to estimating the panel data model (Widarjono, 2018). The Common Effects model can be written as following:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

Descriptiom:
Y   : dependent variable
X   : independent variable
i   : cross section
t   : time series

E. Fixed Effect Model

Fixed Effect Model is a panel data estimation technique that using a dummy variable to capture the difference in the intercept. This estimation model is often called the Least Squares Dummy Variables (LSDV) (Widarjono, 2018)

F. Fixed Effect Model

In the Fixed Effect model, the use of dummy variables aims to represents ignorance of the actual model. However, this too lead to a reduction in the degree of freedom which ultimately reduce the efficiency of the parameters. The problem can be solved by using the error terms known as random effects method. In this method, the disturbance variables may be mutually relates between time and between individuals (Widarjono, 2018).

IV. RESULT/FINDING

Based on the estimation results selected in this study is the Fixed Effect Model (FEM). The results of the estimation in this study indicate that the human development index has a significant effect on income inequality in the province of South Kalimantan, the open unemployment rate and population have no effect on income inequality in the province of South Kalimantan. The following are the results of the T test in this study, namely:

Table 1. T Test Result

Variable	Coefficient	Std. Eror	t-Statistic	prob.
C	1.950754	0.616297	3.165283	0.0031
HDI	-0.027881	0.012101	-2.304021	0.0271
OUR	-0.013782	0.010673	-1.291270	0.2048

TP	1.14E-06	1.02E-06	1.122604	0.2690

Source: Data processed

The F test is also used as a tool to see the effect simultaneously. The following are the results of the F test in this study:

Table 2. F Test Result

F-statistic	4.566580
Prob (F-statistic)	0.000093

Source: Data processed

Based on table 2 shows that the probability value of F statistic is 0.00093 < 5% (0.05) meaning that (Ho) is rejected and (Ha) is accepted. The results of the F test explain that the human development index, the open unemployment rate and the number of residents simultaneously have a significant simultaneous effect on income inequality which is expressed by the Gini ratio.

In addition, the coefficient of determination test (R^2) is carried out in order to measure how much the independent variable affects the dependent variable. The following are the results of the Coefficient of Determination (R^2) test in this study, namely:

Table 3. Coefficient of Determination Test Results (R2)

Adjusted R-squared	0.511956

Source: Data processed

Based on table 3 above, it shows that the value of the result of the Coefficient of Determination (R^2) test is 0.511956. This explains that the effect of the independent variable on the dependent is 51% and the remaining 49% is influenced by other variables.

The regression analysis that has been carried out aims to determine the factors that influence income inequality in the province of South Kalimantan for the period 2017-2020. The influencing factors include the human development index, the open unemployment rate, and the population. The following is a summarized table regarding the relationship between the independent variable and the dependent variable, as follows:

Table 4. Panel Data Regression Results

Variable	Coefficient	Probabilitas	Description
C	1.950754	0.0031	significan
HDI	-0.027881	0.0271	significan
OUR	1.14E-06	0.2690	not significan
TP	-0.013782	0.2048	not significan
Adjusted R-squared		0.511956	
F-statistic		5.417298	
Prob (F-statistic)		0.002095	

Source: Data processed

Based on table 4, it shows that the output of the data processing uses the panel data regression method, namely the value of the constant coefficient of 1.950754. Means that the value of the Gini index is 1.950754.

V. DISCUSSION

A. *Effect of Human Development Index on Income Inequality*

The results of hypothesis testing in this study indicate that the HDI variable is significant to income inequality in South Kalimantan Province in 2017-2020. This is evidenced by a significant value < 5% (0.05) with a probability value of 0.0271 and a coefficient value of -0.027881, meaning that if every person's HDI increases by 1 person, it will reduce income inequality by -0.027881 percent.

These results mean that every increase in HDI will be followed by one of the factors that can further widen inequality in the province of South Kalimantan. The test results in the human development index research have a significant effect on income inequality. These results support the research of Widyastuti and Lucia (2021) in their research that the Human Development Index has a positive effect on income inequality in West Java Province [6].

In addition, where large increases in income can play a relatively small role in human development. Inequality that occurs in an area can affect the level of community welfare in an area. The inequality of the human development index causes some areas to be more developed because of human quality and areas that are not developed because of low human quality[1].

B. Effect of Open Unemployment Rate on Income Inequality

Based on the results of the analysis of the Open Unemployment Rate variable, it has no significant effect on income inequality. The variable coefficient of the open unemployment rate is 1.14E-06 with a probability of 0.2690, which means that a 1% increase in the open unemployment rate has no effect on an increase in inequality of 0.2690 percent. These results support Hariani's research (2019) where the unemployment rate has an insignificant relationship to income inequality in 38 districts/cities of East Java in 2012-2015[7].

C. The Effect of Population on Income Inequality

Based on the results of the analysis of the population variable has no significant effect on income inequality. The coefficient of the population variable is -0.013782 and the probability value is 0.2048, which means that if the population increases by 1%, it has no effect on income inequality in South Kalimantan Province in 2017-2020. These results support Hartandi's research (2018) where population has no influence on income inequality in Central Java.

VI. Conclusion And Recommendation

A. Conclusion

Based on the results of the analysis of the factors that influence income inequality in South Kalimantan Province in 2017-2020, it shows that the human development index has a significant effect on income inequality in South Kalimantan province in 2017-2020. Meanwhile, the open unemployment rate and population have no significant effect on income inequality in South Kalimantan Province in 2017-2020. Which means that if the unemployment rate is open and the population increases it will not affect income inequality in South Kalimantan Province.

B. Recommendation

Based on the conclusions obtained, it can provide some suggestions for the South Kalimantan Provincial government that it must continue to improve the human development index such as education, per capita income, and health in order to realize a quality human development index so that it can reduce income inequality and can affect people's welfare. The government also needs to create extensive job opportunities to improve the quality of the workforce in alleviating the unemployment rate in South Kalimantan Province. For the next writer, in the selection of variables, it is better to involve better variables.

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The Effect Of The Number Of Unemployment, The Number Of Population And The Literature Rate On Poverty Rate In Indonesia 2016-2020

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Abstract

Poverty is a problem related to the inability to access economic, socio-cultural, political and participation in society. This study aims to determine the effect of the influence, population, and literacy rate on poverty in Indonesia in 2016-2020. in this study reveals how the influence of poverty affects the factors studied. In this study the data used were secondary data in the form of time series (2016-2020) and cross sections (34 provinces in Indonesia). The selection of the best method in this study using the Fixed Effect Model (FEM). By using panel data analysis tool using eviews 9. The results of this study indicate that the population and literacy rate have a significant effect on poverty in Indonesia. Meanwhile, the movement has proven to have no effect on poverty in Indonesia. This study shows that the estimated model, namely the Fixed Effect Model (FEM) is 0.642049. This means that 64.20 percent of the variation in poverty changes in Indonesia is explained by variations in composition, population, and literacy rates. While the remaining 35.8 percent is explained by variations of other variables not included in the model. The conclusion shows that poverty has a positive effect on the total population, population, and literacy rate in Indonesia.

Keywords— poverty rate; unemployment rate; population; literacy rate

I. Introduction

Poverty is a multi-faceted phenomenon of food insecurity, lack of basic necessities, and physcal handicap. Poverty basically contains three broad approaches: basic need, incomme approaches, and capability approaches(Setyowati & Rahayu, 2020). Poverty is a worldwide problem where poverty is also difficult to overcome because there are many factors that influence it, therefore in every country there is a poverty problem. Poverty can also affect several factors, namely, the number of unemployed, the population and literacy rates. of these factors can affect poverty in Indonesia.

Basically Unemployment refers to the socio-economic situation in which individuals are willing to work but cannot get a job (Ghoto, 2021). Therefore, development in the economy is the main goal for developing countries, including Indonesia. Development is not related to growth but also to improving welfare, security, justice and the quality of resources, including human resources (SDA) and natural resources (SDA).Poverty is one of the basic problems that affect the economic development of a country. Due to the multidimensional nature of poverty, which means that the primary is in the form of poor assets and the secondary aspect is poor in social networks, financial resources, and information and others (Arif Novriansyah, 2018). In the case of poverty, the population factor also has an effect, more and more population without being balanced with jobs can cause unemployment which will result in increasing poverty.

There are several factors that affect poverty. First, there is absolute poverty which means that a person does not cover the minimum needs of life, including the needs for food, clothing, health, housing and education needed to live and work. Second, cultural poverty refers to the attitude of a person or society that does not want to try to improve the level of life despite efforts from outsiders to help it. Third, relative poverty is closely related to structural development problems. Namely, development policies that have not been balanced cause income inequality (Tazkiya, 2015).

Other factors that influence poverty include unemployment. Unemployment there are several factors, namely unemployment can be seen from the slow development of a country caused by a high increase in unemployment and not balanced with employment(Arif Novriansyah, 2018).

The main area of concern in today's world is education. The socio-financial progress of any country depends on education and literacy. A country with high human resource development is considered to have a high level of proficiency, which in turn helps to increase production and high productivity. It also encourages socio-financial aspects that are developing throughout the country (Nadeem et al., 2021). Poverty can also affect the literacy rate because it can be an indicator of the education development of the population. The higher the literacy rate, the

higher the quality and quality of human resources. Lack of education costs can cause economic problems that can trigger poverty.

This study aims to determine the factors that can affect poverty such as population, unemployment and literacy rates in Indonesia in 2016-2020.

II. LITERATURE REVIEW

In general, it is one of the fundamental problems that is the center of attention of the government in the country. In general, poverty is a condition in which a person or group is unable to fulfill basic rights to maintain and develop a dignified life. It can be said that the poor people spend on average per capita per month below the Poverty Line (GR). Poverty is grouped into two categories, namely poverty which means that poor people have income levels below the poverty line caused by poverty that occurs due to the influence of development policies that have not reached the whole community.

There is also unemployment which can affect poverty. Unemployment can occur as a result of the high rate of change in the workforce that is not matched by the existence of a fairly wide job field and the absorption of labor which tends to be small in percentage. This is due to the low growth rate of job creation to accommodate workers who are ready to work (Arif Novriansyah, 2018).

First, there is the meaning of the dependent variable. The dependent variable is what is measured in the experiment. This is a change due to a change in the independent variable. The dependent variable is called the output variable, criterion, or consequential. That is the result of the influence caused by the independent variable. In this study the dependent variables used are:

A. Poverty

Poverty in this study is measured by the number of poor people according to the criteria of the Central Statistics Agency in each province of Indonesia in 2016-2020. From BPS data, the number of poor people is the total population with per capita spending below a certain threshold which is expressed as the poverty line. According to the Central Bureau of Statistics, the poverty line is a representation of the minimum amount of rupiah needed to meet the minimum basic needs for food which is equivalent to 2100 kilocalories per capita per day and basic needs for food.between the independent and dependent variables are related which:

B. Unemployment

When the unemployment rate increases, the poverty rate also increases and when unemployment decreases, the poverty rate also decreases. So poverty can be a determinant and dominant factor that affects humanitarian problems such as backwardness, ignorance, neglect, crime, violence, human trafficking, illiteracy, school dropouts, street children, child labor. Thus poverty cannot only be viewed from one side of low income but must be viewed from many interrelated aspects (Yacoub, 2012).

C. Population

The relationship between population and poverty is that the number of people is related to poverty, this means that the more the population increases, the more the number of poor people if the number of jobs is not balanced with the increase in population, it can result in an increase in the poverty rate. This is because many people have no income so they are unable to meet their daily needs which has resulted in an increase in the number of poverty.

D. Literacy Rate

Poverty sometimes also means the absence of access to education and jobs that are able to overcome the problem of poverty and gain proper respect as citizens. Basically the literacy rate has a negative and significant impact on poverty because the literacy rate can also be an indicator of the education development of the population. The higher the literacy rate or literacy rate, the higher the quality and quality of human resources. related to the equation above, there are previous studies that support this research. the following are previous studies:

(Batul et al., 2019) In this research, it is related to Education plays an important role to pave way towards economic growth. Investment in education enhances the living standards and it is necessary for economic growth and social well-being of a society. This study forecasted the education status and its impact on economic growth by taking data from 1971 to 2016 in Pakistan. Secondary data were taken from International Finance Statistics and World Bank Development Indicators. The variables included in the research were poverty, Education status, and Economic growth. Time series analysis was carried out on the data. The empirical methodology adopted for this purpose includes the use of Augmented Dickey Fuller test, WALD test, Johanson cointegration test, and

VECM test. The study found long-run relationship between economic growth and the education status when poverty serves as dependent variable measuring economic growth in case of Pakistan. This showed that education does affect economic growth in the long run but not in short run. The interdependency between the variables suggested that policies should be formulated that would have a long lasting positive impact on the education status of the population and the continuity of the policies to achieve its objectives is more essential.

(Nolen, 2013) In this study with regard to poverty there are several explanations for poverty. Employment measures have been criticized for being potentially inadequate when looking at changes in poverty or literacy over time or in determining the success of certain public policies. Use the size of the number of unemployed can be misleading as well. I used a similar externality argument with those used in literacy debates and provide a measure class that captures externalities profession.

(Setyowati & Rahayu, 2020) This study explains about Poverty is a multi-faceted phenomenon of food insecurity, lack of basic needs, and physical disabilities. Poverty basically contains three broad approaches: basic needs, income approach, and capabilities approach. Islamic microfinance is convergence of Islamic finance and microfinance. It has great potential to combine Islamic principles focusing on the poor and disadvantaged with a mission microfinance to reach the poor and give them access to finance. This study intends to know the factors that influence poverty and to see how Islamic Microfinance (IMF) as an alternative solution for empowering the poor. This research takes the case Study of KSPPS or BMT KUBE Colomadu Sejahtera in Karanganyar Regency,Surakarta. The method used is the Logit model. Variables that affect and significant effect on poverty is income, number of dependents, and training been followed

(Tamrin et al., 2022) In this study the local government has tried to increase economic growth and poverty alleviation, butthis problem has not achieved the desired result. This study aims to determine direct and indirect effects of private investment, labor, infrastructure spending, human resources development index on economic growth and poverty levels in East Kutai Regency. To analyze the data used path analysis. The data used is secondary data in the form of time 2007-2021 data series. The results of this study indicate that the direct effect of Private Investment, Labor, Human Development Index on growth has a positive direction but not significant. On the other hand, infrastructure spending for economic growth has positive approach. Then the direct effect of private investment, human development poverty index, is positive and not significant if it has a direction. Immediate effect of Labor Force, Infrastructure Expenditure on Poverty Level is negative and important. The poverty rate through economic growth has a positive and significant impact direction. Indirect Effect of Labor Force on Poverty Levels Through the Economy growth has a negative direction and is not significant. Indirect effects of infrastructure spending on poverty levels through economic growth has a negative and significant effect direction.

In addition, the number of residents in the economic development of an area is a fundamental problem, because uncontrolled population growth can result in not achieving economic development goals, namely community welfare and reducing poverty. (Terhadap et al., 2016). A high population but unable to balance employment will lead to a high poverty rate or it can also increase the number of poverty.

Many poor people experience ignorance even systematically. Therefore, it becomes important for us to understand that poverty can lead to chaos, and ignorance is clearly synonymous with poverty. Literacy is one indicator of education. The welfare of the community will be directly proportional to the community's need for quality education so that the literacy rate will increase. On the other hand, countries with high levels of poverty will be in line with human resources with low levels of education.

The higher a person's education, the more the person's productivity will increase so that it will increase both individual and national income.

In this study, there are some data in the form of tables to show the number in each region in Indonesia and there are several related data regarding the number of variables in this study.

Table 1. Percentage of Unemployment in 5 Provinces in Indonesia Year 2017-2019

No.	Province	2017	2018	2019	Average
1.	Jawa Tengah	4,15	4,19	4,19	4,17

2.	Jawa Timur	4,10	3,77	3,77	3,88
3.	Jawa Barat	8,49	8,22	7,78	8,16
4.	Aceh	7,39	6,54	5,48	6,47
5.	DKI Jakarta	5,36	5,73	5,50	5,53

Source : Central Java Provincial Statistics Agency

In the end, the level of unemployment and poverty in a region will affect the economic growth of a country or region, this is clear considering that economic growth is one of the most important indicators.

The population in economic development is a fundamental problem. According to Malthus' theory, population growth is the result of the development process. However, population growth cannot occur without a proportional increase in welfare. If the rate of capital accumulation increases, the demand for labor also increases. Such conditions encourage population growth. However, an increasing number of people can reduce per capita income and can cause employment problems.

The more the population grows, it can affect poverty, because humans are much faster than the production of agricultural products which will cause the population to find it difficult to meet the needs of life so that it will have an impact on increasing poverty.

Table 2 . Total Population in Indonesia in 2016-2020

No.	Year	Amount
1.	2016	258496.5
2.	2017	261355.5
3.	2018	264161.6
4.	2019	266911.9
5.	2020	269603.4

Source : Indonesia in Figures 2016

While there is a process of increasing yield which is lower than the production factor which is fixed in number, namely land, the food supply will only increase according to an arithmetical sequence. Since food growth cannot keep up with the speed of population growth, per capita income tends to continue to decline to such a low level that the population must maintain conditions slightly above the subsistence level.

The level of education in Indonesia also continues to improve and increase. One indicator that can be used as a benchmark for equitable social welfare is by looking at the high and low percentage of the population who are literate. The level of literacy can be used as a measure of the progress of a nation. Literacy Rate (AMH) is a comparison between the number of people over fifteen years old who can read and write with the number of people aged fifteen years and over who cannot read and write. The highest literacy rate limit is 100, while the minimum limit of zero is the UNDP standard. This condition describes 100% or the entire community is able to read and write, and vice versa, a value of zero describes the condition that is unable to read and write.

Therefore, the literacy rate can also be an indicator of the education development of the population. The higher the literacy rate or literacy rate, the higher the quality and quality of human resources. People who can read and write are assumed to have the ability and skills because they can absorb information both verbally and in writing.

In Indonesia, there are still many people, especially children and the elderly generation who are illiterate. Factors that cause the growth of illiteracy in the next generation who are not familiar with technology, for example digital books. In fact, the use of digital books is an alternative to reduce illiteracy rates.

Table 3. Literacy rate in 5 provinces in Indonesia year 2017-2019

No.	Provinsi	2017	2018	2019
	Jawa Tengah	99.87	99.88	99.92
	Jawa Timur	99.82	99.88	99.91
	Jawa Barat	99.96	99.99	99.98
	Aceh	99.96	99.92	99.98
	DKI Jakarta	99.96	99.97	99.96

Source: Central Bureau of Statistics of Central Java Province

As we know from table 1.3 the Literacy Rate of Central Java Province has increased and almost all Provinces have almost the same difference, but Central Java Province every year has an increase in Literacy Rate.

Based on the above background, this researcher intends to find out the factors that influence poverty such as population, unemployment, and literacy rates on poverty in Indonesia.

III. RESEARCH METHODOLOGY

The analytical method used in this research is descriptive and quantitative analysis. To analyze the effect of the number of unemployed, population, and literacy rates on the poverty rate in Indonesia in 2016-2020, this study uses panel data analysis.

To analyze the effect of unemployment, population, and literacy rate on the poverty rate in Indonesia, this study contains several models or many objects and several types of data (Anggadini, 2015).

The panel data regression model has several formulas that can be used and are formulated as follows (Srihardianti & Prahutama, 2016) :

$$PL_{it} = \alpha + \beta_0 + \beta_1 UNP_{it} + \beta_2 TP_{it} + \beta_3 LR_{it} + \mu_{it}$$

(1)

Where :

PL   : Poverty Levels for the i-th region and t time
UNP   : Unemployment for region i and time t
TP   : Total Population for the i-th region and t-time
LR   : Literacy Rate for the i-th region and i-time
i : show province
t : show time series
a : constant
$\beta_{0,1,2,3}$: intercept coefficient and slope
μ : nuisance or unobservable factors

From the econometric model above, there is a residue that has three possibilities in the model specifications. So there are three approaches in using this panel data, namely Pooled Least Square (PLS), Fixed Effect Model (FEM), and Random Effect Models (REM); In determining the best estimation model, the Chow test and the Hausman test were used.

IV. RESULT/FINDING

The results of the panel data regression estimation on the econometric model using the Pooled Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches are shown in Table:

Table 4.

Variabel	Koefisien Regresi		
	PLS	FEM	REM
C	702,4156	-7002,234	396,9855
UNP	-0,722880	1,911115	-0,467566
TP	-2,57E-05	0,091323	-3,92E-05
LR	-6,445376	63,62134	-3,398762
R^2	0,073732	0,642049	0,009656
Adjusted R^2	0,056992	0,545159	-0,008242
F-Stat	4,404573	6,626634	0,539501
Prob.F Stat	0,005205	0,000000	0,655881

Some econometric models have residues that have three possibilities in the model specification. So there are three approaches in using this panel data, namely Pooled Least Square (PLS), Fixed Effect Model (FEM), and Random Effect Models (REM). In determining the best estimation model, the Chow test and Hausman test are used. In this method can use Pooled Least Square (PLS) or Common Effect Model (CEM). The panel data model only combines time series and cross section data using the OLS method with common effect estimation.) (Syukron & Fahri, 2019).

A. Chow Test

Tables 5. Chow Test Estimation Results

Effect Test	Statistic	d.f.	Prob.
Cross-section F	6,398884	(33,133)	0,0000

In selecting the right test in panel data between the Common Effect Model (CEM) and Fixed Effect Model (FEM) and Random Effect Models (REM), the Chow test can be used to determine whether the common effects model is better to use than the fixed effect method.

B. Husman Test

Table 6. Husman Test Estimation Results

Test Summary	Chi-sq.Statistic	Chi-sq.d.f.	Prob.
Cross-section random	116,044351	3	0,0000

The Husman test is used to determine the Husman statistical value is greater than the critical value, the more appropriate model is the Fixed Effect model, whereas if the Husman statistical value is less than the critical value, the correct model is the Random Effect (Suliswanto, 2012).

Because *p-value* for F (0,0000) $\leq$ α (0,05), so H_0 rejectd. So the best model to use is the Fixed Effect Model (FEM).

Table 7. Fixed Effect Model (FEM) Estimation Results

$$\widehat{PL_{it}} = -7.002,234 + 1,911115\ UNP_{it} + 0,005739 TP_{it} + 63,62134 LR_{it}$$
$$(0,5020) \qquad (0,0000)^{***} \qquad (0,000)^{***}$$

R2 = 0,642049; DW = 0,865474 ; F-statistic = 6,626634; Prob. F = 0,000000

Based on the results of the partial significance test on the econometric model that can be seen above, it is proven that the population and literacy rate have a significant effect on poverty in Indonesia. Meanwhile, unemployment has proven to have no effect on poverty in Indonesia.

The number of unemployed has a regression coefficient of 1,911, where the pattern of the relationship between the number of unemployed and poverty is linear, so that if the number of unemployed increases by 1 person, then Poverty will increase by 1 person, as well as if the number of unemployed people decreases by 1 person.

The population has a regression coefficient of 0.0057 with a pattern of relationship between population and linear-linear poverty, so that if the Population increases by 1 person, Poverty will increase by 1 person, so if the Population decreases by 1 person then Poverty will decrease by 1 person.

The literacy rate has a regression coefficient of 63.621 with the pattern of the relationship between the literacy rate and poverty is linear-linear, so that if the literacy rate increases by 1 index number, Poverty will decrease by 1 person, while if the literacy rate decreases by 1 index number, Poverty will increase by 1 person.

V. DISCUSSION

A. Effect of Independent Variables

Table 8. Partial Significance Test Results (t test)

Variable	Probability t-statistik	Criteria	Conclusion
UNP	0,5020	>0,10	Not significant
TAPI	0,0000	≤ 0,01	Significant to α = 0,01
LR	0,0000	≤ 0,01	Significant to α = 0,01

Based on the results of the partial significance test on the econometric model in the table above, it is proven that TP and LR have a significant effect on PL (Poverty) in Indonesia. Meanwhile, UNP (Unemployment) has proven to have no effect on PL (Poverty) in Indonesia.

UNP has a regression coefficient of 1.911, where the pattern of the relationship between UNP and PL is linear, so that if UNP (the number of unemployed) increases by 1 person then Poverty will increase by 1 person, as well as if UNP decreases by 1 person then PL (poverty) will decrease by 1 person.

TP has a regression coefficient of 0.0057 with a linear-linear relationship between TP and PL, so that if the Population (TP) increases by 1 person then Poverty (PL) will increase by 1 person, it is better if the Population (TP) decreases by 1 soul then Poverty (PL) will decrease by 1 soul.

LR has a regression coefficient of 63.621 with the pattern of the relationship between LR and PL is linear, so that if LR increases by 1 index number, Poverty will decrease by 1 person, while if PL decreases by 1 index number, Poverty will increase by 1 person.

Economic Interpretation

Effect of UNP= unemployment on PL

The results of the effect validity test (t test) on the econometric model show that UNP has a positive effect on poverty in Indonesia. This proves that the results of this study are in accordance with the initial hypothesis, because unemployment has a positive effect on poverty in Indonesia. This is in accordance with

research conducted by Diratama and Umaruddin Usman in 2018, with a study entitled The Effect of Population, Unemployment and Economic Growth on Poverty in the Riau Islands, where Unemployment has no effect on Poverty that occurs in Kelupauan Riau.The Effect of Foreign investment on Gross Regional Domestic Product.

The results of the effect validity test show that TP has a positive effect on PL in Indonesia. This proves that the results of this study are in accordance with the hypothesis that population has an effect on the level of poverty in Indonesia.

The Effect of Literacy Rate on Poverty

The results of the effect validity test show that the Literacy Rate has a positive influence on poverty, this is in accordance with the hypothesis on Poverty in Indonesia. This proves that the results of this study are in accordance with previous research.

Province	Effect	Costant
ACEH	218,2001	-6.786,03
SUMATERA UTARA	-645,7297	-7.647,7297
SUMATERA BARAT	165,9716	-6.836,2624
RIAU	47,26678	-6.954,9672
JAMBI	346,7651	-6.655,4689
SUMATERA SELATAN	-72,41855	-7.074,6525
BENGKULU	533,8203	-6.468,4137
LAMPUNG	-67,91425	-7.070,1482
KEP. BANGKA BELITUNG	529,1814	-6.473,0525
KEP. RIAU	445,1925	-6.557,0415
DKI JAKARTA	-316,7168	-7.318,9508
JAWA BARAT	-3776,287	-10.778,521
JAWA TENGAH	-2445,853	-9.448,087
DI YOGYAKARTA	343,3667	-6.658,8673
JAWA TIMUR	-2919,482	-9.921,716
BANTEN	-507,7627	-7.509,9966
BALI	266,3433	-6.735,8907
NUSA TENGGARA BARAT	249,6237	-6.752,6103
NUSA TENGGARA TIMUR	329,6441	-6.672,5899
KALIMANTAN BARAT	221,4495	-6.780,7845
KALIMANTAN TENGAH	421,4483	-6.580,7857
KALIMANTAN SELATAN	272,4593	-6.729,7747
KALIMANTAN TIMUR	317,2343	-6.684,9997
KALIMANTAN UTARA	625,5444	-6.376,6896
SULAWESI UTARA	434,9319	-6.567,3021
SULAWESI TENGAH	442,5374	-6.559,6966

SULAWESI SELATAN	-102,5084	-7.104,7424
SULAWESI TENGGARA	462,6329	-6.539,6011
GORONTALO	617,7093	-6.384,5247
SULAWESI BARAT	601,0457	-6.401,1883
MALUKU	559,1244	-6.443,1096
MALUKU UTARA	551,7553	-6.450,4787
PAPUA BARAT	681,6651	-6.320,5689
PAPUA	1169,759	-5.832,759

Based on the results of the constants above, it is known that those with low constants are in the province of West Java with a constant value of -10,778,521, which means that West Java has the lowest poverty rate compared to other provinces in Indonesia. Meanwhile, the highest constant is in Papua Province with a constant value of -5,832,759 which means Papua has the highest poverty rate compared to other provinces in Indonesia.

VI. CONCLUSION AND RECOMMENDATION

In this study, after conducting analysis tests and panel data with the number of unemployment, population, and literacy rates on the poverty rate in Indonesia in 2016-2020 it can be concluded that:

a. In the t-test the population and literacy rates have an effect on poverty. Meanwhile, the population has no effect on poverty. Thus the population and literacy rate have a positive effect, while poverty and unemployment have a negative effect on poverty.
b. The number of unemployed has a positive effect on poverty in Indonesia in 2016-2020
c. The results of the effect validation test show that the number of unemployment on poverty in Indonesia. This proves that the population has an effect on the poverty level in Indonesia in 2016-2020
d. Literacy Rate has a positive influence on poverty in Indonesia in 2016-2020.

Suggestions that can be used for further researchers to be better in the future are as follows:

a. In this research problem, poverty can use improving the quality of human resources and will be able to have a major influence on reducing poverty **rates** that occur in Indonesia.
b. There must be something that guarantees the fulfillment of basic needs and encourages them to fulfill their secondary and tertiary needs, in order to achieve this is by creating a fair economic distribution in the midst of society.
c. To reduce poverty, the government should increase economic growth. Economic growth is one of the keys to reducing poverty, because growth increases the need for labor, which means opening up job opportunities.
d. The government needs to improve so that the education quality of the population continues to increase. This will support production activities so that the income obtained is maximized and poverty will be reduced.

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Analysis Of The Influence Of Gross Regional Domestic Product (GDP), Unemployment, And Education On Poverty In Central Java 2016 – 2020

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Abstract

Poverty is one of the Central Java Provincial government programs, due to the large number of poor people in Central Java Province in 2021 amounting to 3.934 million people and occupying the serial number of the two provinces with the highest number of poor people in Indonesia. Reducing the number of poor people is one of the priority programs of the Central Java provincial government, with a target of reducing the poverty rate below 10 percent. This study intends to determine the factors that influence poverty so that later it is expected to be used as a basis for determining policies in overcoming the problem of poverty in Central Java. The data used in this study is secondary data obtained from the Central Statistics Agency (BPS) as well as several other references as support. While the analytical method used in this research is the panel data linear regression analysis method with the REM (Random Effect Model) method with the help of Eviews 7.0 software. The results of this study indicate that the unemployment variable has a positive and significant effect on the poverty level in Central Java Province.

Keywords— Poverty; Education; Unemployment; Panel Data.

I. Introduction

Poverty is a global problem, where countries around the world always face and pay attention to these problems (Todaro and Smith; 2006). According to Arsyad (2010) poverty can be broadly classified into two aspects, namely primary aspects and secondary aspects. The primary aspect is the aspect in the form of poor assets (wealth), socio-political organization, knowledge, and skills. Meanwhile, the secondary aspect is the poor aspect of social networks, financial resources and information. Poverty can also be interpreted as an absolute or relative condition in an area where a person or group of people is unable to meet their basic needs according to the prevailing values or norms (Nugroho et al; 2012).

Based on data from the Central Statistics Agency (BPS), the projected population of Indonesia in 2021 is 272.25 million people and ranks as the fourth most populous country in the world. Of the 34 provinces in Indonesia, Central Java Province is a province with a population of 36.74 million people and occupies the serial number of the three most populous provinces in Indonesia (BPS, 2021). The large number of residents in Central Java Province will certainly cause problems in the social sector such as poverty. The number of poor people in Central Java Province in 2021 is 3.934 million people and occupies the serial number of the two provinces with the highest number of poor people in Indonesia after East Java Province. Reducing the number of poor people is one of the priority programs of the Central Java Provincial government, with a target to reduce the poverty rate in 2021 to below 10 percent (Central Java Province Regional Poverty Reduction Coordination Team, 2021). Therefore, research on poverty is very important to do with the aim of knowing what causes poverty in Central Java Province, with the aim that it can be sought how to reduce poverty in Central Java Province.

According to Sukirno (2006) the increase in job vacancies which is lower than the increase in labor will result in many workers not getting jobs. The Central Java Provincial Government has established various policies through various programs to reduce poverty levels but also has to look at it from a macro perspective, starting from gross regional domestic product (GRDP), education and unemployment

II. Literature Review

Ni Made Myanti Astrini A. (2013) in a journal entitled "Analysis of the Influence of GRDP, Unemployment, and Education in Bali". In this research, the research method used is multiple linear regression analysis method using time series data. The results of this study indicate:

a. The variable GRDP growth rate partially does not have a significant effect on the level of poverty in Bali Province due to the unequal income inequality of the community.

b. The variable literacy rate partially has a negative and significant effect on poverty in the Province of Bali. The significance of the literacy rate in influencing poverty is because the higher the literacy rate, the lower the illiteracy rate.
c. The partially open unemployment rate has a positive and significant effect on the poverty rate in Bali Province. The significance of the open unemployment rate in influencing the poverty level is because the lower the unemployment, the poverty will decrease.

Fitri Amalia (2012) in a journal entitled "The Influence of Education, Unemployment, and Inflation on Poverty Levels in Eastern Indonesia (KTI) for the period 2001-2010. The purpose of this paper is to determine the effect of education, unemployment, and inflation on poverty levels in eastern Indonesia. The method used in this research is panel data. The results of this study indicate that the unemployment variable does not affect the poverty level in Eastern Indonesia, while the other two variables, namely education and inflation, have a significant effect with a 95% confidence level of the poverty level. Based on the F statistical test, it shows that all independent variables (education, unemployment, and inflation) have a significant effect on the poverty rate in Eastern Indonesia at the 95% confidence level.

Himawan Yudistira Dama, Agnes L Ch Lapian, and Jacline I. Sumual (2016) in a study entitled "The Effect of Gross Regional Domestic Product (GDP) on Poverty Levels in Manado City (2005-2014) aims to examine the effect of GRDP on poverty levels in the city of Manado from 2005-2014. The analytical method used is simple regression analysis. The results showed that the Gross Regional Domestic Product (GRDP) had a negative and significant effect on the Poverty Level in Manado City. Gross Regional Domestic Product (GRDP) has the most important role for economic growth in Manado City, especially in efforts to reduce poverty levels in Manado City.

I Wayan Sudiana and I Ketut Sudiana (2015) with the title "The Influence of GDP, Education and Manpower Structure on Poverty in Bali Province". The purpose of this paper is to examine the effect of GRDP, education, and labor structure on poverty in Bali Province from 1995-2013. The results showed:

a. The GRDP variable has a negative and significant effect on the poverty level in Bali Province, 1995 – 2013. This means that if real per capita income increases, the percentage of poor people decreases.
b. The education level variable, in this case the average length of schooling, has a negative but significant effect on the poverty level in Bali Province, 1995 – 2013. This means that if public education increases, the percentage of poor people will decrease.
c. The variable of labor structure in the agricultural sector has a positive effect on the poverty rate in Bali Province, 1995 – 2013, but it is not significant. This positive effect can be interpreted that if the percentage of the population working in the agricultural sector increases, it causes the percentage of the poor to increase. On the other hand, if the percentage of the population working in the agricultural sector decreases, the percentage of the poor will decrease.

Yarlina Yacoub (2012) in a study entitled "The Influence of the Unemployment Rate on the Poverty Level of Regency/City in West Kalimantan Province" aims to examine the effect of the unemployment rate and poverty rate in West Kalimantan Province from 2005-2010. The results of the data used are panel data (pooled data). The results showed that the unemployment rate had a significant effect on the poverty level of districts/cities in West Kalimantan Province. Empirical data shows that the pattern of the relationship is not always unidirectional between the unemployment rate and the poverty rate. This study, which was conducted in districts/cities in West Kalimantan Province, contradicts the theory. Theoretically, the poverty rate will move with the unemployment rate. In this case, when the unemployment rate increases, the poverty rate will automatically increase.

Anggit Yoga Permana and Fitrie Arianti (2012) with the title "The Influence of GDP, Unemployment, Education, and Health on Poverty in Central Java in 2004-2009". The purpose of this paper is to examine the effect of GRDP, unemployment, education, and health on poverty in Central Java Province from 2004-2009. The results of the study show

a. The GRDP growth rate variable has a negative and significant effect (α = 5 percent) on poverty, meaning that an increase in the GRDP growth rate will reduce poverty
b. The unemployment rate variable has a positive and significant effect (α = 5 percent) on poverty, meaning that an increase in the unemployment rate will have an effect on increasing the poverty rate.
c. The education variable has a negative and significant effect (α = 5 percent) on poverty, meaning that the higher the level of education, the less poverty.
d. The health variable has a negative and significant effect (α = 5 percent) on poverty, meaning that the higher the level of health, the lower the poverty rate.

Daryono Soebagyo (2018) in a study entitled The Effect of Economic Growth, Inflation and Investment on Unemployment Rates in Indonesia. This study aims to determine whether there is an effect of economic growth, inflation, and investment on the unemployment rate in Indonesia. The independent variables used in this study are economic growth, inflation and investment obtained from BPS and the World Bank in 1987-2017. The dependent variable used is the unemployment rate obtained from the BPS in 1987-2016. The type of data used is annual time series secondary data. This study uses the OLS (Ordinary Least Square) method, estimated by the E-Views program. The results of this study indicate that the variables of economic growth, inflation and investment have a negative and significant effect on the unemployment rate in Indonesia.

Muhammad Arif (2019) in a study entitled Analysis of the Poverty Level in Central Java Province 2016-2018. The Gross Regional Domestic Product has a negative and significant effect on the Poverty Level in Central Java Province. The results of this study are in line with previous research conducted by Wahyu Febri Dwiatmojo (2017), with the title "Analysis of the Poverty Level in Central Java Province in 2011-2015. Which explains the negative relationship between GRDP and the Poverty Level will trigger the Government to increase GRDP so that economic growth increases. The increasing economic growth in Central Java Province indicates that the government is able to improve the welfare of its people, thereby reducing poverty levels.

Maulidyah Indira Hasmarini (2017) The Effect of Inflation, Investment, Minimum Wage and Economic Growth on Unemployment in Ex-Karisidenan Surakarta for the 2010-2014 period. This study aims to determine whether there is an effect of inflation, investment, and economic growth on unemployment in Surakarta. The results showed:

a. Relationship between Economic Growth and Unemployment Rate Based on the regression results, it shows that economic growth as measured by nominal GDP has a significant positive effect on unemployment in Karisidenan Surakarta in 2010-2014. That is, the increase in the unemployment rate is caused by increasing economic growth.
b. Investment Relationship and Open Unemployment Rate
c. Based on the regression results, it shows that investment does not have a significant effect on unemployment in the Surakarta Residency in 2010-2014.
d. Relationship between Inflsi and Unemployment Rate
e. Based on the regression results, it shows that inflation does not have a significant effect on unemployment in the Surakarta Residency in 2010-2014.
f. Relationship of Minimum Wage and Open Unemployment Rate
g. Based on the regression results, it shows that the Minimum Wage has a significant negative effect on unemployment in the Surakarta Residency in 2010-2014. That is, an increase in the unemployment rate is caused by a decrease in the Minimum Wage.

Eni Setyowati (2020) in a study entitled The Role of Islamic Microfinance Institutions in Reducing Poverty. This study aims to determine the factors that influence poverty and see how Islamic Micro Finance (IMF) is an alternative solution for empowering the poor. This research takes a case study of KSPPS or BMT KUBE Colomadu Sejahtera in Karanganyar Regency, Surakarta. The method used is the Logit model. The variable that affects and has a significant effect on poverty is income. This study concludes that microfinance institutions play a role in alleviating poverty in the Colomadu area, Karanganyar Regency. Financing by BMT for customers has a significant role in improving business skills, so it can also increase income and reduce poverty.

III. RESEARCH METHODOLOGY

In this study, to analyze the effect of GRDP, Education, Unemployment on Poverty, a panel data regression analysis tool was used with the following econometric model:

$$POV_{it} = \beta_0 + \beta_1 PDRB_{it} + \beta_2 PEND_{it} + \beta_3 UNEMP_{it} + \epsilon_{it}$$

Where:
POV : Poverty Rate (thousand)
PDRB : GRDP Growth Rate (%)
PEND : Education (%)
UNEMP: Open Unemployment Rate (%)
β_0 : Intersep
$\beta_{1,2,3}$: Independent variable regression coefficient
ε : Component error
i : 29 districts 6 cities in Central Java

t   : year t

The data that will be used in this research is secondary data in the form of panel data, which is a combination of time series and cross section data. Time series data covers the period 2016 to 2020, cross section data covers 29 regencies and 6 cities in Central Java. The data used are Poverty, GRDP, Education, Unemployment. Data will be obtained from the Central Statistics Agency (BPS).

According to Juanda and Junaidi (2012) there are three approaches in calculating the panel data regression model, namely:

a. Pooled Ordinary Least Square (PLS)
    This PLS approach uses the usual OLS method. This method is the simplest method. In the estimation, it is assumed that each individual unit has the same intercept and slope (there is no difference in the time slice dimension). In other words, the resulting panel data regression will apply to each individual.

b. Fixed Effect Model (FEM)
    In the FEM method, the intercept in the regression can be distinguished between individuals because each individual is considered to have its own characteristics. In differentiating the intercept, a dummy modifier can be used, so this method is also known as the Least Square Dummy Variable (LSDV) method.

c. Random Effects Model (REM)
    Random Effects Model is used to overcome the weakness of Fixed Effect method. The Random Effects method does not use dummy variables but uses residual variables which are thought to have a relationship between time and between objects (Winarno, 2009).

According to Utomo (2013) the coefficient of determination (R^2) aims to see the percentage of variation in the dependent variable that can be explained by the independent variables in the model. The value of the determinant coefficient is used to measure the contribution of the independent variables to the dependent variable. The value of the coefficient of determination (R^2) ranges from zero to one. The closer it is to one, the better the model is because it shows the more suitable a regression line and the greater the variation of the independent variable can explain the dependent variable.

IV. RESULT/FINDING

The development of the poverty rate in Central Java Province in 2016 to 2020 experienced fluctuating developments. Where each district / city has a different increase or decrease each year. The highest poverty rate was in Sukoharjo Regency in 2016 which was 11.23% and decreased to 9.26% in 2020. The district/city with the lowest percentage of poor people was in Semarang City, which was 0.71% in 2015. 2016.

In the development of the growth rate of the Gross Regional Domestic Product (GRDP) of Central Java Province from 2016 to 2020, there was a significant increase. The largest Gross Regional Domestic Product (GRDP) is occupied by Magelang Regency, namely in 2016 of 6.68% and in 2020 occupied by Kebumen Regency of 6.28%. While the lowest order was occupied by Grobogan Regency in 2011 only at 3.19% and in 2016 it was occupied by Kudus Regency at 3.90%.

In the development of education in Central Java Province seen to experience very good development. In 2016, there were several regencies/cities with a high level of education, namely Pati Regency and Magelang City by 100% meaning that almost all residents understood the importance of education. Meanwhile, in 2016, Wonosobo Regency had the lowest position at 37.61% and in 2020 it increased by 48.97%.

Finally, the unemployment rate in Central Java Province from 2016 to 2020 experienced a significant increase. The largest open unemployment rate was occupied by Magelang City, which was 11.51% in 2016 and in 2015 it was occupied by Tegal Regency by 9.52%. While the lowest order was occupied by Temanggung Regency in 2016 at 3.54% and in 2020 at 1.50%.

A. Regression Results

Table 1. The results of the estimation of the effect of GRDP, Education, and Unemployment on poverty in Central Java Province in 2016-2020

Dependent variabel:

	PLS	**FEM**	**REM**
Constanta	24.02033	16.97091	17.21448
PDRB *(Coefficient)*	-0.072690	0.021304	0.019181
Pendidikan *(Coefficient)*	-0.128345	-0.075026	-0.076945
Tingkat Pengangguran Terbuka *(Coefficient)*	-0.283489	0.260037	0.247427
Error term	4.255338	0.806841	0.808819
R²	0.121632	0.974738	0.430602
Prob F-statistic	0.000062	0.000000	0.000000

B. Chow Test

Chow test is used to select the best panel data regression model between Pooled Ordinary Least Square and Fixed Effect Model. The results of the Chow test can be presented in Table 2:

Table 2. Chow Test Regression Results/Likelihood Test Ratio

Effects Test	*Statistic*	*d.f.*	*Prob.*
Cross-section F	135.079211	(34,136)	0.0000
Cross-section Chi-square	617.482373	34	0.0000

Source: *Panel data output using E-views 7.0*

C. Hausman Test

Hausman test is used to select the best panel data regression model between the Fixed Effect Model and the Random Effect Model. Hausman test results can be presented in Table 3.

Table 3. Hasil Regresi Uji Hausman

Test Summary	Chi – Sq. Statistic	Chi – Sq. d.f.	Prob
Cross-section random	3.771995	3	0.2872

Source: Panel data output using E-views 7.0

Table 4, Random Effect Method Estimation Model

$$TKMit = 17.21448 + 0.019181 PDRBit + 0.076945 EDUCit + 0.247427 TPTit$$

$$+ 0.808819$$

(0.8655)	(0.0000)	(0.0000)
R² = 0.430602, DW-stat = 1.453978, F-stat = 42.85371, Sig. F-stat = 0,000000		

Source: Panel data output using E-views 7.0

V. DISCUSSION

A. Model Existence Test (F Test)

F test is used to test how far the influence of the independent variable on the dependent variable. The test criteria is if the prob F-statistic < = 0.05 then Ho is rejected, which means the model used exists. On the other hand, if the prob F statistic > = 0.05 then Ho is accepted, which means that the unused model exists.

B. Intrepetasi Determinan (R2)

Based on Table 4.1 it is known that the interpretation of the determinant (from the Random Effect Model model is 0.430602 or 43%. That is, the Poverty variable can be explained by the independent variables (GDP, Education, and Unemployment) in the model, and the remaining 56.94% variation poverty is explained by other independent variables not included in the model. The following are mentioned in Table 4:

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the analysis of the research that has been discussed in the previous chapter, it can be concluded as follows:

a. The education variable shows a negative and significant relationship to poverty. Which has a coefficient of -0.076 which means, if the number of school participation rates increases by 1 percent, it will reduce poverty by 0.076 percent.
b. Unemployment variable has a negatif and significant influence on poverty. This is because the increase in unemployment that occurred in Central Java was not always followed by a decrease in poverty in Central Java, which can be seen from the Open Unemployment Rate data and Poverty data in Central Java Districts/Cities in 2016-2020.
c. Testing the model using the Chow test which shows that the PLS model is more appropriate to use in this study than the FEM model. Testing the model using the Hausman test shows that the REM model is the most appropriate model to use compared to the FEM model. So, from the selection of the most appropriate model chosen in this study is REM.
d. Based on the existence of the model (Test F) at a significance (α) of 0.05, the model shows that the model used exists, which means that the variables of gross regional domestic product (GRDP), education, andUnemployment contained in the regression equation jointly affects the poverty variable at = 5%.
e. The results of the determinant coefficient test) show that the magnitude of the R-square value is 0.430602 or 43.06%. That is, the Poverty variable can be explained by the independent variables (Gross Regional Domestic Product (GRDP), Education, and Unemployment) in the model. While the remaining 56.94% is explained by variations in other factors that are not included in the model.

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The Dynamics Of The Bureaucracy System And Gender Equality In Government - Civil Servant Alternative Perspective Study

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Abstract
Since 2010, Indonesia's government has showed its commitment to advancing gender equality through the Gender Mainstreaming Policy Strategy. All relevant government agencies are expected to execute a series of Gender Mainstreaming Policies as a result of this policy. The goal of this study is to determine whether bureaucratic work practices support or obstruct the Gender Equality Policy, as evidenced by the formulation of what elements can obstruct gender development in the agency and what the agency might be able to do from an employee's perspective. Despite the fact that the Gender Mainstreaming Policy is necessary for all agencies, it is centralized in practice to meet the needs of each agency. The goal of this study is to assess Indonesian government agencies' gender mainstreaming policy strategy.: There is still a limited of research and information on how the Gender Equality Policy is implemented in the public sector, as evidenced by the policy on gender equality implementation and the interactions that occur between these parts. Through thematic analysis based on exploratory surveys and interviews with related parties, interpretive methods are used to discover the meaning of gender equality and gender mainstreaming for employees and to reveal deeper reflections on these policies in the framing of the government bureaucratic system. The support of the bureaucratic system is inextricably linked to gender equality policy. However, the importance of technology, as well as the role of managers and management in assisting or inhibiting gender progress, cannot be overstated. So that the policies put in place may be supported by the current bureaucratic system. Despite the policy's great objectives, it's probable that it wasn't properly applied within the organization. In this regard, it is hoped that the government will reassess how management and manager view policies and improve the bureaucratic administration system to boost gender mainstreaming initiatives even more.

I. INTRODUCTION

Within the context of change and the use of the administrative system in its fullest sense, good governance has today become the operative word in the development of all government bureaucratic reform policy objectives. The government has received numerous criticisms from the public sector for failing to deliver the caliber of services that people require (Brinkerhoff & Brinkerhoff 2015; Singh 2020). Not just in Indonesia, but also in other nations throughout the world, governments have started reforms by applying management concepts like New Public Management (NPM), which are remarkably similar to private sector methods.

In the late 1970s, NPM was first made available to public sector organizations (Pollitt 1990; Cohen et al. 1999; Dent & Barry 2004; Adcroft & Willis 2005; Diefenbach 2009). This movement is classified as a revolutionary movement by Williamson et al. (2019), both in terms of scope and intensity, as shown by the following:

a. NPM has been introduced to all public service sectors: governments and governmental organizations, regional and local governments, higher education institutions, health services, criminal justice systems, police, legal professions, and professional service organizations (Kirkpatrick et al., 2005)

b. NPM is an increasingly global phenomenon (Kirkpatrick et al., 2005). It can be found in Western industrialized countries such as the UK and continental Europe, the United States and Canada, Australia and New Zealand (Torres 2004; Macaulay 2020);

c. NPM can also be found in other industrialized and developing countries in Asia and Africa (Cohen 2016). And also found in developing countries such as Malaysia and Sri Lanka (Samaratunge et al., 2008; Waheduzzaman 2019);

d. In Anglo-Saxon and European countries at least, it has been supported by all major political parties, for example, by Republicans and Democrats, and by Conservative and Labor governments (Hood 1991; Newman 1998; Protherough & Pick 2002);

e. Moreover, the idea of NPM is still gaining traction in previously somewhat resistant countries, such as Japan (Yamamato 2003) or India (Chakraverti, 2004), even if some NPM enthusiasts doubt its applicability there (Schick 1998).

Indonesia as a developing country also applies NPM in the public sector. NPM was tried to be implemented in 2004 by local governments, which is in line with the determination of regional autonomy in Indonesia. In the bureaucratic reform carried out by the government, in 2009, NPM was implemented in two major institutions, namely the Ministry of Finance which is now called the Ministry of Finance of the Republic of Indonesia (Kemenkeu RI), and the Supreme Audit Agency of the Republic of Indonesia (BPK RI) using the Balanced Score Card (BSC). as a concept and by establishing a strategy map and Key Performance Indicators (KPI) as a performance measurement tool.

Previous studies found that introducing NPM had a number of negative consequences. Bureaucratic reform in Australia, for example, has led in the marginalization of gender equality concerns in the public sector, particularly in the Australian Public Services - APS (Williamson et al., 2019). Meanwhile, in Indonesia, bureaucratic reform has been accompanied by the emergence of a Gender Mainstreaming Strategy promoted by the government with the existence of IMPRES No.9/2000 on Gender Mainstreaming, which was stipulated through Working Paper I on Gender Mainstreaming and the government's policy for the Acceleration of Gender Mainstreaming.

The quantity of empirical studies on NPM in the public sector is nearly limitless (Diefenbach, 2009). For example, Eederwijk and Davids (2013) investigated how institutions reflect gender mainstreaming policies in order to effect societal change in the workplace. Williamson et al., (2019) propose a relationship between gender equality policies and work system flexion as a means of achieving gender equality. Soeter (2016) demonstrates through his research that NPM can give an appealing strategy and offer options and systems that can be implemented without radical modifications and are easier to accept politically in settings of structural governance and centralized bureaucracy. Then comes a discussion of the NPM reform, which binds people to bureaucracy, affecting employee self-efficacy as well as the rewards and penalties issued. (Siltala, 2013).

However, there are some limitations of this research. First, the report provides a relatively brief description of NPM and its basic assumptions and core elements (Pollitt, 1990; Hood 1991; Pollitt 2000; Kirkpatrick 2005). Second, Williamson (2019) states that relatively little research has specifically examined the extent to which NPM is reflected in specific policies adopted to promote gender equality in the public sector and whether these policies can change gender structures and relations. This is important because NPM has guided how public sector resources, governance and operating systems are deployed. How to frame policies from the dominant ideology (NPM) is very important to determine the impact of implementation or possible outcomes (Burgess et al., 2009). Third, there is a need for research that looks at how gender equality policies have the potential to dismantle gender norms in organizations (Elly & Meyerson 2000). Third, further research is needed to examine how gender equality programs have the potential to undermine gender norms in companies (Elly & Meyerson 2000).

Because this study discusses the framework for forming elements of NPM in the Indonesian government bureaucratic system and the limitations that have previously been disclosed, it is interesting to examine how NPM is reflected in gender equality policies in institutions/agencies, both in institutions that have, in process, and those that do not. has mapped gender equality through the PUG Policy from the standpoint of policy implementers. The goal is to provide a systematic identification of which essential parts of NPM have a significant influence on gender equality policies, as well as to examine the primary implications and consequences of these policies. To circumvent these constraints, academics investigate how gender equality policies are interpreted by government employees in order to measure the amount to which the NPM principles are reflected in policies (Diefenbach, 2009).

This study examines the relationship between bureaucratic reform, which is significantly affected by the NPM concept, and the implementation of a gender equality policy, which is a reflection of the public sector's Gender Mainstreaming plan. NPM will be identified and studied in the discourse of management and organizational studies as a result of this research. The gender framework in the workplace (Rao et al. 2016) is then utilized to construct critical research on power dynamics ingrained in institutions and communities, particularly the workplace. Soetars, et al. (2021) identified four major factors that either hinder or encourage gender equality in the workplace in government organizations in this study. This research is the basis for researchers to investigate gender dynamics in the workplace that may arise from the perspective of employees in government.

II. LITERATURE REVIEW

A. *Gender Mainstreaming*

Gender Mainstreaming (PUG) is a strategy developed in response to Impres No. 9 of 2000 to integrate gender into the planning, preparation, implementation, monitoring, and evaluation of national development policies and

programs. Meanwhile, Santoso (2015) defines PUG as a mechanism for integrating gender into all activities carried out by public organizations/agencies. The purpose of implementing a gender mainstreaming strategy is to answer the existence of gender content in K/L and then produce gender equality and justice efforts. Gender and the environment are two subjects that share a common approach, namely the desire to incorporate them into activities and policies. This method is known as mainstreaming.

There is a gap between the policies that have been approved and their implementation. One of them is the under-representation of women in positions of power. The higher the position, the fewer women there are in positions of leadership. Furthermore, there are few human resources who understand gender issues and approaches (Santoso, 2015). Gender knowledge development is an inseparable part of gender mainstreaming activities, owing to the need for "gender literate" human resources. Aside from that, there is also resistance to gender, with the assumption that this is only dealing with women's issues. Gender primarily focuses on the issue of men and women, despite the fact that women's positions are not equal. This equality is a scenario in which women have access to and opportunities; but, this does not imply that their achievements must be equal to men's.

In addition to resistance, cultivating PUG and NPM collaboration within the organization poses its own set of challenges because the policies developed are more decentralized in nature, tailored to the relevant Ministries/Agencies, and there are also many gaps in the application of NPM, causing all elements of NPM to be inequitably effective throughout the government and across various sectors within government (Luke et al., 2008).

B. New Public Management

NPM is a wide phrase used to replace the notion of Old Public Management, embracing several neoliberal changes implemented by governments across industrialized countries since the 1970s (Williamson & Carson, 2019). According to Hood (1991), NPM can be defined as the intersection of competitive private sector principles applied in the science of public administration, also known as the Post-Bureaucratic Paradigm (Berzeley, 1992) and Reinventing Government (Osborne and Gaebler, 1992), but more commonly known as NPM. Meanwhile, NPM, according to Diefenbach, is a set of assumptions and value statements about how the public sector should be designed, organized, and managed, as well as how they should function in a quasi-business manner. The primary idea of NPM is to encourage public sector companies and their employees to follow a "business-like" and "market-oriented" pattern, notably performance, cost, efficiency, and auditing (Deem & Brehony 2005).

At the macro level, NPM sees decentralization and the reorganization of monolithic bureaucracies into smaller corporate divisions as opportunities for better efficiency. NPM also emphasizes competitiveness and cost-cutting measures such as increased use of contractors (Williamson & Carson, 2020). At the micro level, NPM focuses on managers as administrators rather than policy experts (O'Donnell et al., 1999). Replicating the tasks that managers perform in private companies, public sector managers are given new and even increased responsibilities in the areas of employee recruitment, selection, and performance management with the goal of increasing accountability and even performance.

NPM is a broad term that encompasses a variety of meanings, including organizational design and management, the application of economic institutions to public management, and policy patterns. The following are the NPM principles:Penekanan pada keahlian menajemen profesional dalam mengendalikan organisasi.

  a. Firm and measurable organizational performance standards, including clarity of goals, targets, and success indicators;
  b. The conversion and utilization of control inputs into outputs in bureaucratic operations totally measured by quantitative performance indicators;
  c. The movement of public sector units from a centralized to a decentralized management framework;
  d. Increased post-competition introductions in the public sector, such as cost savings and high standards achieved through contracts and the like;
  e. Emphasis on private-sector management methods such as short employment contracts, business planning, and mission statements
  f. Emphasis on cost-cutting, efficiency, and accomplishing more with less resources.

Diefenbach's (2009) typology is highly effective for understanding gender equality in the public sector. This typology is divided into five aspects, each of which serves as a useful lens for analyzing the potential successes and failures of gender equality projects. (1) business environment and strategic objectives; (2) administrative

structures and processes; (3) management system and performance measurement; (4) management and managers; and (5) personnel and company culture.

C. *Gender at Work Analytical Framework*

The gender framework in the workplace (Rao et al. 2016) investigates the power dynamics that exist within institutions and society in order to effect positive gender equality change. It was created in 2002 as a result of an international collaboration of feminist experts in the field of gender. A gender framework in the workplace concept seeks to assist organizations in breaking through gender-biased institutions by recognizing that change must occur both within and outside the organization. This framework asserts that changing norms and structures underlying inequality must be analyzed and addressed across four domains simultaneously: individual and informal 'Awareness and Abilities'; individual and formal 'Resources'; Systemic and formal 'Rules and Policies'; and finally the systemic and informal 'Social Norms and Structures' (Rao et al. 2017; Rao et al. 2016)

D. *Budaya Patriaki dan Ibuism*

The Dutch colonized Indonesia for approximately 350 years. In his day, the Dutch not only colonized Indonesia in terms of resources, but also the people, especially women. The colonization of women is carried out by making women the object of oppression. Women work only around the house, children and the kitchen, only as concubines, objects to satisfy lust, even men are allowed to continue their education but not for women. This culture is rooted so that a patriarchal culture is formed, where the authority of men is above women. women are creatures who are at the lowest social level (Nashir, 2017). According to Bhasin (1996), the word patriarchal literally means the power of the father or "patriarch". Initially intended as household power by men as household leaders. However, over time patriarchy became a male power, the relationship of power with what men controlled women with a certain system that made women controlled in various ways. Meanwhile, Titus Febrianto Adi Nugroho (2011) defines patriarchy as a concept that is described from the domination of men over women that takes place in the fields of social, economic, political, and cultural life. Simplified that the family is a social system, economic system, political system and culture in small portions but carried out collectively.

The existence of a patriarchal culture that places women as subordinates in the family since the colonialism era made the concept of ibuism formed. "Motherism" implies cultural values. In Indonesia, this understanding is developing and is still relevant to use. In the colonial era, Ibuism which was formed in a bourgeois-priyayi context (Djajadiningrat, 1987) described the concepts of women's position based on social status, class and power, ultimately dealing with cultural values that shape social construction based on the historical-cultural history of women in Indonesia. . Then, in the New Order era, the government used state capitalism. "State motherism" is a gender ideology that creates rigid stereotypes and is very restrictive because it is made with the aim of controlling and creating a hierarchical order (Suryakusuma, 2021). The ideology of Ibuism in the New Order era was formed by the government with the aim of creating a single awareness in several community groups. In the understanding of 'ibuism', women must serve their husbands, children and families, society and the country. They must be willing to work without pay, or with very low pay. State motherism started from the establishment of women's domestication through the presence of the Ministry of Women's Roles. In line with that, the Darma Wanita organization is also a forum for actualizing the ideology of state motherism (Maida, 2022). Through this understanding emerged Dharma Wanita and PKK. In the reform era, Indonesia was dominated by Islamic groups, but women were controlled in the same way (Suryakusuma, 2021) referred to as Islamic ibuism.

III. RESEARCH METHODOLOGY

E. *Data collection*

An exploratory survey was used to collect data, which was then followed by in-depth interviews with 15 participants who answered questions based on their perspectives, experiences, views, and feelings (Moser & Korstjens, 2018). Participants included ANS officials from Echelon III, IV, and IV, as well as functional authorities and personnel from K/central L's and regional governments. To avoid direct contact and the spread of the virus during the Covid-19 pandemic, an exploratory survey was conducted using social media, and all interviews were conducted online using Google Meet and Zoom. The gathering of exploratory surveys began in early February 2022 and was followed by interviews in April 2022. The collection of exploratory surveys was carried out in early February 2022 and continued with interviews conducted in April 2022. In table 1 the following is a description of the demographic data of survey and interview participants.

Table 1. Demographic data of exploratory survey and interview participants

No	Description	Explorative Survey	In-dept interview
1.	Gender	• Male : 79 participants	• Male : 5 participants

		• Female : 87 participants • Nonbiner : 1 participants	• Female : 10 participants
2.	Jabatan	• Echelon II : 1 participant • Echelon III : 18 participants • Echelon IV : 12 participants • Executive officer : 62 participants • Functional : 74 participants	• Echelon IV: 1 participant • Executive officer : 11 participants • Functional : 3 participants
3.	Age	• 21 - 30 year old : 30 participants • 31 - 40 year old : 88 participants • 41 – 50 year old :38 participants • > 50 year old : 11 participants	• 21 - 30 year old : 2 participants • 31 - 40 year old : 7 participants • 41 – 50 year old :6 participants
4.	Status	• Unmarried : 39 participants • Married with no child : 11 participants • Married with childrens : 114 participants • Have been marreid : 3 participants	• Unmarried : 4 participants • Menikah dengan anak : 11 participants
5.	Agency	• 18 Ministries • 22 Institutions • 8 Local Governments	• 4 Ministries • 2 Institutions • 1 Local Government
		• Ministry : 88 participants • Institution :63 participants • Local Government : 16 participant	• Ministry : 10 participants • Institution :4 participants • Local Government : 1 participant
6.	Length of work	• < 3 years : 18 participants • 3 – 5 years : 22 participants • 6 – 10 years : 34 participants • > 10 tahun : 13 participants	• < 3 years : 2 participants • > 10 years : 13 participants
7.	PUG	• PUG : 7 participants • Non PUG : 37 participants • Don't know : 58 participants	• PUG : 7 participants • Non PUG : 37 participants • Don't know : 58 participants

F. Analysis Method

This is a qualitative study that investigates the richness, depth, and complexity of a phenomenon utilizing the interpretivism research paradigm. According to Shea and Yanov (2015), the goal of interpretive research is to study how humans comprehend their lives in the context of a specific time and place. According to Heryanto (2019), the analysis is carried out utilizing a thematic method, which is appropriate and powerful for understanding the collection of experiences, thoughts, or behaviors across the data set. It is the process of detecting patterns or themes in acquired data (Braun and Clarke, 2006). The thematic analysis method, according to Heryanto (2019), is separated into three phases: interpreting data, recognizing and assembling codes, searching for themes, includes determining themes, naming, and preparing reports. The codes that have these commonalities are classified based on the findings of the observations and the patterns of meaning contained within them. In the process of searching for themes, all themes, sub-themes, and supporting data are read back.

IV. RESULT / FINDING

The findings of the data analysis were divided into three significant themes: 'Gender mainstreaming campaigns are still underappreciated,' 'NPM intensifies organizational male culture,' and 'NPM impairs gender equality efforts.' The gender mainstreaming campaign is still underappreciated and is broken into three sub-themes, namely the idea of gender mainstreaming is still unfamiliar, the perception of the participants is different, and the view of offering different treatment is different. The second finding is that NPM emphasizes the organization's masculine culture by explaining masculinity in the workplace, gender productivity stereotyping, partiality of male executives, and favoritism of male personnel. Meanwhile, NPM's third finding, which includes the sub-themes of views and treatment of women, gender barrier policies, and career development barriers, weakens gender equality efforts.

G. Gender mainstreaming campaign is underestimated

From the description above, it can be concluded that the limited understanding of participants regarding PUG indicates that there is still a lack of socialization and information regarding the understanding of PUG to employees so that employees are still guessing about the concepts and objectives of the policy.

Meanwhile, according to the participants' views, when it comes to the issue of gender equality, some agencies can be said to have reduced the gap by minimizing the proportion of comparisons between male and female employees including the proportion of echelon positions in the agency as described by participant 106. However, participant 22 emphasized that sometimes Gender equality is only assessed by increasing the number of female

officials, even though these officials are not necessarily capable, so there is an assumption that has been developing so far is that the comparison of the number of employees based on gender has represented gender equality in the work environment. However, in terms of quality still need to be questioned.

> "When it comes to the issue of gender equality. In our institution, it can be said that there is no gap between men and women. Even for echelon 2 positions, more than 30% of them are occupied by female employees…" (Participant 106, Institutional, Functional)

> "Gender equality is sometimes only assessed to increase the number of female officials, even though they are not necessarily capable. My understanding is that gender equality should be more about opening up opportunities for all. Not in the end." (Participant 22, Ministry, Implementer)

Then, the partial nature that appears in the PUG policy from the perspective of participant 9 is the creation of "benefits" that only benefit a certain gender, participant 9 said as follows:

> "When PUG has been implemented, all should be treated the same, not only for things that are beneficial, such as promotions or assessments, but for all things that apply in agencies such as transfers, division of work, and so on." (Participant 9, Ministry, Executor)

From some of the statements above, it is revealed that the meaning of gender equality and the implementation of gender mainstreaming policies have not touched the core of the policy, the leadership as a regulator with limited understanding makes regulations and programs that are not mature enough so that many employees are still skeptical of this policy. There needs to be socialization and inculcation of values as well as the objectives and benefits of implementing the PUG policy as a whole to minimize bias in the meaning of the policy.

Participant 27 also stated that the policies made were specifically for female employees and only thought about women. Among them are related to the provision of public facilities and gender responsive policies that are aimed at only one gender,

> "Yes, if I have seen it as being devoted to women, some public facilities are specifically for women. If I think that gender equality is not only about women, but actually men have certain rights that have been neglected. Like leave we say. Maternity leave. It's not just women who have children. In fact, men also have children. So when there is a birth, why are men only given 3 days of leave, for example. That's usually when I'm at my place for more than 3 days, there's already a pay cut, for example, I said. But he is also while he is the father of the child. This means that men actually need the leave too. Why is it only given to women? There should be a thought there, not only women, the role of men should also be considered." (Participant 27, Ministry, Implementer)

This is as stated by participant 107 that the condition of his family cannot be accommodated flexibly by the workplace.

> "My wife has a mental illness, which can relapse at any time and requires assistance. Meanwhile, offices cannot be flexible." (Participant 107)

Gender equality campaigns, both through PUG and non-PUG programs are still considered not urgent. This was expressed by participant 46 who stated that gender equality has not become an important issue due to the absence of needs and complaints from employees.

> "Gender equality has not become an important issue because there have been no complaints or complaints due to the comfort zone felt by employees for too long". (participant 46)

Based on 143 participants, the HR bureau, which oversees employee development, is more concentrated on general operational activities, while the PUG strengthening mechanism is considered weak and minimal.

> "The HR bureau has increased to the equivalent of Echelon 2 (currently managed with the General Bureau, 90% of its activities are directed towards general operations, while employee development, the mechanism for strengthening PUG policies, etc. are weak and minimal), …". (Participant 143)

Based on participant 12, gender equality compiled through the PUG program has not yet fully synergized with other policies, so it seems that it is merely determining policies without considering policy implications on other policies or copy-pasting policies.

> "Yes, the 2024 budget has been discussed since now, right this year. So it should have been discussed. Ok, in 2024 we have a target because we want the same number of employees, ok, let's sort this out, what policies don't exist to regulate it. I saw that when they compiled a program of activities, it did not synergize with the others. It's just ok, it's not there yet (policy synergy)…" (Participant 12)

Apart from this, support from budgetary alignments is considered important. Unfortunately, based on the participants' explanations, the 15 budgets currently formulated are still not impartial, so it is still a challenge in achieving gender equality.

"Realizing gender equality is the spirit and duty of the agency. Hard work continues to be carried out but the lack of a pro-budgetary budget, ARGs in regional apparatus have not been evaluated optimally and it is found that current conditions are still not responsive to gender, understanding, culture, environment and the quality of human resources are challenges in achieving gender equality. Relevant cross-sectors need to work together to achieve all gender-equal gender equality preconditions for PUG or local policies". (Participant 15)

In addition to the importance of budget alignment, the role of leadership is considered to be the key to the running of the PUG program, based on participant expressions 79 stated that their concern regarding PUG policies is that sometimes the activity programs that have been formulated are not carried out due to changes in leadership and the assumption that the old program is not an achievement of the new leadership. if continued.

"What is a concern is that sometimes there are program activities that do not run because there is a change in leadership so that they consider the previous activities not the product of new officials who are reluctant to follow-up." (Participant 79)

H. Gender mainstreaming campaign is underestimated

As an implication of the implementation of NPM, the workload of employees increases because NPM sets clear standards that are measured in performance measurement, also emphasizes control of results/outputs. This is done by increasing the intensification and extensification of work. For example, the increase in administrative burden and rigidity of work processes. The workload borne by employees also tends to increase because agencies do not pay much attention to employee planning and mapping and long-term strategies such as the use of appropriate technology. The absence of planning for employee mapping has made agencies in turn tend to be passive. The agency has not necessarily prepared the right successor when there is employee retirement, and also the transfer/mutation of employees in the work environment, giving rise to the concept of work as a contest of masculinity for both male and female employees. The following are statements of employees regarding this matter:

This happened with Participant 125 where employees who are considered competent in carrying out their duties will carry out many responsibilities, due to budget efficiency, given work that should be done by 2 or 3 people, plus there is a Team SK for various activities. In turn, these additional tasks take up a lot of employee time compared to the duties of the position carried out.

"I am still a civil servant, but because I graduated from engineering, I became a woman myself in the unit/division that I currently occupy from a total of 8 people, due to lack of human resources and budget efficiency, I have to handle tasks that should be done by 2/3 people. During the CPNS period and until now I have not been appointed, I have received various Team Decrees which I can't even refuse if I can't, so far these additional tasks take up more of my time than the main tasks of my position". (Participant 125)

In addition to the workload in the form of various employee job duties, sometimes multiple positions are unavoidable. As stated by Participant 101.

"The absence of X makes me participate in doing the financial filing work while also doing substantial work". (Participant 101)

Then, duplication of work becomes a problem for employees. In essence, technology is applied to help employees provide information so as to facilitate the work of employees. However, the application of inappropriate and unintegrated technology actually adds to the workload, namely duplication of work, duplication of reporting and other things that increase the workload.

"Some of the applications that are required to be filled are mostly just duplicates. Mainly related to reporting. An integrated application system will make it easier for employees so that time efficiency can be achieved". (participant 78)

Still related to technology, in addition to the above, inappropriate application of technology actually adds or extends the employee's work process where the final result of the work is still manual. Things like this eventually extend the working time of employees.

"The application that is owned actually adds to the existing work process which is still manual". (Participant 130)

In addition to this, the work that is a lot and knows no time with fast follow-up also makes employees work long. Also disclosed by Participant 107 and Participant 147

"Load work of a lot of work, do not know the working time, follow-up must be fast". (Participant 107)

"Strongly agree, our time is increasingly limited with work, even Saturdays and Sundays are still working". (Participant 147)

Excessive workload can cause work-family conflict. Historically, referring to work-family conflict theory, this view holds that work and family roles are incompatible, providing conflicting expectations for time, energy, and behavior (Greenhaus & Beutell, 1985) especially in female workers who have multiple roles. Some of the main impacts due to all the workloads described above include employees experiencing long working hours, so the tendency to work overtime and overtime even on weekends is also unavoidable. This work culture is a work culture that tends to be masculine because it treats employees as if they have no maintenance responsibilities (caring duties) like female employees. In addition, in the workplace context, male employees feel special pressure to prove themselves in accordance with agency expectations, namely "superior men" (Berdahl et. al., 2018)

Furthermore, the results of the analysis also show that gender performativity stereotyping is still high, namely the view that women are weak, emotional, and resilient creatures (Pamungkas, 2022). In the work environment, this view is reflected by the differences in the duties, responsibilities, positions and positions of employees given based on gender/in terms of gender so that gender-based job stereotypes are formed.

"The division of work is divided based on ability, men are considered suitable to do work that requires time and physical ability. Meanwhile, women are placed in jobs that require accuracy, speed, and order." (Participant 111)

In addition to this, some superiors also view that men are versatile and able to do many things, in contrast to women who may not be suitable in some jobs, as stated by participant 40, as follows:

"Some superiors view that there are some jobs that are not suitable if carried out by women, they also think that men are versatile, so that men are considered capable of doing more things". (Participant 40)

Rooted gender performativity stereotypes in turn can form Gender Clustering where there is a certain part of an organization that is not only dominated by one gender but it is even possible that there is only one gender in that section. as explained by Participant 78

"For gender equality, a balanced proportion must be made in each satker. No gender clustering. Example: job X is only suitable for men and job Y is for women. Give equal opportunities to both genders." (Participant 78)

Comparison of participants based on gender in the above statement, in relation to the implied stereotyping it is possible that career development through this informal/unwritten training is aimed at a specific gender. These factors indicate that realizing gender equality in agencies with such a view is indeed very difficult to do.

Gender inequality is built into organizations through how gender is shaped both at work and in everyday practices and interactions that occur in the workplace (Acker, 1992; Ely & Meyerson, 2010; Martin, 2004). The culture of "favoritism" is one of them. This culture is reflected in the tendency of superiors to choose subordinates, as well as the tendency of employees to choose their co-workers associated with gender. Favoritism of male leader occurs when the highest leader or leader with a higher position chooses the leader below him. The main consideration made refers to gender, gender is generally male with a plus character, as stated by Participant 31 that male leaders are considered more qualified because if they are led by women, they will prioritize feelings so that if they occupy certain positions, the decisions taken will be not objective

"Men are seen as more capable and capable. Women are seen as creatures who tend to prioritize feelings so that if they occupy certain positions, it is feared that they will not be able to make objective policies/decisions. The role of women as mothers and wives is also often seen as an obstacle in careers". (Participant 31)

From the above statement, it shows that not only female employees have caring duties, but male employees also have the same needs and responsibilities, although in general the dual responsibilities are clearer for female employees.

Then, according to role fit theory, not only do people often "think manager/leader, think men" (Schein, 1973), but women can be punished or disliked when they hold managerial roles, because these roles are not in accordance with the nature and characteristics of women. female stereotype. The quality of female employees is less desirable

than that of men, female leaders are often poorly evaluated and are less likely to receive social approval for the same leadership behavior (Eagly 2013; Heilman 2012). As expressed by participant 166

> "My work unit does not discriminate between men and women for promotion, the majority of what is seen is, in some conversations between employees there is an assumption that female superiors tend to be more volatile and subjective in making decisions. (Participant 166)

Apart from this, the work system of female superiors is also in the spotlight, specifically stated by several participants below.

> "The answer is like Ms. X. Male bosses are better, because "I don't care what you do but the most important the job is done", male bosses. If the female boss is detailed. This is how it should be. So if we deviate from him he's a bit baper huh. But if the boss is a male, the results and orientation, the result orientation is done. Already. Done. So". (Participant 49)

Female bosses are also considered:

> "I work in a section where the majority is filled by women, with a female boss and female co-workers who think having a female boss is more complicated to understand than having a male boss. Ways of making decisions that are less convincing and easily influenced by other parties. This makes the perception of the level of uncertainty in a woman's leadership higher. …" (Participant 91)

> "Women leadership is seen as slow to make decisions in the office where I work." (Participant 155)

The work system of female superiors that is too detailed, slow in making decisions, making decisions that are less convincing and easily influenced by other parties makes the uncertainty of women's leadership even higher.

In addition to the tendency of higher leaders to choose male leaders over women, the culture of favoritism can also be seen from the tendency of superiors to choose their staff. This favoritism culture is also reflected in how a superior delegates tasks to his subordinates with gender considerations. As expressed by Participant 40

> "There is, Miss, so I'm in position X and closely related to the logistics sector, and if it's there, according to my personal observation, women are mostly behind the desk, only doing the administration. At that time I also asked, 'sir, this is actually my friend (female) who feels that sometimes she doesn't have anything to do but why am I always active here' and my boss's answer is quite simple, 'yes, it's because you're a man. ', it's like, hehe, it's just like that.. that's how it is, you're a man." (Participant 40, Institution, Implementer)

Based on the narrative of participants 166, a hectic workload requires employees to work overtime from time to time and often female employees cannot do it due to safety reasons and the dual role of female workers as workers, wives and mothers.

> "The business of my work unit requires working at any time beyond working hours, so female employees often cannot do it because they are prone to coming home late at night. Therefore, it is often the employee who understands the most dynamic work developments are men and have an impact on performance between the two. (Participant 166, Ministry, Implementer)

In addition, the narrative of participants 157 stated that in sections that have more female employees than male employees, they tend to burden male employees with complicated and urgent work.

"There is a slight difference in the division of performance, but for jobs with a certain level of difficulty, it is only for me, because in 1 section I am only a man. For example, for jobs that require immediate analysis and urgency, they are always dispositioned to me." (Participant 157, Ministry, Implementer)

From the description above, it can be seen that many or at least female employees do not make a difference that female employees benefit less from superiors and co-workers' support (Geller & Hobfoll, 1994) so that access to resources is also more limited than female employees.

I. Gender mainstreaming campaign is underestimated

In participant expression 31 stated that placing male gender/performing gender clustering in organizational structures and systems is considered to be more performing than placing female employees due to the consideration of stereotyping that women are less able to make objective decisions and the dual role of female employees will actually hinder performance.

> "The section that carries out special/certain examinations is usually filled by men because men are seen as more capable and capable. They are more performant when in fact there are also many men who work "without performing". Then women are seen as beings who tend to put their feelings forward so that if they

occupy certain positions it is feared that they will not be able to make objective policies/decisions, plus the role of women as mothers and wives. considered to hinder performance." (Participant 31, Institutional, Functional)

Participant 144 stated that working 24 hours a day (employees must always be ready whenever needed) is one of the policies that undermines gender equality, where basically every individual has his own problems in his life. This 24-hour work culture is vulnerable to work-life conflicts for its employees. Work creates family conflicts, with this work system masculinity is more pronounced and opportunities for certain genders are not wide open compared to other genders because of dual roles or limitations with family needs.

"In my opinion, a work culture that has to be 24 hours is not a work life balance and is not effective and efficient". (Participant 144)

Based on the presentation of participants 122, it is very difficult to take leave which is the right of employees and also the agency does not have a means of channeling opinions/labor unions other than the corps to channel aspirations, ideas, ideas and criticisms.

"The disposition likes to come suddenly, it is difficult to take leave which is a right, the office is due to work, only oriented towards sanctions without any reward, there is no means of channeling opinions / unions other than the corps". (Participant 122, Ministry, Implementer)

A long work culture, stereotyping and the difficulty of asking for rights for employees because work becomes a separate barrier for employees, especially female employees. This can slow down the creation of gender equality in the agency where the policy is implemented.

Participant 64 stated that sometimes issues related to the nature of women (pregnancy, breastfeeding, sick due to menstruation) were ignored for the needs of the agency even though they worked in divisions where the majority of them were female employees.

"The majority of where I work, especially my division, are mostly women. Sometimes issues related to the nature of women are ignored for work needs (pregnancy, following, sick due to menstruation)". (Participant 64, institution, Implementer)

From the statement above, it is emphasized by the expression of Participant 37 who stated that previously the lactation room was provided for employees, but over time the space was removed. Then at the agency where the 37 participants work, the maternity leave policy with the initial clause of the performance allowance being paid in full for three months, then changed through PerKa with clauses in the first month of the full allowance, not the second 75% and the third month 50% as described below:

"Well, in the past, gender-responsive facilities were like breastfeeding rooms, lactation rooms, right? It used to exist, now it doesn't seem to exist." …. "Well, in terms of policy, I also just found out yesterday, not long ago, yes, there was a case, the head regulation regarding the performance allowance was that maternity leave was cut off, that's really sad. So maternity leave is 3 months right? If I'm not mistaken, when I was on maternity leave, it was full, 2016 was still full, so it's only 2021 or 2022, that's how it is. There is a clause, so the second month only receives 75%, the third month only receives 50% if I'm not mistaken". (Participant 37, Institution, Implementer)

From the presentation of 37 participants, it can be seen that the basic characteristic of NPM, namely efficiency, is reflected in the Perka made related to maternity leave policies. Comparison of the initial policy changes, namely maternity leave for female employees who are given full benefits for three months then changed to clauses in the first month of full benefits, the second month 75% and the third month 50%

Gender unresponsive policies also occur in institutions where 56 participants work, where 70% of the total number of employees are female employees, with a large proportion of young mothers. Unfortunately, this proportion does not affect the response of the management in providing policies such as lactation rooms, so that many female employees who need these rooms are looking for unused spaces that can be used, as in the following statement;

"…, Oh, the nursing room, right… actually, there is no special room at our place, just because first, the majority of mothers work here (70% women), the two offices are also really big, the rooms are also big… about 16 thousand meters of his office. So yes, you can tuck in anywhere for those who are pumping, but there is no special room for lactation." (Participant 56)

Budget efficiency is one of the characteristics of NPM. All budgets issued, clearly evaluated inputs and outputs. In contrast to the gender mainstreaming policy, which in carrying out the program, it cannot calculate

efficiency implicitly with clear levels and standards. However, the PUG policy can be said to be successful if it can improve the performance of its employees. This may make policy makers really consider the realization of the PUG program. In participant statements 56 it is clear that although lactation facilities are a major need because 70% of young productive female employees are employees, the policy becomes unimportant when the only considerations are efficiency and effectiveness which are analyzed using numbers.

The policy of ignoring gender equality also occurs at the level of staff and superiors where there is verbal and physical violence against female employees as stated by participant 81 below:

"There are so many incidents where seniors are verbally abusive and there are several times where they physically abuse female workers at my place." (Participant 81)

As stated by Berdhl (2018) which states that gender inequality occurs because of superiority and how gender is formed both in work and in daily practice and interactions at work (Ely & Meyerson, 2010). Masculine pressure on men motivates them to engage in "bad but brave" behavior (Glick et al., 2004)—including sexual harassment (Berdahl, 2007), physical aggression (Bosson, et al., 2009). Masculine pressure occurs because of the masculine work system in the organization. This is what causes NPM to undermine gender equality through verbal and physical violence which is generally carried out by superiors or senior employees to subordinates who are generally women.

NPM in the agency's strategic objective element which states that there is an interest orientation in order to build a "business like" goal for the benefit of the institution. However, in making policies, sometimes decisions related to agencies are intervened by external parties which have a big influence on policy making, duties and responsibilities so that they are prone to conflicts of interest that are not in accordance with the agency's objectives, as described by participants 136 and participants 35 as follows:

"I once had contact with X (an external party) as partner Y, in the end he didn't want me to move up to echelon 3. So I am in the position now. Because I felt like I wanted to be proposed to my current supervisor position, which is now held by him and I as his sub-correspondent. However, because of my problem with X, my boss seems to have taken a more dispassionate attitude towards me and in the work of forming a "team within a team" maybe a shadow team, where I was not included, even though I was a sub-core in the team". (Participant 63, Institutional, Functional)

"Oh yeah, I just remembered for the promotion, the mutation is like that, one more factor, don't underestimate the power of Dharma Wanita". (participant 35)

Performance and performance evaluation is one of the elements of NPM because it is in running "business like" in government. System merit can be used as a way of evaluating performance. But unfortunately this system does not work ideally, as explained by participant 146 that the absence of a fair system and wide opportunities for careers is one of the career barriers and is possibly due to the dominance of the leader's subjectivity.

"The challenge in career preference is only the absence of a fair system and wide opportunities for a career, because it is still done manually and dominated by the subjectivity of the highest leadership. Have the ability but if you don't come from the same group, your career is still gray." (Participant 146)

Another challenge is as stated by participant 12 that the selection process for high positions for echelon 2 positions in this case there is a selection system that has been established and must be passed, but it seems as a formality. One of the characteristics of NPM is a measurable evaluation, here the selection stage is NPM's way of evaluating candidates, unfortunately the stages are seen as a formality because in the "behind the scenes" process there is already a candidate determination based on likes and dislikes from the leadership

"Yes, he has to get an echelon 2 position, the problem is that to reach an echelon 2 position, there is a JPT process for selecting high leadership positions. There is a selection for positions, there are written tests, interviews, psychology, medical tests. It's just that if it is a high leadership reference, he will definitely pass. Or at least there is already this name out. So that the existing process seems to be just a formality. That's what's still thick, I don't know what it's like in other places but in X it's very thick. I'm not saying it's not fair, it's just that the referral atmosphere is very strong in making decisions. So likes and dislikes are very strong…" (Participant 12, Ministry, Functional)

From the statement above, it is implied that the performance evaluation process and the promotion selection process that have been formulated properly in accordance with the needs of the agency if the implementation is not carried out correctly, then gender equality will not be achieved because there is still subjectivity in leadership policies.

V. DISCUSSION

According to the findings of this study, the participants are still unfamiliar with the program. Do not comprehend the concept or the objectives of participating in this program. Understanding that PUG is still foreign, participants' attitudes of gender equality in policy, views on giving different treatment, and PUG programs (internal) are not urgent for agencies were the sub-themes raised. Then, there is a partial perception from agencies related to this policy, and there is a strong belief from the agency that the smaller the gap between male and female employees shows that gender equality has begun to be realized in agencies that implement the policy. Unfortunately, the government still views gender equality as exclusively quantitative, with a tiny percentage gap suggesting that gender equality has been reached, but does not employ quality components such as capability in determining whether or not gender equality has been achieved in agencies.

Furthermore, the impact of this partial view is the agency's lack of seriousness, including those responsible for employee development, which tend to only lead to general operations and have not been synergized with other policies, agencies also do not prioritize budgets related to gender equality in agencies, despite the fact that the central government, together with four Ministers, carried out the national strategy for accelerating GM through gender responsive planning and implementation in 2013. Another limiting notion is that organizations assume gender mainstreaming measures are only for women. Policies and programs are only concerned with the advancement of women. Essentially, the PUG strategy is geared toward providing opportunity for all genders (male and female) to grow. Men become the dominant gender in government institutions because of high masculinity and a strong patrilineal tradition.

Another limited perception is that agencies believe that gender mainstreaming policies are only about women. policies and programs that are carried out are only related to the advancement of women. Basically the PUG policy is more towards opening up opportunities for all genders (male and female) to develop. It's just that in government agencies, with high masculinity and a strong patrilineal culture, men become the dominant gender.

VI. CONCLUSION AND RECOMMENDATION

Because each employee has his or her own ideal of gender equality and model mainstreaming, the limited understanding they have generates a bias in meaning, how employees infer the mission and goals of the organization. This suggests that there is still a need for socialization and information pertaining to a better understanding of PUG regarding the concept, content, and objectives of the policy developed inside the agency. Until now, many PUG projects have been hampered by the lack of a broad vision for PUG, limited funding allocations, and policymakers' or specific groups' unwillingness to change. Aside from that, with limited perspectives, the willingness of individuals inside it to alter institutions for the better through gender mainstreaming initiatives has challenges, mainly that not everyone in the organization wants to change in a positive direction. If the program is carried out in accordance with existing policies, the leadership is egotistical. The leader believes that the policy is not his accomplishment, therefore the program's sustainability may be overlooked, or the unwillingness of specific people to accept change since they are comfortable in their comfort zone.

Until now, many PUG programs have been hit by the absence of a grand strategy for PUG and limited budget allocations and the reluctance of policy makers or certain groups to change. Apart from that, with a limited perception, the willingness of individuals in it to change institutions for the better through gender mainstreaming programs has obstacles, namely not everyone in the organization wants to change in a positive direction, There is egocentricity from the leadership in implementing the program if it is carried out from previous policies. the leader, feels that the policy is not his achievement, so that the sustainability of the program may be neglected or the reluctance of certain groups to face change, comfortable in their zone

Furthermore, the implementation of the PUG policy has not yet reached the core of the policy because institutions and individuals' comprehension of it is still on the surface. Skepticism, a desire to remain in their comfort zone, and a belief that the policies they are implementing do not benefit one gender make gender equality difficult to attain. Agencies must socialize more and give instillation of values, objectives, and benefits of PUG policies, particularly for leaders as policymakers, to ensure that policies implemented are effective.

The long history of colonialism, as well as the entrenched patriarchal culture, have an impact on the social relationships of employees in the workplace. The distinct treatment of genders, as well as a significant appraisal of stereotyping and employee preference based on gender, point to these consequences. This condition suggests that job prospects for women are still limited, and there are still visible barriers that limit female employees' career

progression. It is not impossible that achieving gender equality will be tough. Because there has been no coordination of policy, development, and implementation, gender equality has become limp due to a lack of support and awareness regarding PUG in agency units.

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Customer Trust In The Use Of Shopeepay And Their Impact On Millennial User Satisfaction In The Covid-19 Era

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Abstract

During COVID-19, there was a significant increase in the use of E-money among the community. Using e-money as a transaction tool in everyday life requires a trust factor. If people already believe in the technology/system of e-money, they will easily use it in their daily transactions. So, this research aims to determine the effect of Customer Trust on the use of ShopeePay and its impact on Millennial User Satisfaction in the COVID-19 Era. The hypothesis is Customer Trust influences the Use of ShopeePay and its implications on Millennial User Satisfaction in the COVID-19 Era. This study uses a quantitative method using descriptive and verification research methods. The Respondents were 97 respondents selected using the Non Probability Sampling method with the Unknown Population Sampling calculation technique. The data analysis technique used in this study is Structural Equation Model (SEM) and hypothesis testing using SmartPLS software version 3. The results show that Customer Trust positively and significantly affects ShopeePay usage. Customer Trust has a positive and significant effect on Millennial User Satisfaction. Using ShopeePay has a positive and significant effect on Millennial User Satisfaction. This study also shows that ShopeePay is more competent with similar applications. ShopeePay is a reliable and trustworthy platform. ShopeePay is in line with the characteristics of the millennial generation. The millennial generation wants everything to be practical, fast, and efficient. ShopeePay balance replenishment is also easy, providing time efficiency because the process is fast.

Keywords—Customer Trust, Millenial User Satisfaction; ShopeePay;

I. INTRODUCTION

In 2022, internet penetration reached 62.5% of the world's total population, which is known to have increased to 4.95 billion people using the internet. These data indicate a growth of 192 million (+4.0%) over the past year, believed to be much higher than this number due to research and reporting restrictions caused by Covid-19 (Kemp, 2022). In Indonesia, internet users reached 202.6 million, or 73.7% of the total population of 274.9 million in January 2021. The number of internet users in Indonesia increased during the COVID-19 pandemic due to the implementation of online learning and work-from-home policies (Kemp, 2021).

Most internet users are millennials. The millennial generation, also known as Gen Y, is people who were born in 1980-2000 with an age range of 19 to 39 years. They were born in an era of advanced technology. In both the sharing economy and collaborative consumption, Millennials have been recognized as an outstanding consumer group (Činjarević, Kožo, & Berberović, 2019). The millennial generation has the characteristics of multitasking in the use of technology and often illustrated by the name *Internet generation* or *Connect 24/7* (Činjarević, Kožo, & Berberović, 2019). The development of information technology has changed people's lifestyles and made people increasingly rely on the existence of information technology.

These technological advances create new challenges, one of which is in the marketing industry. Now people are very comfortable enjoying technological advances that are rapidly growing. There is no need to shop or pay bills directly to the store. All of this can be done online using a smartphone. Advances in technological developments have made entrepreneurs compete to be at the forefront of marketing technology, trying to fulfill customer needs, keeping customers with attractive promotional offers, and providing quality services to customers. Satisfying customer needs well, maintaining good relationships with customers, and providing quality services can create customer satisfaction (Dienaeni, 2020).

The application of information technology has been widely used in people's daily activities. One of them is a non-cash payment media that is rapidly growing every day, accompanied by various innovations to make it more effective, safe, fast, and convenient. These technological advances have changed people's lifestyles and often make people tend to be more consumptive. The use of smartphones in Indonesian society is increasing, causing the trend of non-cash payments to grow. Moreover, this is used as a ground for financial service companies to

offer transactions that can be carried out by the public effectively and efficiently through e-wallet brands launched by various financial services companies. An E-wallet is a type of electronic money where the money is stored on a server, not on a chip card (Aji, Berakon, & Husin, 2020). In Indonesia, several server-based e-money (e-wallet) providers such as Go-Pay, OVO, Link Aja, and DANA exist. Users can save money for every online transaction, such as food payments, online shopping, and airline tickets. The digital wallet application can be downloaded for free through everyone's smartphone.

At the end of 2019, the COVID-19 virus encountered the world, including Indonesia. In Indonesia, the coronavirus spread in early 2020. Indonesia is currently facing a national disaster from the COVID-19 pandemic. The government has taken several steps to deal with the spread of the COVID-19 virus, including the gradual implementation of Pembatasan Sosial Berskala Besar (PSBB) in areas where the spread of the COVID-19 virus is elevated, one of which is in the West Java region. The World Health Organization (WHO) urges the public to implement contactless payments. The use of contactless payment is to reduce contact with cash payments using digital wallets or electronic transactions. So it is expected that it can reduce the risk of being infected with the coronavirus that sticks to money, credit cards, or the hands of people who give or receive the money. Many people end up using e-commerce to fulfill their daily needs. The use of e-commerce also implements government requests to limit the usage of cash or paper money. Currently, many supermarkets also provide digital services. Electronic wallets have made it easier for people to complete transactions, primarily by limiting the use of cash or paper (Fatoni, Susilawati, Yulianti, & Iskandar, 2019). Based on a survey conducted in DKI Jakarta from April 20 to May 5, 2020, a survey showed that most citizens tended to increase online shopping. This increase is illustrated by the intensity of spending, which was previously only 1 to 5 times a month, to 1 to 10 times during the implementation of Pembatasan Sosial Berskala Besar (PSBB) (Pusat Penelitian Oseanografi - LIPI, 2020).

December 2020, electronic money transactions' value reached Rp 22.13 trillion. Not only that, but this figure also rose 12.17% compared to November 2021, which reached Rp 31.29 trillion. In November 2021, the volume of e-money transactions in Indonesia reached 530.02 million transactions. Then one month later, in December 2021, that number increased 13.63% to 602.29 million times (Annur, 2022). This shows that most people are aware of the existence of electronic money, which has been widely used in their daily lives.

Mobile payment services or e-wallets are increasingly popular, along with the increasing use of smartphones by up to 70% in the last five years in Indonesia. Moreover, there are more choices of cardless e-wallet applications for transactions. During the COVID-19 pandemic, 44% of Indonesians used cashless payments more often (Nurcahyadi, 2020). One of the official and widely used e-money products in Indonesia is ShopeePay. Shopeepay is an electronic money service feature that can be used as an online payment method on the Shopee platform, offline at ShopeePay merchants, and to accommodate refunds made by the company PT. Airpay International Indonesia. Market research company Ipsos in Indonesia surveyed 1000 respondents aged 18 years and over regarding the experience of making purchases using digital wallets. The survey revealed that ShopeePay managed to excel as the most frequently used digital wallet brand and became the digital wallet that recorded the largest market share of transaction value, namely 48% of the total digital wallet users in Indonesia, followed by OVO (46%), GoPay (35%). , DANA 26%, and LinkAja 16% (Nurcahyadi, 2020). This is also supported by the results of research conducted by the High Tech, Property & Consumer Goods Industry Mark plus survey on 502 respondents representing big cities with the highest smartphone usage penetration in Indonesia. It states that ShopeePay has an average transaction frequency of 7 monthly, which makes ShopeePay the most used e-wallet (Merdeka, 2020). High levels of digital wallet usage generally increase with increasing user trust.

Using e-money as a transaction tool in everyday life requires a trust factor from the public. If people already believe in the technology/system of e-money, they will easily use it in their daily transactions. Based on the results of pre-research related to customer trust that researchers gave to 20 respondents in Kabupaten Garut, respondents believe that ShopeePay is safe to use for transactions, and ShopeePay has a good image/reputation in the eyes of the society. The services provided by ShopeePay are excellent. Most respondents use ShopeePay because it is very easy to top up/top up ShopeePay balances. ShopeePay can also be used anywhere, and ShopeePay is very practical.

User trust in using E-Money on Satisfaction compares what the customer expects with what is received by the customer. If what is obtained by the respondents exceeds their expectations, the user can achieve satisfaction and will create a sense of trust in a product. Customer satisfaction is closely related to customer loyalty in a company. So that to be able to win the business competition, companies must be expected to increase customer satisfaction.

From the explanation above, it can be seen that during COVID-19, there was a significant increase in the use of E-money among the community, so the researchers wanted to find out whether Customer Trust had an effect on the use of ShopeePay E-Money and how it affected Millennial User Satisfaction during the COVID-19 pandemic.

II. LITERATURE REWIEW

A. Customer Trust

Trust refers to a situation where the buyer depends on the company and believes that the company will act as expected (Zhang & Li, 2019). Trustworthiness is classified into three types: ability, benevolence, and integrity (Zhang & Li, 2019). In other words, trust can be measured using the buyer's belief in the company's ability, integrity, and virtue. These three variables of customer trust have a definition (a) Ability, which refers to the competence and characteristics of the seller to ensure that consumers receive satisfaction and security guarantees from the seller when making transactions via internet technology. Ability indicators include competence and institutional approval, (b) Benevolence, the seller's willingness to provide mutually beneficial satisfaction between the two parties. Sellers are not only pursuing maximum profit but also have excellent attention to realizing customer satisfaction. Benevolence indicators include attention, empathy, and acceptance, (c) Integrity, relating to the behavior or habits of the seller in running his business. The information and product quality provided to consumers is correct under the facts or not (Setyoparwati, 2019).

B. E-Wallet

An E-wallet is a type of electronic money where the money is stored on a server, not on a chip card (Aji, Berakon, & Husin, 2020). Several server-based e-money (e-wallet) providers in Indonesia exist, such as Shopeepay, Go-Pay, OVO, LinkAja, and DANA. Several funds or the value of money stored on platforms owned by consumers. Some of the benefits or advantages of using e-money compared to using cash or other non-cash payment instruments are as follows (Adiyanti & Pudjihardjo, 2015):

a. Easier, faster, and more convenient than using cash. Users do not need to look for money and wait for the cashier to give them a chance. In addition, it reduces errors when calculating money because the calculation is done automatically.
b. The time required is much quicker because users only need to do a scan compared to when using a debit or credit card
c. Consumer convenience, with advanced facilities provided by e-money, consumers do not need to carry cash for small-value transactions
d. Increase consumer confidence, using the code/pin to lock the system in e-money, so not just anyone can use the money except the user. The security and privacy of its users are maintained safely.

C. Customer Satisfaction

Customer satisfaction is comparing customer expectations and feelings after the transaction. If customers' experience meets their expectations, they will experience greater satisfaction and a greater desire to repurchase (Huarng & Yu, 2018). Consumers will feel satisfied when the product fulfills consumer expectations, and if the product is far from consumer expectations, consumers will not feel satisfied. There are five dimensions of customer satisfaction including (a) Expectations, (b) Performance, (c) Comparison, (d) Experience, (d) Confirmation/Disconfirmation (Priansa, 2017).

During the COVID-19 period, the government implemented Pembatasan Sosial Berskala Besar (PSBB) in stages in areas indicated accelerate the spread of the coronavirus. Community needs should be fulfilled during PSBB. Therefore, many people use e-commerce to buy for their various needs. The use of e-commerce also implements the government's recommendation to use e-money in every public transaction activity to limit the use of cash or paper because suspected that cash could be a factor in the transmission of COVID-19 (Fatoni, Susilawati, Yulianti, & Iskandar, 2019).

Three components that form a person's trust are ability, benevolence, and integrity (Setyoparwati, 2019). If company have gained consumer trust, the level of trust in e-money usage will also increase. Many companies also continue striving to develop and improve related systems and rules regarding electronic money transactions to increase the comfort of their users (Tazkiyyaturrohmah, 2018). In addition, some of the advantages of using e-money are easier, shorter time, consumer convenience, and transaction security (Tazkiyyaturrohmah, 2018).

Customer satisfaction is one of the most significant factors in doing business. Because when customer satisfaction has been fulfilled, they will be loyal to the products issued by the company. Consumer satisfaction is the best guarantee in maintaining business and facing competition. To win against the competition in the financial services industry, companies must provide services that meet their needs and expectations and get customer satisfaction (Huarng & Yu, 2018). Customer satisfaction is a feeling of pleasure or disappointment that someone owns based on a comparison between reality and what is obtained with the expectations held by consumers.

Customer satisfaction has five dimensions: Expectations, Performance, Comparison, Experience, and Confirmation/Disconfirmation (Priansa, 2017). Consumer purchasing decisions online can be influenced by factors, namely convenience, trust, and perceived risk that will be accepted by consumers/buyers. The current phenomenon makes people prefer to make practical and economical purchases that do not take long.
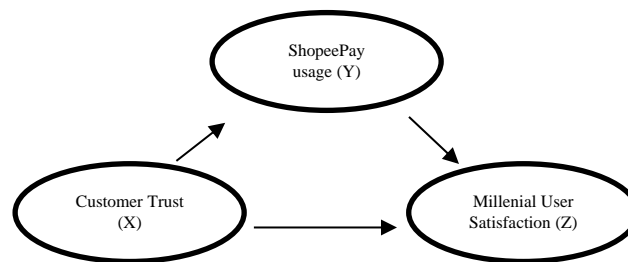
Fig 1. Research Framework

Several studies examine the use of e-money, customer trust, and consumer satisfaction. Research on the case study of a modern and smart store states that regardless of the risk of buying online, everyone buying goods online will do it again and again (Munandar & Khoriyah, 2020). Technology advances have made it easier for consumers with limited time to fulfill their needs. Through online stores, they are not spending a lot of time and effort shopping. They only need to open the marketplace via their smartphone, select the desired item, and then pay for the selected item via transfer or their digital wallet. Many studies have examined how the use of e-wallets increases. Research on the analysis of non-cash payment transactions through e-wallets found that habits, perceptions of trust, performance expectations, facilitating conditions, price values, social influences, and hedonic motivation positively affect behavioral intentions to use e-wallets (Faridhal, 2019). Another research regarding the analysis of the influence of the Big Five Personality on the behavior of using e-wallet technology with initial moderation of trust. The result is that e-wallet technology needs to build trust up front, to convince users that this technology is easier and safe to use as a transaction so that the beginning of this belief can increase the role of personality in influencing the acceptance and use of technology (Kristianti & Pambudi, 2017).

Studies have also investigated the relationship between the three variables of trust, use, and satisfaction. Research (Dzulhaida & Giri, 2018) shows that trust positively and significantly affects an interest in using electronic money, Research conducted by (Guspul, 2015) shows that trust positively affects satisfaction, and research conducted by (Charisma & Suprapti., 2020) shows that the higher the maximization of the use of e-money (utilitarian value) will maximize happiness and have a positive and significant effect on perceived satisfaction

Based on the framework model, the hypotheses in this study include the following:

Hypothesis I   : Customer trust has a positive effect on the use of ShopeePay in the covid 19 era

Hypothesis II   : Customer trust has a positive effect on millennial user satisfaction in the covid 19 era

Hypothesis III   : The use of ShopeePay has a positive effect on millennial user satisfaction in the covid 19 era

III. RESEARCH METHODOLOGY

This research uses quantitative research using descriptive and verification research methods. The population in this study is the Millennial Generation of ShopeePay Users. The data used in this study are primary data obtained directly from questionnaires distributed via Whatsapp and Instagram on a predetermined sample and secondary data sourced from books, articles, journals, and other information related to the writing by the researcher. Respondents from this study were 97 respondents who were selected using the Non Probability Sampling method using a purposive sampling approach. Respondents' criteria are (1) ShopeePay users who are Millennial Generation, (2) Have a Shopee application, and (3) Have used ShopeePay at least one time. The measuring instrument used in this research is a structured questionnaire made by the researcher. Questionnaires completed with units of measurement and scoring for each answer were scored in stages based on the Likert scale.

The data analysis technique used in this research is validity and reliability testing and hypothesis testing using SmartPLS version 3 software.

Table 1. Variable Operationalization

Variable	Dimension	Indicator	Item Code
Customers Trust (CT) (Setyoparwati, 2019)	*Abilities*	Competence	CT1
		institutional approval	CT2
	benevolence	Attention	CT3
		Empathy	CT4
		Acceptance	CT5
	integrity	*fulfillment*	CT6
		honesty	CT7
		dependability	CT8
		reliability	CT9
ShopeePay Usage (PS) (Adiyanti, 2015)	Convenience	Easy Top Up *e-money balance*	PS1
		Can be used at many *merchants*	PS2
	Efficiency	Saving time	PS3
		Use of Technology	PS4
	accessible	Can be accessed anytime and anywhere	PS5
		Easily accessible	PS6
	Security	Don't worry about providing information	PS7
		Trust that personal data is protected	PS8
		Believe that the money in shopeepay is guaranteed	PS9
Satisfaction *Millennial Users* (KMU) (Priansa, 2017)	Expectation	In accordance with reality	KMU1
		Not disappointing	KMU2
	Product Performance	Service Features	KMU3
	Comparison With Other Apps	Top-up fee	KMU4
	Experience	Using the product based on experience	KMU5
		Product recommendation	KMU6
	Hope Confirmation	In line with expectations	KMU7

The reliability in this study was carried out by testing the model using several stages, including testing the outer model (Indicator Reliability/Loading Factor, Internal Consistency Reliability, Cronbach's Alpha, Convergent Validity/Average Variance Extracted (AVE), Discriminant Validity) and the inner model (R Square, Goodness). of Fit Models). based on the tests that have been carried out, it can be concluded that this model is fit and reliable.

IV. RESULT / FINDING

The following is an overview of the average Customer Trust, ShopeePay Usage, and Millennial User Satisfaction during the COVID-19 period.

Table 2. Average Customer Trust, ShopeePay Usage, and Millennial User Satisfaction

Customer Trust			
Question Item Code	Statement	Score	Assessment criteria
CT1	I believe that ShopeePay is more competent than similar applications	426	Very good
CT2	ShopeePay is a reliable and trustworthy application	383	Good
CT3	Shopeepay applies free shipping extra for users	406	Good
CT4	Customers Care ShopeePay handles user complaints well	402	Good
CT5	I accept all the terms and conditions for using ShopeePay	410	Very good
CT6	ShopeePay can be trusted to meet the needs of its users	419	Very good
CT7	The information provided by ShopeePay is accurate	408	Very good
CT8	ShopeePay works well in meeting the needs of its users	409	Very good
CT9	ShopeePay is reliable because of its good performance	412	Very good
	Average	408	Very good
Shopee Usage			
PS1	Top up ShopeePay balance is easy to do	411	Very good
PS2	Customers can use ShopeePay at many merchants	406	Good
PS3	ShopeePay provides time efficiency due to the fast payment process	400	Good
PS4	With ShopeePay 's financial technology, the transaction process is easier and faster	413	Very good
PS5	Customers can use ShopeePay anywhere and anytime	387	Good
PS6	ShopeePay application can be accessed easily	416	Very good
PS7	When transacting, customers are not worried that the information provided will be manipulated by irresponsible parties	405	Good
PS8	ShopeePay can protect user's confidential data	383	Good
PS9	Money security in ShopeePay is guaranteed	413	Very good
	Average	404	Good
Millennial User satisfaction			
KMU1	The promotions offered by ShopeePay are matching with reality	381	Good
KMU2	I am not disappointed in using ShopeePay	396	Good
KMU3	There is a password feature to protect shopeepay accounts from irresponsible parties	398	Good
KMU4	There is a refund feature if the product received does not match the order	400	Good
KMU5	ShopeePay balance top-up fees are cheaper than other applications	410	Very good
KMU6	I am satisfied using ShopeePay because the experience provided is good	408	Very good
KMU7	I will recommend ShopeePay to family	410	Very good
KMU8	I will recommend ShopeePay to friends	398	Good
KMU9	ShopeePay's performance is in line with my expectations	399	Good
	Average	400	Good

Based on the research results in table 2 above, the results of respondents' responses regarding Customer Trust can be seen. The average score obtained is 408, with very good assessment criteria. The respondent's response with the highest score is regarding the indicator that the respondent believes ShopeePay is more competent than

similar applications with an assessment score of 426, and the assessment criteria are very good. ShopeePay is believed to be more competent than other similar applications because ShopeePay has a good image in the community, and ShopeePay is also believed to be able to fulfill its users' needs well because the performance shown by ShopeePay is reliable in every use.

The results of respondents' responses regarding the usage of ShopeePay show, The average score obtained is 404 with good assessment criteria. The respondent's response with the highest score is the indicator regarding the ShopeePay application that can be accessed easily with an assessment score of 416, and the assessment criteria are very good. ShopeePay can be accessed easily through its smartphone users, and the features of ShopeePay are also easy to understand. They can be easily applied for daily transactions such as making payments at various merchants who have collaborated with ShopeePay and can make payments for online shopping through the Shopee app. Meanwhile, the respondent's response with the lowest score is regarding the indicator that ShopeePay can protect its user's confidential data with an assessment score of 383 and the assessment criteria are good. The ShopeePay application has a pin and fingerprint features that can protect user data and the money in it. When using ShopeePay for transaction activities or to change the personal data contained in it, users are required to enter a pin and fingerprint to be able to change it. This illustrates that ShopeePay can protect confidential user data, even though the results on the ShopeePay Usage variable have the lowest assessment score but are still in good assessment criteria.

The results of respondents' responses regarding Millennial User Satisfaction show that the average score obtained is 400 with good assessment criteria. The respondent's response with the highest score is regarding the ShopeePay balance top-up fee indicator, which is cheaper than other applications. The user indicator will recommend ShopeePay to families with an assessment score of 410, and the assessment criteria are very good. ShopeePay Top Up and transfer fees are cheaper than other similar applications such as Ovo, GoPay, Dana, Jenius, and LinkAja. Furthermore, the performance provided by ShopeePay to its users is very satisfying and reliable. So many users recommend ShopeePay to their friends or family. Meanwhile, the respondent's response with the lowest score is regarding the promotion indicators offered by ShopeePay match the reality with an assessment score of 381 and good assessment criteria. ShopeePay offers a variety of attractive promotions for its users, such as the Xtra feature, Free Shipping, Minimum Shopping, 0 Rupiah, and hefty cashback for every transaction. This data illustrates that ShopeePay holds promotions and the results match the reality or expectations of its users, although the results on the Millennial User Satisfaction variable have the lowest assessment score but are still in good assessment criteria.
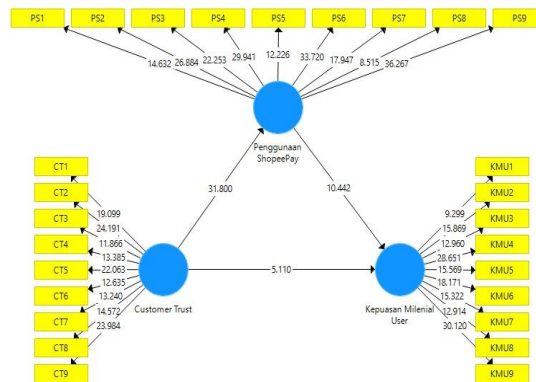
Fig 2. Output Bootstrapping

Hypothesis I (There is an Influence of Customer Trust on the Use of ShopeePay during the COVID-19 period)

Table 3. CT & PS

	Original Sample	T Statistics	T Tabel	P Values	Keterangan
CT -> PS	0,863	31,774	1,986	0,000	H₀ ditolak

Based on the results of the output Path coefficients, it explains that the T statistic (31.774) > t table (1.986) nd the value of P Values < significant alpha (0.05). Thus it is concluded that H0 is rejected and H1 is accepted. That means Customer Trust has a positive and significant impact on the use of ShopeePay in the current COVID-19 period.

Hypothesis II (There is an Influence of Customer Trust on Millennial User Satisfaction during the COVID-19 period)

Table 4. CT & KMU

	Original Sample	T Statistics	T Tabel	P Values	Keterangan
CT -> KMU	0,337	5,169	1,986	0,000	H₀ ditolak

The T statistic (5.169) > t table (1.986) and the P Values < significant alpha (0.05). Thus it is concluded that H0 is rejected and H1 is accepted. That means Customer Trust has a positive and significant impact on Millennial User Satisfaction in the current COVID-19 period.

Hypothesis III (There is an Effect of Using ShopeePay on Millennial User Satisfaction during the COVID-19 period)

Table 5. PS & KMU

	Original Sample	T Statistics	T Tabel	P Values	Keterangan
PS -> KMU	0,683	10,776	1,986	0,000	H0 ditolak

The T statistic (10.776) > t table (1.986) and the P Values < significant alpha (0.05). Thus it is concluded that H0 is rejected and H1 is accepted. That means the use of ShopeePay has a positive and significant impact on Millennial User Satisfaction in the current COVID-19 period.

V. DISCUSSION

Based on the results of this research analysis, the research found that the customer trust variable had a significant positive effect on the use of ShopeePay during the Covid-19 period. This study's results align with other research regarding the online transaction system on the Shopee application, which shows users who believe in the application will use ShopeePay for every transaction activity (Dadang & Purnamasari, 2020). This positive influence is also in line with trust and uses in financial technology (Nangin, Barus, & Wahyoedi, 2020).

This study also reveals the average customer's trust in Shopee, which shows very good criteria. Customer Trust has a significant role in using ShopeePay in the current Covid-19 Era. Because trust is essential in using digital payments, if the user already believes in the system implemented by ShopeePay, the user will not feel worried when making transactions and will continue to use it in their daily lives.

The Covid-19 situation, which encourages users to make cashless transactions, makes this an opportunity for Shopee and similar companies. With increasing demand, the competition is more challenging. However, based on

indicators from customer trust, the highest score states that respondents believe ShopeePay is more competent than similar applications with very good assessment criteria. ShopeePay is believed to be more qualified than other similar applications. It is because ShopeePay has a good image in the community, and ShopeePay is also assumed to be able to fulfil the needs of its users well because the performance shown by ShopeePay is reliable in every use.

Meanwhile, respondents' response with the lowest score is regarding the indicator that ShopeePay is a reliable and trustworthy application with good assessment criteria. Respondents can trust this because ShopeePay has been registered and supervised by Bank Indonesia, even though the results of user statements on the Customer Trust variable have the lowest assessment score but are still in good assessment criteria.

Customer trust has a positive influence on the usage of ShopeePay. The average score for using ShopeePay is within the good rating criteria. The indicator with the highest scores is that respondents can easily access the ShopeePay Application. ShopeePay can be accessed easily through its smartphone users, and the features of ShopeePay are also easy to understand. They can be easily applied for daily transactions such as making payments at various merchants who have collaborated with ShopeePay and can make payments for online shopping through the Shopee app. ShopeePay is easy to use anywhere and anytime and provides time efficiency.

The ShopeePay application has a pin and fingerprint features that can protect user data and the money in it. When using ShopeePay for transaction activities or to change the personal data contained in it, users are required to enter a pin and fingerprint to be able to change it. Although based on the results of the research, the lowest score is regarding the ShopeePay indicator being able to protect confidential user data. However, this score is still within the good assessment criteria.

This study also reveals that customer trust positively affects Millennial User Satisfaction in the current COVID-19 Era. When consumers trust a product produced by the company, they will feel satisfied and rely on the company and have a commitment to maintaining their relationship with it. Customer trust in certain product brands will be seen in their attitudes or decisions to make purchases in the long term, which is an expression of satisfaction after consuming the product (Susilawati & Wufron, 2017). This finding matches research conducted by Kartika & Ganarsih (2019), which shows that trust significantly positive affects customer satisfaction. This finding means that the better consumer trust, the better consumer satisfaction (Kartika & Ganarsih, 2019). And in line with the research of Sarika & Vasantha (2018), which shows that trust has a positive and significant influence because trust is the main factor that directly affects user satisfaction and also has an impact on intentions to use digital wallets (Sarika & Vasantha, 2018).

The average score of Millennial User Satisfaction gets good assessment criteria. The respondent's response with the highest score regards the ShopeePay balance top-up fee indicator, which is cheaper than other applications and also the indicator that users will recommend ShopeePay to families. ShopeePay Top-Up and transfer fees are more affordable than other similar applications such as Ovo, Gopay, Dana, Jenius, and LinkAja. In addition, the performance provided by ShopeePay to its users is very satisfying and reliable, so many users recommend ShopeePay to their friends or family.

Meanwhile, the respondent's response with the lowest score is regarding the promotion indicators offered by ShopeePay matching reality with good assessment criteria. ShopeePay provides a variety of attractive promotions for its users, such as the Xtra feature, Free Shipping, Minimum Shopping, 0 Rupiah and hefty cashback for every transaction. This illustrates that ShopeePay holds promotions, and the results match the reality or expectations of its users. However, the effects on the Millennial User Satisfaction variable have the lowest assessment score but are still in good assessment criteria.

The use of ShopeePay also positively and significantly affects Millennial User Satisfaction in the current COVID-19 Era. This is explained in research conducted by Charisma & Suprapti (2020), showing that the higher the maximization of the use of e-money will maximize happiness and will have a positive and significant effect on perceived satisfaction (Charisma & Suprapti, 2020). User satisfaction is obtained from a sense of security over the risk of carrying cash and the ease of using e-money in every transaction activity.

During this COVID-19 pandemic, people decreased all forms of direct interaction to avoid the coronavirus by using the digital wallet. ShopeePay can be used for daily transactions such as fast food delivery and online shopping. This is very popular among Indonesian consumers, especially the millennial generation, known as the technology-savvy generation.

The millennial generation cannot be separated from the smartphones that they are used to using daily. One of the characteristics of the millennial generation is that they want things to be fast and efficient. About the ShopeePay Usage variable shows that ShopeePay makes the transaction process more accessible and provides

time efficiency because the payment process is quick, and ShopeePay can also be accessed quickly and used at many merchants.

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the research obtained from the discussion that the author described in the previous chapter regarding Customer Trust on the Use of ShopeePay and its Impact on Millennial User Satisfaction in the COVID-19 Era, the researchers can conclude the results of the research compiled as answers to several questions contained in the problem formulation. The conclusions obtained are as follows:

1. Based on the first research objective, namely to find out Customer Trust, ShopeePay Usage, and Millennial User Satisfaction in the COVID-19 Era obtained through respondents' responses, the results are described as follows:

    a. The Customer Trust variable shows that Customer Trust (User Trust) towards ShopeePay is so good because Users believe that ShopeePay is more competent with similar applications and ShopeePay is a reliable and trustworthy platform.
    b. The use of ShopeePay shows that Users use ShopeePay because ShopeePay can be useable at many merchants, ShopeePay balance replenishment is also easy to do, and the use of ShopeePay is so easy to do and provides time efficiency because the process is fast and ShopeePay is also able to protect user data well.
    c. Millennial User Satisfaction Many users are satisfied because using ShopeePay is in line with the characteristics of the millennial generation. The millennial generation wants everything to be practical, fast, and efficient. There are ShopeePay users who are satisfied and will recommend using ShopeePay to their friends and family.

2. Based on the hypothesis test to determine the effect of Customer Trust on the Use of ShopeePay in the COVID-19 Era, the decision H0 was rejected, meaning that Customer Trust had a positive influence on the Use of ShopeePay in the COVID-19 Era.
3. Based on the results of hypothesis testing to determine the effect of Customer Trust on Millennial User Satisfaction in the COVID-19 Era, the decision H0 was rejected, meaning that Customer Trust positively influenced Millennial User Satisfaction in the COVID-19 Era.
4. Based on the results of hypothesis testing to determine the effect of ShopeePay use on Millennial User Satisfaction in the COVID-19 Era, H0 was rejected, meaning that ShopeePay use has a positive influence on Millennial User Satisfaction in the COVID-19 Era

Based on the results, the authors propose some suggestions regarding Customer Trust and Millennial User Satisfaction. Based on the responses regarding the indicator, ShopeePay is a reliable and trustworthy application with the lowest score compared to other indicators. It means that the company must be able to prove that ShopeePay is indeed trusted and safe to use. In the daily transaction activities of its users, ShopeePay Customer Care must also be able to handle user complaints properly and respond quickly to each user's questions to create user trust in the Shopeepay application itself. In terms of the Millennial User Satisfaction variable in this study, the promotion indicators offered by Shopeepay correspond to the reality of getting the lowest score compared to other items. The company is expected to be able to provide promotions that match the reality of what users will get. Compared to excessive promotion in advertisements that do not match reality. compatibility between expectations and reality is expected not to disappoint users and cause users to switch to other applications.

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Factor that Drives Organic Food Purchase in Indonesia: SOBC Framework

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Abstract

This research attempts to analyze factors that may stimulate the purchase of organic food in Indonesia.: Previous research has shown that there is a gap between consumer intention and behavior in decision making regarding the purchase of organic food or what is known as the green gap. Stimulus–Organism–Behavior–Consequence (SOBC) framework was used in order to provide a different insight towards consumer organic food purchase. To the authors best knowledge, little research has utilized SOBC framework in the context of organic food purchase. Cross-sectional data of 327 organic food buyers were collected using online self-administered survey. Partial least squares – structural equation modeling (PLS-SEM) was used to test the proposed theoretical model. The findings suggest that within SOBC framework, health consciousness and environmental concern act as stimulus for individuals to purchase organic food. These individuals were represented by three internal factors of openness to change, self-identity, and ethical self-identity positively related to willingness to purchase, which ultimately become stated buying behavior of organic food as the consequence. These findings imply that the producers of organic foods should specifically emphasize the health and environmental value offered by their products. Other theoretical and managerial implications are discussed.

Keywords—Organic Food, SOBC; Stated Buying Behavior; Willingness to Purchase

I. INTRODUCTION

The term "organic" in food production systems became popular towards the end of the 20th century and eventually recognized by researchers in the food industry (Rana & Paul, 2020). There has been a worldwide increase in consumer interest for sustainably grown foods, such as organic foods (Talwar et al., 2021). This interest in organic food can be attributed to various reasons, such as the absence of chemicals or synthetic additives in its production, as well as the ecological and animal-friendly nature of its attributes (Dowd & Burke, 2013). It can also be attributed to the increasing level of concern for environmental well-being around the use of genetically engineered chemical and synthesis for conventional food production (Tandon et al., 2021; Willer et al., 2016). As a result, the organic food market has grown significantly with the emergence of specialty retail outlets that focus on natural or organic foods (Kim, 2019; Tandon et al., 2021). Organic food consumption trend hat is currently happening globally originates from North America and Europe, which then extends to developing countries such as India and China. Developing countries have experienced significant changes in food purchasing behavior and consumption patterns due to increased disposable income, greater global interactions and lifestyle changes (Ali et al., 2010). Although the largest consumers of organic food come from North America and Europe, the demand for organic food from developing countries continues to increase (Chakrabarti, 2010). Even the Asian organic food market is expected to grow at its highest rate over the next five years (Nafees et al., 2021).

Organic agriculture entered the Indonesian agricultural system sporadically and on a small scale, starting with "Go Organic 2010" back in 2001. Furthermore, the One Thousand Organic Agriculture Village Development Program will be developed gradually in 23 provinces until 2024 (Purwantini & Sunarsih, 2020). This program has succeeded in encouraging organic farming activities in Indonesia, as can be seen from the increase of organic certified agricultural land by 99.7% in the 2016 – 2018 period. This can also be seen in the increase of organic certified operators by 212.6% within the same period (Aliansi Organis Indonesia, 2019). In 2019 the total consumption of organic products in Indonesia reached 13.9 million USD or 0.02% of global demand. With the increasing number of consumers who are attracted to organic products and Indonesia's growing economic conditions, organic products have a positive potential in the long term with an estimated growth of 3.5% in the period of 2019 – 2024 (Organic Trade Association, 2020). This data shows that from both the supply and demand side, organic products in Indonesia continue to develop.

Nevertheless, the amount of consumption and market share growth of organic food is still relatively low compared to conventional food (Chekima et al., 2017). Previous research has shown that there is a gap between intention and consumer behavior in making decisions regarding the purchase of organic food or what is known as the green gap (Sultan et al., 2020; Tandon et al., 2020a, 2020b). Although an individual shows a positive attitude towards organic food, the reality does not always lead to the purchase of organic food (Chekima et al., 2017). Experts consider that this gap is a significant obstacle in explaining the decision-making process of organic food purchase (Sultan et al., 2020). Previous literature shows the use of various theoretical frameworks in the research

of buying behavior of organic food, namely theory of planned behavior (Fleșeriu et al., 2020; Khare & Pandey, 2017), theory of reasoned action (Birch et al., 2018; Koklic et al., 2019), stimulus-organism-response model (Lee & Yun, 2015; Sultan et al., 2021; Tandon et al., 2021), value-attitude system model (Pandey & Khare, 2015) and self-determination theory (Tandon et al., 2020b). But as previously stated, the most consistent finding from previous research is the inconsistency between consumer claims and their actual behavior (Chekima et al., 2017).

This research utilized the Stimulus–Organism–Behavior–Consequence (SOBC) framework to examine factors that may stimulate the purchase of organic food in Indonesia. SOBC was chosen because this framework can provide a different understanding of consumer behavior towards organic food purchase, where SOBC components cover a wide spectrum of manifestations from stimulus to consequence (Talwar et al., 2021). Health consciousness, food safety concern and environmental concern was chosen as the stimulus, where previous research has shown that these three factors may stimulate the purchase of organic food (Shamsudin et al., 2018; Talwar et al., 2021). Organism or the internal state of individual represented by openness to change, self-identity and ethical self-identity that receive this stimulus will develop a behavioral response in form of willingness to purchase, and become stated buying behavior as the consequence of this behavioral response. Buying frequency of organic food also proven to have a differentiating effect on behavior and intention to make a purchase (Talwar et al., 2021). Therefore, the objectives of this research are to analyze the effect of health consciousness, food safety concern and environmental concern as stimulus on organism represented by openness to change, self-identity and ethical self-identity, to analyze the effect of organism on their behavior (willingness to purchase), to analyze the effect of behavior on their consequence (stated buying behavior), and to analyze the moderating effect of buying frequency towards the relationship between organism, behavior and consequence, all in the context of organic good purchasing.

II. Literature Review

Green purchase behavior refers to the purchase of environmentally friendly or sustainable products that can be recycled or beneficial to the environment, as well as the avoidance of products that can harm the environment or society (Chan, 2001; Mostafa, 2007). Consumer behavior for green purchasing is usually evaluated in the form of a consumer's intention or willingness to buy a green product, where this intention ultimately becomes a purchase decision in order to preserve the environment (Joshi & Rahman, 2015). This research bases its framework on the premise of the Stimulus-Organism-Behavior-Consequence (SOBC) to better understand this behavior. SOBC is a framework that considers the implications of environmental stimuli (S) from the internal state of an individual, which includes cognitive processes and psychological constructions such as emotions, personality and motives. The internal state of an individual or organism (O) will affect the behavioral response (B) and subsequently, covert, or overt consequences (C). This process will ultimately affect an individual's consideration of environmental stimuli and internal conditions (Talwar et al., 2021). SOBC was first developed as a more complex mechanism of human behavior (Davis & Luthans, 1980) based on the premise of social learning theory (Bandura & Walters, 1977) When compared with other cognitive and operant-based models such as SOR and ABC, the SOBC framework allows testing of cognitive-behavioral-environmental events (Dhir et al., 2021).

A. Stimulus

Environmental stimuli in SOBC can take the form of covert or overt situations that can cause an individual's internal state to become an impetus for certain behaviors (Whelan et al., 2020). Previous research indicates that health consciousness, food safety concern and environmental concern can act as motivators (Birch et al., 2018; Hansen et al., 2018; Nguyen et al., 2019). In line with previous research, this research uses this motivator as a situational environmental stimulus in the context of organic food consumption. Health consciousness reflects individuals' thoughts on health issues and their readiness to take action to ensure their health (Chen, 2009). Chemically and synthetically produced food is a common practice in modern agriculture and is considered to have an adverse effect. This can raise concerns among individuals about the potential impact of these foods on their health (Qasim et al., 2019; Shamsi et al., 2020). An individual's health consciousness can lead to openness in changing consumption patterns and developing self-identities that can act as motivators in considering the consumption of organic food (Talwar et al., 2021). Previous research found that consumers who are self-aware and responsible for their health are more likely to be open to new experiences and changes from consuming organic food. Health consciousness will also stimulate individual psychological factors such as self-identity and ethical self-identity in consumers whose consumption is in line with their values. These consumers perceive themselves as ethical shoppers, which results in a certain behavior towards organic food consumption (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H1.a health consciousness positively and significantly affects individual openness to change

H1.b health consciousness positively and significantly affects individual openness to change

H1.c health consciousness positively and significantly affects individual openness to change

Food safety concerns can be interpreted as consumer concerns about genetic modification or the presence of artificial, chemical and synthetic additives, or other ingredients in food products (Lee & Hwang, 2016). Consumers with a high concern for food safety may consider organic food as safe food because of the absence of chemicals in the food production process (Pham et al., 2019). Previous research assumes that food safety concern can act as a motivation that drives the value of openness to change from consumers and the results show a positive correlation (Talwar et al., 2021). Furthermore, food safety concerns have the possibility of being associated with the identity of healthy food consumers to ensure their health and well-being (Michaelidou & Hassan, 2008). Consumers who see themselves as ethically driven, have a strong ethical self-identity drive and show concern for their lifestyle and food choices for the environment (Husic-Mehmedovic et al., 2017). Such individuals may purchase organic foods because of their environmental tendencies (Kareklas et al., 2014). In previous research, food safety concerns act as a stimulus for their internal factors which are represented by openness to change and ethical self-identity. In the same research, it was found that food safety concern is negatively correlated with self-identity. This may be related to the demographic characteristics and further research is needed in order to draw generalizations from these two variables (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H2.a food safety concern positively and significantly affects individual openness to change

H2.b food safety concern positively and significantly affects individual openness to change

H2.c food safety concern positively and significantly affects individual openness to change

Environmental concern shows a person's level of awareness of environmental problems that indicates a willingness to personally contribute with the available solutions (Dunlap & Jones, 2002). Consumers who have environmental consciousness are motivated by products that are considered environmentally friendly and not harmful to the environment (Michaelidou & Hassan, 2008). Environmental consciousness (Hansen et al., 2018) has been identified as one of the most important drivers of consumer organic food behavior (D'Amico et al., 2016) or which in this research represents ethical self-identity. The results of hypothesis testing in other studies show that environmental concern has a positive influence on personal norms (Koklic et al., 2019) or what is considered self-identity in this research. The relationship between environmental concern and openness to change has never been tested in previous research, but there are studies that show that a large environmental concern is related to the high level of personality of the Big Five, one of which is openness (Hirsh & Dolderman, 2007). Other research also shows that an increase in environmental concern is associated with an increase in personality traits in the form of openness to experience (Hopwood et al., 2021). Individuals with high openness to experience are broad-minded and have a desire to try new things (LePine, 2003). Therefore, the following hypotheses are proposed:

H3.a environmental concern positively and significantly affects individual openness to change

H3.b environmental concern positively and significantly affects individual openness to change

H3.c environmental concern positively and significantly affects individual openness to change

B. Organism

Values (Mainardes et al., 2017; Vieira et al., 2013) and identity (Hansen et al., 2018; Michaelidou & Hassan, 2008; Qasim et al., 2019) of an individual have the potential to influence food consumption behavior. Therefore, values in the form of openness to change, self-identity and ethical self-identity are part of an individual's internal state that can affect willingness to purchase (Talwar et al., 2021). Openness to change can direct consumers to organic food because its consumption allows the development of a positive self-image and identity (Vieira et al., 2013). Previous research found that openness to change has an indirect positive influence on the purchase intention of organic food through behavior (Mainardes et al., 2017). Other research has expanded previous knowledge about the effect of openness to change on consumers' willingness to purchase, where the results of hypothesis testing showed a positive association (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H4 individual openness to change positively and significantly affects willingness to purchase

Self-identity is an individual's belief in their uniqueness (Hansen et al., 2018), which is considered to have an association with an individual's organic food buying behavior (Talwar et al., 2021). Self-identity is a factor that has not been explored in previous studies in organic food (Lee & Hwang, 2016; Pino et al., 2012). Previous research extends the knowledge about self-identity effect of consumers' willingness to purchase, where the results of hypothesis testing do not show a positive association. It is possible that this association is related to the

demographic factors of the research, so further exploration is considered necessary (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H5 individual self-identity positively and significantly affects willingness to purchase

Ethical self-identity is a distinct characteristic that aligns individuals with issues related to the environment and animal welfare (Qasim et al., 2019) which are considered to have associations with an individual's organic food buying behavior (Talwar et al., 2021). There is a significant difference regarding the effect of ethical self-identity which has a direct association (Hansen et al., 2018; Lee & Hwang, 2016) and a significant association (Dowd & Burke, 2013) with purchase intention. Previous research has expanded the knowledge about ethical self-identity effect on consumers' willingness to purchase, where the results of hypothesis testing showed a positive association (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H6 individual ethical self-identity positively and significantly affects willingness to purchase

C. Behavior and Consequence

There are indications about a significant gap regarding consumers' willingness to buy or purchase intention and their actual buying behavior (Qasim et al., 2019; Singh & Verma, 2017). This is referred to as the green gap or green inconsistency which is the difference between consumer intentions, purchase and consumption of organic food is one of the largest knowledge gaps in this field of research. Previous studies stated that the internal conditions of individual consumers who are driven by values in the organism has an association with the formation of behavioral conditions of willingness to purchase for organic food, as well as a consequential association between stated buying behavior and individual willingness to purchase organic food. The results showed a positive association between willingness to purchase and stated buying behavior (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H7 willingness to purchase positively and significantly affects stated buying behavior

D. The moderating effect of buying frequency

Buying involvement or consumer buying involvement related to organic food can have a differentiating effect on behavior and intention to make a purchase (Eisinger-Watzl et al., 2015; Kushwah, Dhir, & Sagar, 2019b; Pino et al., 2012). There are significant individual differences in the value, intention and behavior of buyers with different frequency of buying organic food. Previous research suggests that buying frequency has a significant moderating effect on associations between the internal state of an individual or organism, willingness to purchase and stated buying behavior. The results only showed moderating effect on the association between self-identity with willingness to purchase and willingness to purchase with stated buying behavior. However, the absence of a moderating effect of buying frequency on the association between openness to change and ethical self-identity with willingness to purchase may be related to the market and sample in the reserach, so fu further exploration is considered necessary (Talwar et al., 2021). Therefore, the following hypotheses are proposed:

H8.a buying frequency will increase the positive effect between openness to change and willingness to purchase

H8.b buying frequency will increase the positive effect between self-identity and willingness to purchase

H8.c buying frequency will increase the positive effect between ethical self-identity and willingness to purchase

H8.d buying frequency will increase the positive effect between willingness to purchase and stated buying behavior
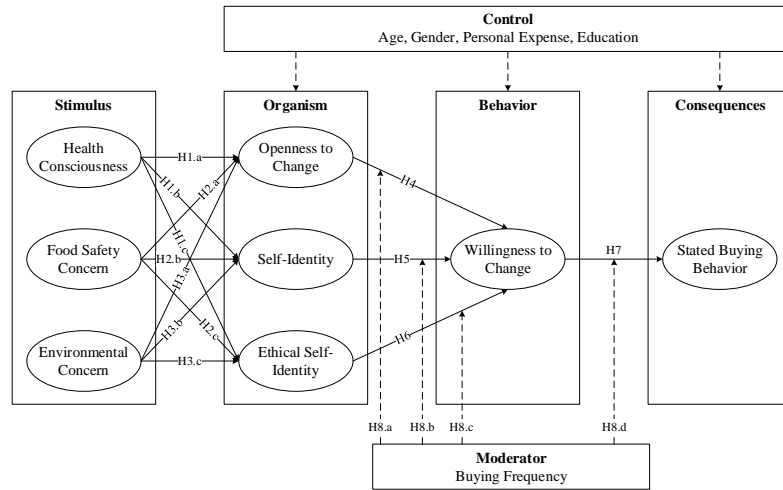
Fig. 1. Research Model Framework

III. RESEARCH METHODOLOGY

This research uses a quantitative research method to test the proposed hypotheses. The data was collected with an online cross-sectional survey using purposive sampling technique between April and May 2022. The respondent in this research is Indonesian who have purchased organic food within the last one month. The questionnaire comprised of eight constructs, each with measurement items adapted from previously validated scales. The items used a Likert scale to collect responses on a scale of one to five, with one indicating strong disagreement and five indicating strong agreement. Wording test were conducted and minor alteration were made to the questionnaire based on the feedback received. The questionnaire was then tested through a pilot survey with 32 respondents representing the target population. Feedback from the pilot survey was used to modify the questionnaire, which was utilized for final data collection. The questionnaire begins with asking participants about their familiarity with organic food products through a screening question that was made available to survey participants along with a short description of organic food. Next, the survey participants were asked about their organic buying behavior in the past month. As seen on Table 1, a total of 327 responses (41% male and 59% female) were used for further analysis with majority of them falls between 25-312 age group, post graduate education and monthly household expenses of 2 – 4 million IDR household expenses group.

Table 1. Respondent demographic profile.

No.	Characteristics	Category	Respondent (n = 327)	
1	Gender	Male	134	41,0%
		Female	193	59,0%
2	Age	<25	90	27,5%
		25-31	129	39,4%
		32-38	68	20,8%
		39-45	26	8,0%
		>45	14	4,3%
3	Education	Elementary	5	1,5%
		Junior High School	6	1,8%
		Senior High School	58	17,7%
		Diploma	65	19,9%
		Bachelor	175	53,5%
		Postgraduate	18	5,5%
4	Monthly household expenses	< IDR 2.00.000	49	15,0%
		IDR 2.00.000 – IDR 4.000.0000	103	31,5%
		IDR 4.000.000 – IDR 6.000.000	77	23,5%
		IDR 6.000.000 – IDR 8.000.000	62	19,0%
		> IDR 8.000.000	36	11,0%

Source: survey result

Partial Least Square based Structural Equation Model (PLS-SEM) was chosen to analyze the collected data using smartPLS 3 statistical software. PLS-SEM was chosen because this method is suitable for testing theoretical framework carried out from a predictive perspective (Hair et al., 2019). Model analysis using PLS-SEM comprised

of two step, measurement model assessment and structural model assessment. Measurement model assessment was conducted to determine the relationship between indicators and variables, including internal consistency reliability, convergent validity, indicator loadings, and discriminant validity. Structural model assessment was conducted to determine the model's capability in predicting one or more target variables, including collinearity assessment, coefficient of determination, predictive relevance and structural model relationship (Hair et al., 2017, 2019). Multi-group analysis was conducted to test the moderating effect of buying frequency. Finally, the proposed hypotheses were tested using path analysis.

Table 2. Research variable and measurement item.

Variable	Measurement items
Health Consciousness (HC) (Hansen et al., 2018)	HC1 I consider myself a health conscious consumer
	HC2 I choose food products that are good for my health
	HC3 I am aware of the changes in my health
	HC4 I am responsible for my health condition
Food Safety Concern (FSC) (Michaelidou & Hassan, 2008)	FSC1 I am very concerned about the amount of artificial additives in food
	FSC2 I am very concerned about the amount of preservatives in food
	FSC3 I am worried about the quality of the food at this time
	FSC4 I am concerned about food safety at this time
Environmental Concern (EC) (Suki & Suki, 2019)	EC1 The green environment is a major concern for me
	EC2 I am emotionally involved with environmental protection issues
	EC3 I am concerned about the deteriorating quality of the environment
	EC4 I think about how the quality of the environment can be improved
Openness to Change (OTC) (Claudy et al., 2015)	OTC1 I love finding new things to do
	OTC2 I like to find surprising things to do
	OTC3 I love looking for adventure
	OTC4 I like to take risks
	OTC5 I am open to new experiences
Self-Identity (SI) (Oh & Yoon, 2014)	SI1 My food consumption reflects my lifestyle
	SI2 My food consumption reflects my personal values
	SI3 My food consumption reflects my self-image
	SI4 My food consumption reflects my personal characteristics
Ethical Self-Identity (ESI) (Birch et al., 2018; Fatoki, 2020)	ESI1 Ethics is important to me when making purchasing decisions
	ESI2 I consider myself as someone who is interested in ethical consumption
	ESI3 I consider myself as an ethical consumer
	ESI4 I consider myself as someone who cares about ethical issues
Willingness to purchase (WTP) (Vassallo et al., 2009)	WTP1 I am willing to purchase organic food if it is available where I often buy food products
	WTP2 I intend to purchase organic food if it is available where I often buy food products
	WTP3 I plan to purchase organic food if it is available where I often buy food products
	WTP4 I will try to purchase organic food if it is available where I often buy food products
Stated Buying Behavior (SBB) (Singh & Verma, 2017)	SBB1 I purchase organic food products regularly
	SBB2 I still purchase organic food even though there are alternatives in form of conventional food
	SBB3 I don't mind paying premium prices for organic food

IV. RESULT/FINDING

A. Measurement model assessment

Four criteria of measurement model were assessed including internal consistency reliability, convergent validity, indicator loadings, and discriminant validity. Reliability values between 0.70 to 0.90 are considered "satisfactory to good" (Hair et al., 2019). However, a value higher than 0.95 is considered problematic, because it indicates that there is redundancy in the indicator so that it can reduce validity (Diamantopoulos et al., 2012; Drolet & Morrison, 2001). There are two internal consistency reliability criteria, namely Cronbach's alpha and composite reliability. Convergent validity shows the extent to which the variables converge to explain the variance of the indicators. The criteria used to evaluate convergent validity is average variance extracted (AVE), with a minimum acceptable value of 0.50. The recommended value for loadings is above 0.708 because this value indicates that the variable explains more than 50% of the indicator variance, thus providing acceptable reliability. Discriminant validity is the criterion used to evaluate discriminant validity, where the HTMT value that is too high more than 0.85 indicates a discriminant validity problem (Hair et al., 2019). As seen on Table 2, all criteria were found to lie between the recommended threshold value.

Table 3. Measurement model assessment result.

Variable	Indicator	Internal Consistency Reliability	Convergent Validity

		Cronbach's Alpha	Composite Reliability	Loadings	AVE
HC (Health Consciousness)	HC_1	0.755	0.844	0,854	0.577
	HC_2			0,825	
	HC_3			0,753	
	HC_4			0,830	
FSC (Food Safety Concern)	FSC_1	0.832	0.888	0,656	0.666
	FSC_2			0,817	
	FSC_3			0,811	
	FSC_4			0,744	
EC (Environmental Concern)	EC_1	0.839	0.892	0,815	0.674
	EC_2			0,845	
	EC_3			0,798	
	EC_4			0,827	
OTC (Openness to Change)	OTC_1	0.823	0.875	0,815	0.585
	OTC_2			0,779	
	OTC_3			0,800	
	OTC_4			0,675	
	OTC_5			0,747	
SI (Self Identity)	SI_1	0.891	0.926	0,771	0.758
	SI_2			0,925	
	SI_3			0,929	
	SI_4			0,848	
ESI (Ethical Self Identity)	ESI_1	0.846	0.897	0,757	0.685
	ESI_2			0,830	
	ESI_3			0,895	
	ESI_4			0,823	
WTP (Willingness to Purchase)	WTP_1	0.912	0.938	0,872	0.792
	WTP_2			0,924	
	WTP_3			0,905	
	WTP_4			0,858	
SBB (Stated Buying Behavior)	SBB_1	0.836	0.901	0,881	0.753
	SBB_2			0,882	
	SBB_3			0,839	

Source: data processing result

Table 4. Discriminant validity assessment result.

	EC	ESI	FSC	HC	OTC	SBB	SI	WTP
EC								
ESI	0,720							
FSC	0,785	0,530						
HC	0,828	0,604	0,736					
OTC	0,676	0,733	0,425	0,597				
SBB	0,682	0,777	0,506	0,609	0,652			
SI	0,556	0,749	0,432	0,591	0,611	0,676		
WTP	0,573	0,532	0,408	0,469	0,459	0,589	0,444	

Source: data processing result

B. Structural model assessment

After the measurement model is confirmed to be reliable and valid, the next step in PLS-SEM is to evaluate the structural model. This is done to determine the model's capability in predicting one or more target variables. The criteria assessed in the structural model include collinearity assessment, coefficient of determination and predictive relevance (Hair et al., 2017). The criterion used to measure collinearity is the variance inflation factor (VIF), where a value below 3 is the ideal value and indicates that there is no collinearity problem between the predictor variables (Hair et al., 2019). Coefficient of determination or R2 of the dependent variable measures the predictive power of the model that represents the combined effect of the independent variables on a dependent variable. R2 is used to assess the power of the model to predict the data used in model estimation or in-sample predictive power (Sarstedt et al., 2014). R2 has a value range from 0 to 1, where a value of 0.20 is considered high in the discipline of consumer behavior (Hair et al., 2017). Q2 is an indicator of out-of-sample predictive power or predictive relevance. When a PLS model has predictive relevance, this model can accurately predict data that is not used in model estimation. Q2 with values higher than 0, 0.25 and 0.5 shows small, medium and large predictive relevance of the model. The structural model has no collinearity issue as the VIF value lies between 1 – 2.232.

Table 3 shows that the structural model has a considerably high in-sample predictive power. For out-of-sample predictive power, the structural model has small power for variable openness to chance, self-identity, willingness to purchase, stated buying behavior and medium power for variable ethical self-identity.

Table 5. R^2 and Q^2 of structural model.

Dependent variable	R^2	Q^2
Openness to change	0.359	0.200
Self-identity	0.285	0.206
Ethical self-identity	0.394	0.259
Willingness to purchase	0.253	0.196
Stated buying behavior	0.266	0.197

Source: data processing result

C. Moderating effect analysis

The moderating effect analysis of buying frequency was carried out using multi-group analysis. Respondents were divided into 2 groups, frequent buyers (more than 6 purchases in a month) and non-frequent buyers (1 – 5 purchases in a month). This division is done to ensure sufficient statistical power of each group, where the minimum recommended value is 160 (Cheah et al., 2020). With this division, the frequent buyer group has 167 data and the non-frequent buyer has 160 data. As seen on Table 4, frequent buyer has a higher path coefficient compared to non-frequent buyer on the relationship between openness to change with willingness to purchase, while frequent buyer has a lower path coefficient compared to non-frequent buyer on the relationship between ethical self-identity with willingness to purchase. There is no significant difference between the path coefficient of frequent buyer and non-frequent buyer on the relationship between ethical self-identity with willingness to purchase and willingness to purchase with stated buying behavior.

Table 6. Multi-group analysis result.

Relationship	Path Coefficients	
	Frequent buyer	Non-frequent buyer
OTC -> WTP	0,357	0,085
SI -> WTP	0,056	0,086
ESI -> WTP	0,034	0,317
WTP -> SBB	0,433	0,363

Source: data processing result

V. DISCUSSION

The hypotheses testing was conducted using p values obtained from path analysis, which shows that the coefficient is statistically significant when the t value is greater than the critical value. This research uses one-tailed tests with a significance level of 5%, so that the critical value used is 1.65. The analysis results shows that health consciousness shared significant and positive correlation with openness to change (H1.a = $p < 0.05$), self-identity (H1.b = $p < 0.05$) and ethical self-identity (H1.c = $p < 0.05$). Food safety concern on the other hand, does not shared significant correlation with openness to change (H2.a = $p > 0.05$), self-identity (H2.b = $p > 0.05$) and ethical self-identity (H2.c = $p > 0.05$). Food safety concern even have a negative correlation with self-identity and ethical self-identity. Environmental concern shared significant and positive correlation with (H3.a = $p < 0.05$), self-identity (H3.b = $p < 0.05$) and ethical self-identity (H3.c = $p < 0.05$). The willingness to purchase significantly and positively associated with openness to change (H4 = $p < 0.05$), self-identity (H5 = $p < 0.05$) and ethical self-identity (H6 = $p < 0.05$). H7 was supported since stated buying behavior was also found to be significantly and positively correlated with willingness to purchase ($p < 0.05$). Buying frequency only moderate the positive relationship between openness to change with willingness to purchase (H8.a = $p < 0.05$). Buying frequency has a significant moderating effect on relationship between ethical self-identity with willingness to purchase, but the effect was negative. Therefore, not supporting the proposed hypotheses H8.b. It did not moderate the relationship between ethical self-identity with willingness to purchase (H8.c = $p > 0.05$) and willingness to purchase with stated buying behavior (H8.d = $p > 0.05$). This conclude that 11 out of 17 hypotheses were supported.

Table 7. Hypotheses testing result.

Hypotheses	Relationship	Path Coefficients	T Values	P Values	Supported?

H1.a	HC → OTC	0,227	3,425	0,000	Yes
H1.b	HC → SI	0,291	4,274	0,000	Yes
H1.c	HC → ESI	0,139	2,301	0,011	Yes
H2.a	FSC → OTC	0,083	1,308	0,096	No
H2.b	FSC → SI	-0,019	0,298	0,383	No
H2.c	FSC → ESI	-0,034	0,611	0,271	No
H3.a	EC → OTC	0,479	7,036	0,000	Yes
H3.b	EC → SI	0,279	3,737	0,000	Yes
H3.c	EC → ESI	0,502	8,013	0,000	Yes
H4	OTC → WTP	0,152	2,313	0,010	Yes
H5	SI → WTP	0,131	1,923	0,027	Yes
H6	ESI → WTP	0,293	3,870	0,000	Yes
H7	WTP → SBB	0,516	8,109	0,000	Yes

Source: data processing result

Table 8. Moderation hypotheses testing result.

Relationship	Path Coefficients		P Values	Supported?
	Frequent buyer	Non-frequent buyer		
OTC -> WTP	0,357	0,085	0,014	Yes
SI -> WTP	0,056	0,086	0,410	No
ESI -> WTP	0,034	0,317	0,021	No
WTP -> SBB	0,433	0,363	0,279	No

Source: data processing result

H1.a, H1.b and H1.c proposing health consciousness as a stimulus to individual psychological factors represented by openness to change, self-identity and ethical self-identity were supported in consonance with previous findings (Hansen et al., 2018; Kim, 2019; Qasim et al., 2019; Talwar et al., 2021). These results indicate that consumers who are aware of their health will be more open to new experiences from consuming organic food and the changes they get in their lives (Hansen et al., 2018; Mainardes et al., 2017). Consumers who are aware of their health will be interested in maintaining personal or family health (Kushwah, Dhir, Sagar, et al., 2019) through consumption of organic foods that are considered healthy (Dubé et al., 2014). They feel that they are belong to a different social group with different in term of values and beliefs compared to groups who are not organic food consumers (Kim, 2019). They are aware of the impact of their behavior and tend to purchase environmentally friendly products (Laroche et al., 2001), where organic food is one of the products marketed as environmentally friendly products (Magnusson et al., 2003). Health consciousness can stimulate consumer psychological factors represented by openness to change, self-identity and ethical self-identity to encourage the purchase of organic food. Health consciousness relates to the tendency of individual consumers to identify and actively take steps to protect their health, therefore motivate the purchase and consumption of organic food (Hansen et al., 2018; Michaelidou & Hassan, 2008; Shin & Mattila, 2019).

H2.a, H2.b and H2.c proposing food safety concern as a stimulus to individual psychological factors represented by openness to change, self-identity and ethical self-identity were not supported, which is not fully in line with previous research conducted by Talwar et al. (2021). Consumers with food safety concern assume that organic food is safe to consume because there are no chemicals in the production process (Pham et al., 2019). This can stimulate their internal factors to make them open to changes in their consumption patterns to organic food and stimulate the purchase of organic food through self-identity (Talwar et al., 2021). Conventional foods that are considered to have additional chemicals and preservatives can stimulate consumers to behave ethically in their consumption (Talwar et al., 2021), so that they have a tendency to buy organic food (Kareklas et al., 2014). On the other hand, several other research found no significant relationship between food safety concern with openness to change, self-identity and ethical self-identity (Nagaraj, 2021; Qasim et al., 2019; Talwar et al., 2021). This result might be attributed to the fact that food safety concern has no significant effect on regular consumer of organic food (Pino et al., 2012), which is the population on this research.

H3.a, H3.b and H3.c proposing environmental concern as a stimulus to individual psychological factors represented by openness to change, self-identity and ethical self-identity were supported in consonance with previous findings (D'Amico et al., 2016; Hopwood et al., 2021; Koklic et al., 2019). Environmental concern makes consumers more open in their consumption patterns to be more environmentally friendly, which in the context of this research is the consumption of organic food. They see themselves as part of a social group that cares about the environment, so they align their behavior in consumption patterns through the consumption of organic food. They also see themselves as someone who acts in an environmentally friendly way. They are more

likely to engage in a variety of environmentally supportive behaviors, such as the consumption of organic foods. Environmental concern can stimulate consumer psychological factors represented by openness to change, self-identity and ethical self-identity to encourage the purchase of organic food. Environmental concern which is how individuals evaluate the seriousness of environmental problems has been proven to motivate the purchase and consumption of organic food (Hughner et al., 2007; Koklic et al., 2019).

H4 proposing individual psychological factors represented by openness to change will cause a behavioral response in form of willingness to purchase organic food when receiving stimulus were supported in consonance with previous findings (Talwar et al., 2021). Consumers who are open to change are able to direct them to organic food (Vieira et al., 2013) and generate willingness to make a purchase (Mainardes et al., 2017). Consumers who are open to change are those who like to find new and surprising things to do, seek adventure, take risks and are open to new experiences. In accordance with this research, openness to change which represents internal factors causes behavioral responses in the form of willingness to purchase organic food.

H5 proposing individual psychological factors represented by openness to change, self-identity will cause a behavioral response in form of willingness to purchase organic food when receiving stimulus were supported, which is not in line with previous research conducted by Talwar et al. (2021). Self-identity is an under-explored factor in organic food research (Lee & Hwang, 2016; Pino et al., 2012). Talwar et al. (2021) argue that consumers do not consider the consumption of organic food in line with their self-image and lifestyle, and that there is an influence of demographic characteristics of the research conducted in Japan.

However, the results of this research are in line with other studies which show a positive and significant relationship between self-identity and willingness to purchase in organic food consumers (Dean et al., 2012; Saleki et al., 2019). They are consumers who believe that food consumption is a reflection of their lifestyle, personal values, self-image and characteristics. These findings support the argument made by Talwar et al. (2021) regarding the effect of demographic characteristics, which shows that there are differences in psychological factors of self-identity between organic food consumers in Japan and Indonesia.

H6 proposing individual psychological factors represented by ethical self-identity will cause a behavioral response in form of willingness to purchase organic food when receiving stimulus were supported in consonance with previous findings (Talwar et al., 2021). Consumers make consumption decisions based on ethical values because they feel they have a sense of responsibility for various environmental problems that occur. They reflect this value through purchasing products that are considered ethical, such as organic food (Kushwah, Dhir, & Sagar, 2019a). In accordance with this research, ethical self-identity which represents internal factors causes behavioral responses in the form of willingness to purchase organic food.

H7 proposing stated buying behavior as the consequence of behavioral response in form of willingness to purchase were supported in consonance with previous findings (Talwar et al., 2021). There are various studies that show that actual buying behavior is not always a consequence of willingness to purchase. Sometimes consumers have the desire to make a purchase but fail to do so (Gundala & Singh, 2021). This research confirms the findings of Talwar et al. (2021), that in the context of the SOBC framework stated buying behavior is a consequence of the behavioral response in form of willingness to purchase.

For the moderating effect of buying frequency, the results were not fully in line with previous research conducted by Talwar et al. (2021). Only H8.a were supported, where H8.b, H8.c and H8.d were all not supported. The effect of openness to change is stronger on frequent buyers compared to non-frequent buyers, indicating a moderating role of buying frequency. Meanwhile, the effect of ethical self-identity is weaker on frequent buyers when compared to non-frequent buyers. Even though the significant moderating role of buying frequency is present, the results are not as positive as the proposed hypothesis. Purchase frequency has a differentiating effect on intentions and buying behavior of organic food (Eisinger-Watzl et al., 2015; Kushwah, Dhir, & Sagar, 2019a; Pino et al., 2012). The results inconsistency found in this research with the previous research confirms argument made by Talwar et al. (2021) regarding the influence of demographics on the moderating role of buying frequency in organic food purchasing.

VI. CONCLUSION AND RECOMMENDATION

Based on the results of hypothesis testing, several conclusions that can be drawn from this research. Within the SOBC framework, health consciousness and environmental concern can stimulate organisms represented by openness to change, self-identity and ethical self-identity to encourage the purchase of organic food. Meanwhile,

food safety concern is not proven to have a role as stimulus in organic food purchase. These consumers who receive stimulus will develop a behavioral response in form of willingness to purchase, and eventually become organic food actual buying behavior as the consequence of this behavioral response. Buying frequency is proven to have a moderating role on the relationship between openness to change and willingness to purchase.

This research offers several contributions to theoretical knowledge in this field of research. SOBC is a framework that is rarely used in research on organic food consumption. This research extends the framework established by Talwar et al. (2021) by adding the role of environmental concern as a stimulus in the context of organic food purchase. This research also provides insight for the green gap, where there is a gap between consumer intention and behavior in making decisions regarding the purchase of organic food which is often encountered in organic food research (Sultan et al., 2020; Tandon et al., 2020a, 2020b). The results show that the organic food actual buying behavior is a consequence of the consumer's behavioral response to internal psychological factors that receive a stimulus.

This research offers several contributions to managerial implication. Health consciousness has been proven to stimulate consumer behavioral responses, where most respondents stated that they felt responsible for their health. Organic food marketer can invite people to be more responsible for their health by consuming organic food. Comparative advertising can be used to show the advantages of organic food in terms of health benefits compared to conventional food. Environmental concern also proven to stimulate consumer behavioral responses, where most respondents stated that they were worried about the worsening environmental conditions. Organic food marketer can educate the public about the organic food production process that is more environmentally friendly compared to conventional food. Advertising can be done with messages that invite people to maintain environmental conditions by consuming organic food.

Organic food marketer can show how the consumption of organic food is able to align consumers with their internal factors. Ethical self-identity is the most relevant internal factor for organic food consumers, where on average the research respondents stated that they consider ethics when making purchasing decisions. Education about ethical consumption can be given which contains a message that buying organic food is ethical because the production is environmentally friendly. Government can also take part in public education about the benefits and advantages of organic food when compared to conventional food by utilizing existing organic programs such as Go Organic 2010 and Seribu Desa Organik. Government involvement can help create awareness and increase public understanding of organic food.

Limitations of this research is that SOBC framework based on social learning theory shows that the attitudes of Indonesian consumers are driven by social factors that lead to buying behavior for organic food as has been tested in several previous studies (Adhitiya & Astuti, 2019; Najib et al., 2021). This research does not use variables derived from social learning theory. Other limitation is that research on organic food has a dependence on the product category (Boobalan et al., 2022; Juhl et al., 2017), which in this research was not a considered factor.

Future researcher can overcome this limitation by expanding this research framework using variables based on social learning theory to broaden insight into the influence of social factors on organic food consumers in Indonesia. Multi-group analysis can also be conducted using this research framework by grouping respondents based on organic food products category to broaden the knowledge regarding consumers of organic food in Indonesia. Last, this research confirms the findings of Talwar et al. (2021) regarding the geographical influence on the relationship between food safety concerns and willingness to purchase, as well as the moderating role of buying frequency. Future research can conduct research in different geographic areas to test the generalizability of these findings.

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Analysis Talent Management Public Service Agency (Lembaga Manajemen Aset Negara)

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Abstract

In an organization the presence of Human Resource/Talent has a significant role which can help the organization to achieve its objectives, vision, mission and to maintain sustainability. Therefore, company need to implement a Talent Management that fit to the company's characteristic and needs. As a public service agency and non-echelon government organization, Lembaga Manajemen Aset Negara (LMAN) has a unique characteristic that reflects from its Hybrid employee (consist of 3 Category: Civil Servants, Non-Civil Servants/Professional, and Supporting Staff). By this condition, LMAN should conduct the implementation of Talent Management internally. This research is an empirical study with qualitative approach to 9 participants (from Division Head and Staff). The purpose of this study is to describe the existing conditions and to explore internal perceptions toward the implementation of Talent Management at LMAN and also to propose recommendations for continuous improvement in accordance with the characteristics/ needs of the organization. The research findings show that LMAN should improve several aspects from its Talent Management Model, there are: improvement in ABK formula, involving the Division Head in Employees placement, adding various employee development programs, implementing career management by considering employee aspirations, and improving the KPI (IKU) Formula. Furthermore, researcher also proposes a new Talent Management Model that consists of 8 steps, there are: business & income forecast, ABK Analysis (with new formula), job/current employee placement, recruitment, talent development, performance management, career management, retention and termination.

Keywords— Talent Management; Public Service Agency; Government Organization (Non-echelon); Hybrid Employee

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I. INTRODUCTION

In an organization or company, the existence of Human Resources (HR) has an important and significant role, where superior and talented HR can make a positive contribution, especially in achieving the company's objectives, vision, mission, or targets, as well as helping to maintain the company's sustainability. In the scope of the organization, the term Human Resources (HR) is known as Talent. As a valuable asset for the company, company needs to develop a mechanism for managing human resources (talent) that is suitable for the characteristics and needs of the company. The management of this talent is known as Talent Management

Pella and Inayati (2011: 81) described Talent Management as a process to ensure a company has regeneration or future leaders who can support to achive company's goals. Meanwhile Wahyuningtyas (2016) defines talent management as a series of activities that are integrated with each other in managing high-performing employees at various levels to achieve company goals, which activities can include; performance management, learning, talent review, employee retention, and succession. Based on the two descriptions of the definition, it can be seen that Talent Management consists of various integrated aspects.

Lembaga Manajemen Aset Negara (LMAN) is a Non-Echelon Public Service Agency (Badan Layanan Umum) at the Directorate General of State Assets (DJKN). LMAN has duties and functions to carry out management of governmental assets and provide public services in the field of government asset property management, from those activities LMAN is expected to contribute Non Tax Revenue (PNBP) to the Government. As an Public Service Agency (Badan Layanan Umum), LMAN has unique characteristics that are relatively different from other organizations. LMAN has a Hybrid (mixed) employee composition structure that consist of 3 (three) categories: Civil Servants employee, Non-PNS/Professionals, and Supporting Staff (Honorer). Therefore, LMAN requires Talent Management that is in accordance with the characteristics and needs of LMAN as an organization. LMAN has different Talent Management systems for the three categories of employees. On implementation Talent Management for civil servant (PNS) employees, the regulation/ the system refers to the Minister of Finance Regulation (PMK) Number 146/PMK.01/, while for the regulation to managed Talent of Non-PNS/ Professional Employees and Supporting Employees (Honorary), LMAN already stated the regulation

in Perdirut 5 Tahun 2020 and Perdirut 2 Tahun 2020. Moreover, to manage the *talent* LMAN also has Talent Management model that consist of 7 activities, there are: recruitment phase, talent pool, assessment, talent development, career management, performance management, and termination.

Fig. 1. LMAN Talent Management Model

Referring to the actual conditions and the Preliminary Interview, researcher found gaps or problems that need to be analysed further. One of the emerging gaps is shown from the LMAN's need for additional employees and the existing implementation recruitment at LMAN which cannot be done directly or relatively takes time with long procedure. On the other hand, the gap that arises is the misalignment between the application for additional HR and the needs of the organization, where the number of existing talent is still very low when compared to the work load and the needs of each Division which continues to grow in line with the LMAN's PNBP target which increases every year. The existence of this gap becomes the basis for the author to conduct this research, where the author wants to examine further the implementation of each aspects of the current Talent Management Model and examines how the perceptions of the talents at LMAN towards the implementation of the existing Talent Management Model.

Furthermore, the purpose of this study is to describe the existing Talent Management and explore talent's perceptions to find things that can be improved as a form of continuous improvement so that the implementation of Talent Management can be more optimal and achieve LMAN objectives. This research is expected to be a reference or guidance for LMAN in designing Talent Management implementation strategy in the future. In addition, this research can also be a reference for organizations with similar characteristics in preparing the implementation of Talent Management.

II. LITERATURE REVIEW

A. Definition of Talent Management

Human resources is one of aspect that has a significant role in the success of the company/organization. In organizations/companies, Human resources is also known as talent. Pella and Inayati (2011:25), define talent as potential individuals or employees to become future leaders of the company. In line with this definition, Tansley (2011) also suggests describe talent as an individual who has superior performance, high ability in a field (expertise), has a leader character, is creative and optimistic.

Referring to the definition above, it can be seen that talent is a very valuable asset for the company, therefore an appropriate HR management mechanism is needed so that it can be aligned with the company's goals and vision. The mechanism for managing and developing talent is known as Talent Management. According to Armstrong (2008), talent management is a company activity to ensure their talent can help the company to achive the company's objectives. Wahyuningtyas (2016) also defines Talent Management as a series of integrated activities in managing high-performing employees at all levels of the organization. Moreover, Berger and Berger (2018) describe in more detail the activities that are part of talent management. There are 8 (eight) talent lifecycle activities that are generally used in the implementation of talent management, these activities include: attracting talent, selecting or recruiting talent, acculturating or combining or adapting talents with the company, developing or developing talent, processes involving talent (talent engagement), performance maximization, talent retention, and improving talent performance.

B. LMAN's Profile and Business Process

LMAN is an organization under Indonesia Ministry of Finance which has duties and function to manage Government Property Assets. It has been mandated through Peraturan Presiden Number 27, 2014. Based on this regulation, LMAN acts as operator of Government Property (BMN) management and provides services to the public in the field of property asset management. In broader scope, the asset management activities include; services, asset utilization, property asset consultation, property appraisal, property construction, etc. The property

asset has 2 (two) classification, there are General Property Assets such as landed house, lands, office buildings, and other buildings. Other type is classified as Special Property Assets, for instance; LNG Plant located in Bontang and Lhokseumawe Arun. LMAN is also expected to contribute Non Tax Revenue (PNBP) to the Government.

In order to fulfil its duties, functions, vision and mission in government property asset optimization, LMAN has developed an asset management cycle which become the standard or guidance to manage the property assets. The asset management cycle consisted of 7 stages, there are: 1) requisition, 2) conceptualization, 3) pre-development, 4) development, 5) optimization, 6) monitoring, and 7) evaluation.

Stage 1, namely Requisition, is the initial stage of asset management, where at this stage asset requisition is carried out by paying an amount of money for assets redemption rights to the Indonesia Central Bank to change the confiscated assets from Central Bank into LMAN's assets. Property Asset that will manage by LMAN also comes from assets plotting by DJKN (Direktorat Jenderal Kekayaan Negara). Stage 2, is identified as Conceptualization phase. At this stage, LMAN will conduct a research or preliminary study towards property asset. The preliminary study includes several activities such as; asset assessment, potential business identification, risk profile mapping. The final output of this phase is a Business Case or Feasibility Study document that will be used as reference or guidance for asset management. Stage 3 is pre-development phase, where at this phase LMAN will secure the physical assets and documents legality, so that assets can be optimized with a valid and verified legality status. The output of this phase is the condition of assets that are free and clean from third party occupancy. Furthermore, the process continued to the 4th Stage of LMAN Asset Management Cycle, which called Development phase. In this phase, Asset will be developed with several options, for instance; rebuilding whole assets, major renovation, or minor renovation. The purpose of this phase is to make the idle asset have value added and become more commercial in market hence it can increase the value of asset. The asset upgrading process is carried out by adjusting market needs and business potential which can be identified from the Feasibility Study or Business Case that have been compiled in Stage 2.

After upgrading assets, the next step is Stage 5 namely Optimization. This stage can also be interpreted as the marketing stage where LMAN made negotiation with prospective partner/ tenant and discussing the rental rates. The completion of this process is marked by an asset utilization agreement/ rental agreement by both parties and financial closing or payment from tenant/partner. Stage 6 is known as Monitoring activity. At this stage, LMAN did maintenance and supervision to each asset that has been optimized to check the asset condition and proposed some upgrade or maintenance if needed. The result of these activities will be used as reference for evaluating the strategy for developing LMAN assets. The last stage is Stage 7 which called Evaluation Process. At this stage LMAN compiles a comprehensive report that showed the review of asset management activities that have been proceed by LMAN in a year (Portfolio and Review Report). The preparation of report includes financial performance, the benefits of asset management both socially and economically. The evaluation report then will be used as input for management in determining investment policies and other strategic plans. The output of this stage is recommendations for improvement of the asset development strategy and business strategy.

C. Organization Structure of LMAN

As an Public Service Agency (Badan Layanan Umum), LMAN has unique characteristics that are relatively different from other organizations. LMAN has a Hybrid (mixed) employee composition structure that consist of 3 (three) categories: Civil Servants employee, Non-PNS/Professionals, and Supporting Staff (Honorer). The total number of employees in LMAN is 148 people. In the implementation of Talent Management in it, LMAN uses the Minister of Finance Regulation (PMK) No. 216/PMK.01/2018 as a reference for managing civil servants and non-civil servants, while for the Supporting Staff (Honorer), LMAN uses Perdirut No. 2/LMAN/2020. The two regulations were prepared independently by LMAN but still consider the regulations that apply within the Ministry of Finance.

Existing Talent Management for Civil Servants (PNS) employees are: 1) employee will get promoted in accordance with the provisions of regulation, 2) the mechanism for employee placement and ranks will be proceed based on employee placement regulation in Ministry of Finance, 3) The period work of PNS Employee at LMAN only for 3 years and can be extended maximum 2 years, 4) the employee can return back immediately to DJKN or Ministry of Finance if there is special assignment or request, 5) the grade of PNS Employee who work at LMAN will freeze during the working period at LMAN, therefore when the working period is off, the talent will go back to Ministry of Finance with same grade/ job position before joining LMAN. It is happened because working at LMAN will be consider as talent development not as career development activity.

Talent Management system for the professional category is clearly stated at Perdirut No.5/LMAN/2020. Based on this regulation, we can know the professional employee at LMAN firstly will be contract as PKWT with specific time, if the employee perform well, the contract will be extended and become permanent employee at LMAN. Meanwhile, for the supporting staff or known as Contract (Honorer), the regulations was stated on Perdirut No.2/LMAN/2020. According to one of passage at the regulation, we can know that all supporting staff only have 1 year working period, after 1 year the contract will be extended but not as a permanent employee.

D. Existing Talent Management of LMAN

After we identified from the regulation side, according to the current Talent Management Model we can also identified how LMAN managed their employees by analysing each aspect of the model. First, is from the Recruitment Designing and Planning aspect. Before the recruitment process is carried out, LMAN first identifies the number of new employee needs by conducting a workload analysis (ABK). Therefore the process to propose a recruitment activity usually consume long time and long procedure. Second aspect of the talent management model is employee placement. Employee placement at LMAN is proceed using 9 talent pool which classified from the employee assessment that held every 2 years. The third aspect is Assessment. LMAN make an assessment for employees every 2 years and using third parties such as consultant to execute the assessment. The purpose of the assessment is to determine the maturity level of employee from many aspects such as; skill level, knowledge, attitude, way of thinking and problem solving.

After the assessment phase and find the maturity level of each employee, LMAN will proceed it more by developing its talent. LMAN has some talent development program, such as; training, coaching and mentoring, special assignment to broaden exposure, etc. Not just internally, LMAN also courage and give opportunity to the employee to pursue higher education. Meanwhile, not just talent development, LMAN also manage the career of its employee by promoting its employee to higher position or make rotation to give the talent different exposure. After the career management, next phase of the talent management model is performance management. Talent performance at LMAN is determined from the IKU (Indikator Kinerja Utama) or KPI which has been set by the talent. Talent who perform well will show that all the target or KPI is 100% achieved, furthermore talent who can achieve KPI more than 120% will get extra bonus or incentive. The last aspect of existing Talent Management Model, is Termination phase. Talent termination can happen if there's specific condition such as; contract ended, pension, or downsizing.

III. RESEARCH METHODOLOGY

This research is a qualitative-research that use empirical study. This research aims to examine a phenomenon or state of an object of research in detail by collecting facts that occur and developed by using existing concepts and/or literature (Amirudin and Asikin: 2004)

A. Data Collection Method

In addition, in this empirical study, the author focuses more on the results that Researcher has been gathered through interviews and direct observations of the research object. As described, the data collection methods that will be used in this study include:

a. Interview

Researcher will conduct an interview with the HR manager at LMAN, specifically in HR Division namely SMAKKI. The interview was conducted to explore some of the information needed by the researcher, such as: information related to the employee recruitment process, HR management Procedures that have been implemented, reward programs, as well as details regarding the HR management plan of the SMAKKI in the next one year. In addition to interviews with the SMAKKI, the author will also conduct interviews with several LMAN employees from each position level to find information, responses to the phenomena which related to business, staffing organizations, and talent management. Testimonials or the results of these interviews will become data for the researcher to compare with the existing theoretical basis and guidance. The comparison will then produce a gap that require improvement recommendations.

b. Literature Study

After conducting interviews, to obtain other supporting data, Researcher will also conduct a literature study to obtain more varied data and information in order to support the validity of the previously obtained data. The

literature study was also carried out by the researcher to find gaps between the results of interviews with the ideal conditions or HR management standards as regulated in the existing literature.

c. Documentation

Collecting data using three methods above also requires documentation so that every data collection process and data results are recorded systematically to facilitate checking the validity of the data.

d. Type of Data

After collecting data using the four methods above, Researcher will identify the type of data that will be used in this study. Meanwhile, based on the results of temporary interviews that have been carried out by the Researcher, there are 2 (two) types of data that will be used, primary and secondary data.

Primary Data

Primary Data. This data is obtained or collected directly either through individuals or groups using various data collection instruments. Primary data were also collected from the first source of the research object. In this study the primary data used include:

1. The results of the interviews with the Staff of HR Unit at LMAN (SMAKKI)
2. The results of the interviews with Division Head from each Directorate.
3. The results of interviews and observations with several employees from each employee category at LMAN.

Secondary Data

To strengthen the primary data, researcher also use secondary data in this research. Secondary data is data that can be obtained indirectly, in this case researcher does not need to collect directly from data sources but can be obtained from various available data sources such as books or literature, data or information from companies, etc. (Moehar, 2002). :13). The secondary data that will be used in this study are:

1. LMAN business model and strategy.
2. Regulation of Talent Management at LMAN (for each category of employee)
3. Employee talent pool
4. Data and information related to internal and external recruitment mechanisms within LMAN (which have been implemented)
5. Talent management standard data based on literature.
6. Talent Management Model (existing)

e. Sample and Sampling Methods

This research uses purposive sampling as a sampling technique. Sugiyono (2017:85) also describes Purposive Sampling as a method of determining the sample based on certain criteria. The determination of these criteria can be inclusion or exclusion, where the inclusion criteria are determined by referring to the research objectives while the exclusion criteria refers to specific/certain criteria. The criteria that is used in this study: a) Individuals who involved in the preparation and implementation of the Talent Management at LMAN, b) Individuals who run or are affected by any Talent Management activity at LMAN.

f. Informan Profile

Referring to the informant/respondent selection indicators above, it can be seen that this research considers aspects, namely employee categories, work units, position functions, and length of service. The list and information of participants / resource persons in this study, are:

Table 1. Informan Profile

	Jenis Kelamin	Kategori	Unit Kerja	Jabatan	Lama Bekerja	Media Wawancara	Durasi
1.	Laki-laki	PNS	Direktorat LF	Kepala Divisi	< 3 tahun	Zoom Meeting	53 menit
2.	Laki-laki	Non PNS	Direktorat OMR	Kepala Divisi	> 3 tahun	Zoom Meeting	58 menit
3.	Laki-laki	PNS	Direktorat KDO	Kepala Divisi	> 3 tahun	Zoom Meeting	1 jam 6 menit
4.	Perempuan	PNS	Direktorat PP	Kepala Divisi	> 3 tahun	Zoom Meeting	1 jam 12 menit
5.	Perempuan	Non PNS	Direktorat PP	Staf/ Pelaksana	> 3 tahun	Zoom Meeting	51 menit
6.	Laki-laki	PNS	Direktorat PP	Staf/ Pelaksana	> 3 tahun	Zoom Meeting	27 menit

7.	Laki-laki	Non PNS	Direktorat KDO	Staf/ Pelaksana	> 3 tahun	Zoom Meeting	25 menit
8.	Laki-laki	Non PNS	Direktorat OMR	Staf/ Pelaksana	> 3 tahun	Zoom Meeting	46 menit
9.	Perempuan	Non PNS	Direktorat LF	Staf/ Pelaksana	> 3 tahun	Zoom Meeting	30 menit

B. Data Analysis

After obtaining the required data, researcher will analyze the data to identify gaps or problems and find recommendations for the most appropriate solution in solving the problem. Malhotra (2010) describes there are 3 (three) steps that can be taken by researchers in analyzing data.

a. Data Reduction
At this stage, researcher will select the data which most suitable for the needs and reducing the data that is considered not very significantly related to the research material.

b. Data Display
After data reduction, researcher will interpret the data either in the form of a narrative or description or in visual form such as diagrams, tables, or graphs to make the data easier to read.

c. Conclusion Drawing and Verification
At this stage, researcher draw conclusions and verify the results of the data obtained. The conclusion is obtained through a detailed discussion and understanding that has been carried out and presented by the researcher.

d. Coding
At this stage, the researcher examines the interview data by providing a label/type of code or category in the form of a phrase/sentence to be further linked. with theoretical concepts or ideas based on the available literature. There are several ways of coding, namely: open coding, axial coding, and selective coding. Open coding is the coding stage by describing, examining and conceptualizing the things found from the results of interviews and documentation. In this open coding, the stages carried out include: labelling phenomena, discovering and naming categories, and compiling categories.

e. GAP Analysis
After analysing the findings of the data obtained through interviews, the next researcher also analysed the results of the data by using analytical instruments.Pol and Paturkar (2011:2) define GAP analysis as a methodology used by comparing business processes and functions/systems which will then be evaluated to see any potential gaps or gaps, in other words the gap analysis is used to measure the level of discrepancy between actual conditions with the expected ideal conditions. Through this analysis, the corrective steps that can be taken will be determined to get to the desired condition in the future. In this study, the ideal conditions were determined based on the literature review and the results of interviews conducted by the author as a researcher.

IV. RESULT / FINDING

Based on the data collection and analysis that has been carried out, the authors obtain or identify findings from each   aspect of the
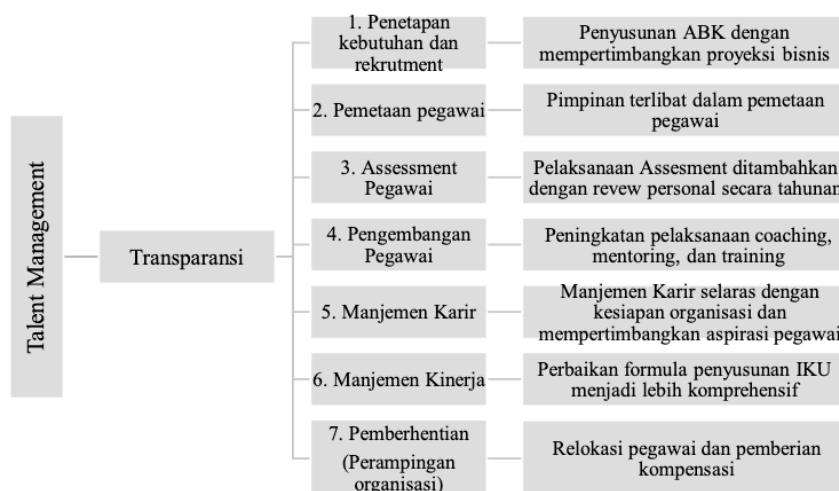
implementation of the existing LMAN Talent Management Model, with the results of identification and mapping as follows:

Fig. 2. Findings (Thematic) Map

Referring to the results of the mapping, it can be seen that each aspects have gaps or problems and recommendations for improvement as a means of continuous improvement. In aspect 1, which is related to determining needs and recruitment, LMAN needs to make improvements in terms of the ABK preparation formula Talent Management (Workload Analysis) which is used as the basis for determining the number of additional employees. Based on the interview findings, it is known that the preparation of crew members is recommended to be carried out by considering aspects of business projections or projected income targets. This is in line with the theory put forward in Armstrong (2014) which describes that the approaches used in manpower/talent planning include: business plans, forecast activity levels, plan scenarios, demand level predictions, supply level predictions, future demand predictions, action planning, implementation, monitoring and evaluation.

In the second aspect, namely employee mapping, employee mapping into the talent pool in the LMAN environment does not involve the Division Head as a leader who is directly charged with talent. The findings state that the implementation of the mapping of employees is expected to involve the Head of Division, this is in line with the theory of Deters (2017) which describes that the parties involved in Talent Management, especially in the aspect of Employee Mapping, are not only talent acquisition professionals but line managers (Division Head). which has a significant involvement and impact on the talent pool, especially in terms of talent formation. Furthermore, Farkhani (2018) also explains that managers (leaders) in organizations/companies are advised to be involved in meritocracy, namely by providing equal opportunities to every individual/talent to lead based on ability or achievement.

The third aspect is the implementation of the Assessment, where the implementation of the Assessment in the LMAN environment has been carried out quite objectively, namely by using a third party, but the majority of interviewees are of the opinion that in terms of performance appraisals that have an impact on promotions or promotions, it is better not to use only one assessment process. only, but also supported by additional implementation of Performance Appraisal. This is to accommodate career acceleration for employees or talents who show outstanding performance, so that talent can be promoted without having to wait for an assessment every 2 years. This is in line with the opinion expressed by Armstrong (2017) which states that Supervisors / Managers have an important role in carrying out performance appraisals. Furthermore, you can It is known that the frequency of performance appraisal can also be carried out with a more frequent frequency. According to Shield (2007) there are several methods in conducting Performance Appraisal, namely: peer appraisal, team appraisal, sub- ordinate feedback, self-appraisal, 360-degree appraisal, individual annual appraisal, biannual appraisal, rolling appraisal, continuous assessment.

In the fourth aspect, namely employee development, employee development within LMAN still requires improvement and improvement, especially in more varied employee development programs, not only through training or coaching & mentoring. Armstrong (2014) recommends that the implementation of employee

development can also carried out by other methods such as knowledge management, formal off the job training, leadership development, etc. The improvement of the employee development program is expected to be a supporting factor in implementing career management. The implementation of career management within LMAN has not been in line with the readiness of the organization to accommodate this, where the implementation of career management has not accommodated or considered the aspirations of employees. To form a career management that is in accordance with talent aspirations, LMAN can first identify the performance and potential of the talent or individual. This identification can be done through assessment. After that, succession planning can be arranged, namely career planning from talents or individuals which will then be followed up with the preparation of development programs.

The next aspect is the aspect of performance management. Measurement of talent performance in the LMAN environment is carried out using the KPI (Key Performance Indicators), where in practice, the preparation of the KPI formula requires improvement. According to Armstrong (2014), it is known that performance/performance assessment can be carried out using several aspects as components of the assessment, namely: objectives or division goals or targets, competencies, action steps taken by the talent for these three things. This is predicted to provide a wider scope of assessment compared to performance measurement based on several representative work activities.

The 7th aspect is the stopping aspect, which in this case is assumed there will be a downsizing of the organization. Employee relocation and compensation in the form of severance pay are recommended to LMAN if LMAN will carry out organizational streamlining. The employee relocation can be in the form of giving a letter of recommendation by LMAN to BLU or other agencies to be able to accept the talent in question. On the other hand, organizations or companies can also provide several additional alternatives such as: training related to finance, insurance, health rights and benefits, as well as other assistance as assistance. Based on Law No. 13 of 2003 Article 157, in addition to severance pay, organizations or companies are required to provide service pay, compensation for entitlements, and all other forms of fixed benefits.

V. DISCUSSION

As has been done on the analysis of each aspect of the existing LMAN Talent Management Model, several findings were found in each aspect that was deemed to need improvement. From the results of the analysis and findings The analysis has been carried out and provided suggestions/recommendations for improvement. Following up on this, the researchers used the results of the analysis as a reference to develop a new Talent Management Model for LMAN which could be used as a reference by LMAN in implementing HR management in accordance with the characteristics of LMAN as a BLU and non-echelon organization. The proposals for the Talent Management Model are as follows:

| 1. Business & Income Forecast | 2. ABK Analysis | 3. Job & Current Employee Placement | 4. Recruitment | 5. Talent Development | 6. Performance Management | 7. Career Management | 8. Termination & Retention |
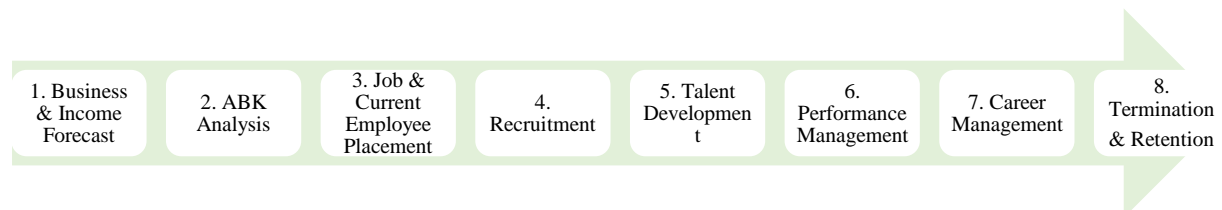
Fig. 3. New (proposed) Talent Management Model

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

1. The implementation of Talent Management within LMAN is currently carried out using the Talent Management Model which consists of 7 (seven) activities, namely: determination of needs & recruitment, employee mapping, assessment, employee development, career management, performance management and termination. These seven aspects are applied to the three categories of employees in LMAN (PNS, Non-PNS, and Supporting/Honorary Personnel) and are stipulated in the President Director Regulation Number 5 of 2020 and the President Director's Regulation Number 2 of 2020. The existing condition of LMAN Talent Management implementation shows that at each stage of Talent Management there are issues/gaps that need improvement.

2. Based on the findings and analysis of the findings, the perception of implementation is obtained each aspect of LMAN Talent Management is as follows:

   a. The formula for preparing ABK is still not able to accommodate all work activities.
   b. The implementation of employee mapping does not involve the Head of Division / Manager
   c. In addition to assessment, additional measuring tools/instruments are needed as supporting indicators in the implementation of talent performance assessment.
   d. The implementation of employee development activities is still limited to coaching, mentoring, and training activities, LMAN does not yet have a mechanism for implementing other employee development.
   e. The implementation of career management within LMAN has not taken into account the aspirations of employees.
   f. The formula for the preparation of the KPI has not been able to describe the scope of work in detail so that the performance measurement using the KPI is considered to be still inaccurate.
   g. LMAN has not considered or developed a plan for employee retention programs and risk mitigation plans in the event of downsizing.

3. Regarding the perception of implementation above, several proposals/recommendations were obtained as a means of improvement or follow-up steps on these perceptions. The follow-up steps include:

   a. Before carrying out the process of preparing ABK which will be used as the basis for the proposed addition of employees, LMAN should be able to prepare first strategic business plan. The strategic business plan can be in the form of an action plan or projected income target / financial close to be achieved by LMAN.
   b. Supervision of the implementation of activities / work on a daily basis is the responsibility of the Division Head, so that the Division Head in general is more familiar with and knows the competencies and abilities of the talents. Considering this, then the implementation of employee mapping into 9 quadrants (Talent Pool), LMAN should be able to involve the Division Head to participate in evaluating individual performance.
   c. In addition to going through an assessment carried out every 2 years, performance appraisal can be done with a shorter frequency (every year) but the results of the performance appraisal are carried out as an additional instrument for support the assessment results. The addition of the frequency of performance appraisals is also carried out to accommodate or provide opportunities for increase positions/promotions to talents who show outstanding performance compared to other talents
   d. The implementation of employee development activities can be carried out in the following ways: varied not only in the form of coaching, mentoring, training, or on job training, but also through knowledge management, formal off-job, etc.
   e. The implementation of career management at LMAN can be arranged by considering the aspirations of employees, where these aspirations can be identified by the organization or company through implementation assessment. Through the implementation of the assessment, the company can identify the potential of each talent and develop an appropriate and appropriate career management plan.
   f. The formula for the preparation of the KPI can be modified by adding aspects in the form of individual targets and the arrangement of action plans from the individual targets in detail, so that the calculation of the KPI is not only based on daily activities but is more strategic in nature.
   g. In the event of organizational downsizing, LMAN can relocate employees by providing a letter of recommendation to the BLU or other agencies.

B. *Recommendation*

   The suggestions that can be given through this research include:

   a. For LMAN, this research can be used as material for LMAN in knowing the perception of talent or individuals within LMAN regarding the implementation of existing Talent Management, which can then be followed up in the form of improving the Talent Management mechanism.
   b. For further research, it is possible to analyze the effectiveness of Talent Management implementation within the Ministry/Agency to be used as a reference/evaluation tool in developing a Talent Management Program with a wider scope.

c. For similar Public Service Bodies (BLU), through this research, each BLU of its kind can review the current talent management implementation and can adopt several aspects contained in the proposed new Talent Management Model.

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The Optimization of Campus Website in Knowledge Management System

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Abstract

This study aims to describe website optimization for KMS at unigal.ac.id WEB by comparing the ideal criteria. The demand for higher education encourages lecturers and education staff to cover these expectations and be able to adapt to a constantly changing environment. Higher education managers need to accelerate the creation and dissemination of knowledge to all employees as part of Knowledge management. In its implementation required a system that can provide convenience. One of them is through KMS. Referring to previous research, the practice of knowledge transfer in higher education is an important process in the academic field. Its implementation requires a system that meets technical, human and scientific components. There are no results from previous researchers regarding the Website as a tool in KMS. The method used is a case study on the Galuh University Website by analyzing more deeply whether the current Website can be used as a tool for the Knowledge Management system. The implementation of KM sharing practices at Galuh University which is an important process in creating new knowledge is outlined in the form of a KMS establishment policy which is published in the form of a website. The information section and the service section are two parts of the Galuh university website. In the implementation of KMS, Galuh University strives to be able to provide data storage media that can be reused by the organization. Then, they can transfer knowledge to employees who need it. Currently the unigal.ac.id website used by Galuh University still needs development. Practically, the university web is important to support the quality of KMS, although there is no standard regarding the website, especially in universities. The development of the Galuh University Website is expected to lead to KMS, not only focusing on the learning system.

Keywords—Knowledge Management (KM); Knowledge Management System (KMS), Website

I. INTRODUCTION

The implementation of higher education today cannot be conducted just to meet the community demands for the presence of local higher education institutions in the regions that can help reduce the cost of education in terms of community affordability, but there are many demands related to changing environmental conditions. The demands for service quality in the implementation of education felt by students are accreditation as a guarantee for graduates and graduate users, challenges to the sustainability of higher education institutions caused by the Covid-19 pandemic, and other handled problems that need to be focused on. From this condition, human resources in higher education consist of lecturers and education staff who are required to meet community expectations and adapt to a constantly changing environment. Furthermore, higher education managers are also required to accelerate the creation and knowledge dissemination to all employees as part of knowledge management.

The practice of knowledge transfer in higher education is an important process in the academic field (Chugh, 2013; Enakrire & Uloma, 2012). Practically, Knowledge Management (KM) requires technology that can be used in the process of creating, collecting, and sharing knowledge by human resources. The need for technology in knowledge management often comes out as a knowledge management system (KMS). The four components of knowledge management systems are associated with four interdependent facets, namely; a technological facet, a human resources facet, a process facet, and a context facet that help describe their characteristics and identify the drivers of their efficiency (Zouari & Dakhli, 2018). KMS can be used in information technology as studied by Badpa et. al. (2013) and most universities have a website as part of information technology. However, there are no results from researchers regarding the Website as a tool in KMS. This makes researchers conduct the research on Campus Website Implementation in Knowledge Management Systems

II. LITERATURE REVIEW

A. Knowledge Management (KM) Definitions

According to Daft (2007) "Knowledge management is a new way to think about organizing and sharing an organization's intellectual and creative resources". Knowledge management is managed by how the knowledge possessed by the best employees is shared with other employees through dissemination, and utilization of knowledge as stated by Gupta et al. (2008) There are many definitions of knowledge management. At a generic level, it can be defined as the collection of processes that govern the creation, dissemination, and utilization of knowledge.

KM activities require tools as stated by Jones (2010) "Knowledge management is, therefore, an important tool for increasing the level of integration within an organization, among people, functions, and even divisions." This tool is used in the KM process, namely; creation, dissemination, and utilization. Furthermore, Jones (2010) divides KM into two categories. First explicit knowledge and second tacit knowledge. In KM activities Organizations, an IT system is used to facilitate person-to-person conversations that share experiences, insights, and ideas to generate tacit knowledge and knowledge collection and store databases that are easily accessed and used by anyone in the organization as explicit knowledge.

B. Knowledge Management (KM) Dimension and Indicator

From Draft's perspective (2007), Gupta (2008), and Jones (2010) KM management has the following dimensions and indicators:

a. Dimensions of creation, with indicators; a) coding, b) capturing, c) converting, d) storing,
b. Dissemination dimensions, with indicators; a) explaining, b) sharing, c) transferring,
c. Dimensions of utilization, with indicators: a) applying, b) using.
d. Renew dimension with indicators: a) learning b) acquiring

The indicators above underlie KM on gradual and continuous activities that are beneficial for the organization in maintaining the continuity of the organization itself.

C. Knowledge Management System (KMS)

The following definitions deal with the knowledge management system;

a. KMS is a system created to facilitate the capture, storage, search, transfer, and reuse of tacit and explicit knowledge in an organization (Nainar B, 2016; Metaxiotis K, Ergazakis K, Psarras J, 2005; Gourova E, Toteva K;2014 in Iskandar et al. 2017).
b. KMS is a collection of techniques and strategies to analyze, organize, improve, distribute, maintain, and share knowledge and experience in an organization (Alavi M 2001; Subramanian, 2009; Singh TR, 2016 in Iskandar et. al. 2017).
c. Knowledge management is one of the hottest topics in management [5-6]. A knowledge management system (KMS) becomes a useful tool to manage knowledge as most knowledge exists in the form of the digital document today (Peng, Jiang & Zhang, 2013)
d. The purpose of KMS is to create and develop an information system through information technology that can aid the organization to transform tacit knowledge into explicit knowledge (Iskandar et. al. 2017).
e. From the definition and purpose of KMS, it is clear that what is meant by KMS is a tool in KM to change tacit knowledge to explicit knowledge. Benefits of KMS according to Iskandar et. al. (2017) The benefits of KMS implementation in an organization are:
f. Organizations can more quickly establish decisions on problems that occur based on existing knowledge and even novel knowledge of the organization:
   1. Organizations can create new knowledge during the learning process in which such knowledge represents A reasonable and valuable way to solve problems for the organization,
   2. There is a system that provides a reusable data storage medium for the organization,
   3. Organizations can distribute knowledge to employees who need it, wherever and whenever.

III. RESEARCH METHODOLOGY

The method used is a case study on Galuh University Website (https://unigal.ac.id) by means of a detailed analysis of whether the Website can be used as a tool for Knowledge Management to change from tacit to explicit knowledge by the manager. The steps in the research are as follows;

a. Determining the Website indicators that can meet the requirements used in the knowledge management system
b. Comparing the Unigal Website with standard Website indicators that can be used in the knowledge management system
c. Finding the shortcomings of the Unigal web if it is used as a knowledge management system
d. Recommending suitable websites used as a knowledge management system

The key informants in this study were the Unigal management consisting of the Chancellor and co-rector and the Unigal ICT team through FGDs, interviews, and observations in collecting the data needed in the study.

IV. RESULT / FINDING

Galuh University is one of the universities that is important in accumulating and disseminating knowledge. The implementation of the need for KM sharing practices at Galuh University which is an important process in creating new knowledge is outlined in the form of a policy to develop a KM system. One of Galuh University's policies in conducting KM sharing activities is stated in the form of a website.

Universitas Galuh website unigal.ac.id consists of two parts. They are the information section and the service section. The information section has a menu consisting of the profile, student, institutional, academic, and work information, while the service section has a menu consisting of Galuh University Academic System (SIAKAD), Publication of Student and Lecturer research results (E-journal), Alumni survey (Tracer Study), Management of e-mail with domain@unigal.ac.id (e-mail), Repository and New Student Admission. The available menu shows that E-Jurnal and Repository can be used as KM which are intended for students and lecturers related to research and service. Sharing knowledge of e-learning learning process activities is outlined in Galuh e-learning and Instruction System (GeLis) subdomain.

Facilities for sharing KM for employees, both tacit knowledge and explicit personnel knowledge, do not yet have a menu or subdomain that can facilitate them. In implementing KMS, Galuh University strives to be able to provide data storage media that can be reused for organizations. Then, they can distribute knowledge to employees who need it, wherever and whenever they need it. The commitment of Galuh University to create new knowledge for both students and lecturers as well as for employees can be obtained through the policy of developing a KM management system. Unigal.ac.id website, which is used by Galuh University, currently requires better development. Based on web quality criteria, in practice, there hasn't been a standard regarding websites, especially in higher education.

V. DISCUSSION

Knowledge Management System (KMS) is a system intended for public services. KMS was developed to answer questions and solve problems. In principle, KMS as a system created by Galuh University is used to facilitate the capture, storage, search, transfer, and reuse of knowledge to the entire academic community.

The Knowledge Management System can help universities to share knowledge about the tridharma process of higher education. Problems occur starting from academic life until sharing experiences about tridharma that are beneficial for the development of knowledge among students, lecturers, and education staff. Knowledge Management is a process that helps organizations identify, select, organize, disseminate, and transfer important information and experiences that are part of the organization (Viju Matthew, 2011). Managing this knowledge management, of course, needs a system. Developing an effective knowledge management system needs a technical, human, and scientific context to support it. The research results of Shirvani, A and Mehrabani, S.E. (2010) on Exploring the Application of Knowledge Management Factors in Esfahan University's Medical College (EUMC) provide an explanation that developing a knowledge management system needs a technical, human, and scientific context to support knowledge identification, knowledge acquisition, knowledge development, knowledge distribution, knowledge preservation, and use of knowledge.

Developing knowledge in the educational environment needs to be supported by information technology (Omar and Udin, 2016). This is expected to facilitate the culture of accessing and improving the quality of knowledge sharing and knowledge management which leads to improving the quality and competitiveness of the organization. A knowledge management system (KMS) functions as a planned and systematic approach to ensure the good application of higher education knowledge. Higher education, as the institution to accommodate knowledge, has an important role in supporting and disseminating knowledge development. KMS is expected to be able to improve ideas, innovation, thinking, competence, and expertise.

Intellectual asset management through a knowledge management system is intended to improve the organization's ability to manage its intellectual assets in the form of knowledge and experience. The practice of KMS in utilizing these assets is intended to achieve better organizational performance as well as to accelerate the achievement of the objectives of implementing bureaucratic services and improving university performance and competitiveness.

The implementation of a knowledge management system in higher education is considered strategic. The implementation of KMS in universities must involve human resources, actions, and technology functions in an effort to respond to challenges. So must public demands. It focuses on sharing information. The research results (Omar and Udin, 2016) explain that the implementation of knowledge management systems in universities is considered strategic that involves people (people), processes (processes), and technology functions (technology) that respond to challenges and demands. information-sharing community.

In a wider context, it is necessary to apply knowledge management system strategies and practices to share information among the academic community related to accountability and the quality of university services. The implementation of the knowledge management system in higher education needs to be aligned with the focus on improving higher education tridharma services. The web-based system can make universities gather data used as a source of information in making policy decisions, as well as a system that can provide knowledge exchange services to the academic community of Galuh University.

The implementation of KMS for the aforementioned policy is outlined in the form of a website. University websites can be used as an effort to manage universities to be more focused, effective, and efficient. According to CNET quoted by Ifadah on its site.google.com, it provides requirements that a good web has seven criteria. They are 1). Usability, 2) navigation system 3) graphic design, 4) content, 5) compatibility 6) loading time, and 7) functionality. In addition, a qualified website on the website.Whelo.id provides an illustration that a quality website has the criteria of 1) Responsive Web. 2) Simple and easy to use design 3) fast website speed and 4) interesting and relevant content. These criteria are expected to be able to assist in supporting the improvement of knowledge transfer services to the public.

Based on the existing conditions, the university's website is still heading in the expected way which is in line with the criteria. The responsive web still needs improvement and concentration along with other systems so that data collection can be more effective. The research results (Peng, Jiang & Zhang, 2013) showed that the university website used as KMS consists of the present service layer, web-based learning platform layer, knowledge management service layer, and infrastructure service layer. This component used for Discussion or sharing knowledge in a class is often valuable for both teachers and students in learning, research, and service activities. Then, it is used to support the creation, storage, acquisition, and transfer of knowledge in organizations consisting of individual knowledge management, group knowledge management, and public management. Another important thing is that it is used for Web-based learning platforms. The use of the Web as a means of KMS application is used for the knowledge conversion process (combination) in universities. The use of KMS in internal universities is related to human resources, where all documents, data, and information that have been stored through the organization's database can be read and utilized by everyone, and access to this knowledge can be done through the website media. The data information which is compiled in KMS in universities outlined on the university website can combine various knowledge, both tacit and explicit knowledge.

Implementation of KMS through a Web system can provide benefits in creating more accurate decision making, improving services to the academic community, and increasing knowledge assets. As stated by (Marakas, 2010), KMS can support the creation, regulation, and dissemination of knowledge, of course to parties in the public environment. Shirvani, A and Mehrabani, S.E. (2010) said that technical, human, and scientific operations are important points needed in building a knowledge Management System. The technical operation in question is the operationalization of how the Knowledge Management System runs, starting from the input of information which is then processed in the process, and to the output that leads to knowledge information. SKM operations will run well if it is carried out with adequate resources. Humans are an important factor in implementing KMS followed by science which is the core of the information that will be developed and disseminated to the public.

Technical problems that can be carried out in Higher Education are parts or technical units that function to maintain facilities that assist in the implementation of KMS. Under the leader appointment, this can be done by establishing a unit that specifically maintains technical physical facilities.

The role of humans in operating this KMS is important. KMS operations can run if human or human resources as the implementers of the system management have the ability in the same field of expertise. Efforts that can be made by the University are to provide opportunities for IT experts to manage it.

Then, KMS users proposed that science is supposed to be the material for development and dissemination to the public. KMS users who use Unigal. ac. id Website is willing and able to provide and exchange knowledge set by the system. The information will be stored on a server that is owned and can then be used as a source of information for other people who are using the web. Thus, a process like this can increase the productivity and organizational performance of Galuh University. This is in line with the opinion of Christin (2006) who showed that the successful implementation of a Knowledge Management System (KMS) can increase organizational productivity in various fields. To support all of this, Unigal.ac.id website must be able to facilitate these activities, based on the ideal criteria of a web, so that knowledge sharing activities can occur.

VI. Conclusion and Recommendation

Knowledge Management System is a planned and systematic approach to ensure the good application of organizational knowledge. In education, the Knowledge Management System plays an important role in helping to identify, absorb and disseminate knowledge related to data on the development of the Tridharma of Higher Education. The implementation of the KMS (knowledge management system) at Galuh University has been carried out but it is necessary to further develop the management system, especially in the aspect of intellectual asset management, knowledge transfer, knowledge creation, and knowledge-based system which are still partial.

Currently, the learning knowledge sharing through KMS on the web is still not concentrated. It is not yet integrated among people. Processes and technology systems are still varied.

There is still no uniform standard regarding the Knowledge Management System development model in higher education. So, it allows the university to keep innovating to achieve the ideal web criteria, namely those that meet user expectations and KM implementation.

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Virtual Tourism: Virtual Reality as Reference Sustainable Tourism

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Abstract

Sustainable tourism is a country's economic recovery strategy after the Pandemic. the tourism industry during the Covid-19 pandemic experienced a decline in line with the implementation of policies to deal with the impact of the Covid-19 Pandemic. Virtual Tourism is an attractive option for tourists who want to travel during a pandemic without the risk of being exposed to Covid-19. Virtual Tourism involves Virtual Reality technology, which depends on the quality of travel content, which of course involves stimulation, flow experience, tourist satisfaction, and visit intentions to tourist destinations. New tourism habits will continue to develop so that virtual tourism becomes one of the references for sustainable digital tourism. after the pandemic ends, people use virtual tourism as a new way to go on vacation to visit tourist destinations. The SOR (Stimulus-Organism-Response) model explains the psychological process during the virtual reality journey that is associated with flow experience and visit intention.. are virtual tourism connoisseurs. Sampling using purposive sampling technique. Sense, Quality Information has a significant positive effect on the Flow Experience on the Indonesia Virtual Tour. Sense, Quality Information has a positive and insignificant effect on Visit Intention on the Indonesia Virtual Tour. Flow Experience has a significant positive effect on Visit Intention on the Indonesia Virtual Tour. Flow Experience mediates the influence of Sense on Visit Intention on the Indonesia Virtual Tour. Flow Experience mediates the influence of Quality Information on the Indonesia Virtual Tour. The weakness of this research is the shift in the virtual tourism trend from using virtual reality to using the YouTube platform. The concept of virtual tourism is used as a medium for promoting tourist destinations to attract investors without having to visit tourist destinations directly.

Keywords— Virtual Reality; Sustainability Tourism; Visit Intentions;

I. INTRODUCTION

Corona virus with type new, namely Covid-19 is spreading to all over the world. Covid-19 at first only plague, however develop become a pandemic. The Covid-19 pandemic brought challenge big for sector tourism. Control of the Covid-19 pandemic through application habit new or called with the 'new normal era' containing regarding health protocols, consisting of from wear masks, non-cash payments, keep your distance, always wash hand or squirt hand sanitizer and restrictions social. Policy restrictions social, make the place tourist no can operate normally. Especially when peak Covid-19 cases in each country. This thing make sector tourist must closed temporary (Schiopu et al., 2021).

Sector tourist be one _ source state income. Sector tourist capable create more from ten percent Product Domestic Global Gross (GDP). Sector tourist be one industry largest in the world. Moment this technology develop with fast, just with utilise cell phone smart and internet, have change style life society. The Covid-19 pandemic demands digitalization in industry tourism, which is currently this already develop be one biggest online industry in the world. Internet users through information websites such as social media, and virtual communities for express experience and opinion about service or product (Chen et al., 2021).

Manager tourist currently arrange return room communication consumer through digital transformation. *Virtual tourism* be one alternative from tour physique for give beautiful picture about destination travel. *Virtual tourism* appear as opportunity new for change score tourism. *Virtual reality* is navigation interactive and credible from something place. Utilization *Virtual reality* on *virtual tourism* Becomes opportunity new sector tourism. *Virtual reality* offer Thing new not yet there is before, user could To do activity tourist without feel afraid will exposure to Covid-19. So virtual tourism with virtual reality becomes entertainment Public in the midst of the Covid-19 pandemic.
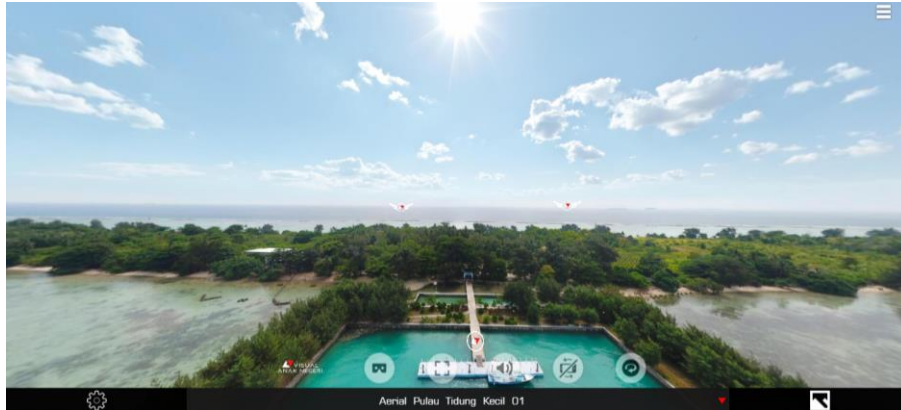
User *virtual reality* will get impression moment used. Great virtual reality will create presence and flow experience for users. User will feel is in the place shown in virtual reality, focus on the show and will feel happy (Aboubaker Ettis, 2017; Csikszentmihalyi & LeFevre, 1989; Lee & Jeong, 2012). Users who got virtual reality impression is expected will increase intention traveler for visit destination tour by physical. Intention visit traveler will determined by the sense and quality of information that goes through the user experience flow on the place travel. Study previous work done by Donovan and Rossiter resulted in influential Sense positive on visit intention. Temporary results research conducted by ((An et al., 2021), Virtual reality effective bring up a sense of location destination so that will increase intention traveler for visit destination tourism, and quality information has an effect positive against flows. However, in a study conducted by (Aboubaker Ettis, 2017) confirm that flow experience is related positive with visit intentions. Then research conducted by ((Kabadayı & Alan, 2012) produce two results positive and negative, where feeling visitors take effect positive on visit intention, and negative emotions have negative effect on visit intention. One thing will contribute for produce experience positive virtual reality journey will increase visit intention on the mechanism. Study this aim for researching big the influence of sense and quality information in increase visit intention mediated by flow experience.

II. LITERATURE REVIEW

A. Sense

Sense is component important from marketing *Virtual Reality*, for awaken visual and audio stimulation with give immersive experience (An et al., 2021). Loaded components in virtual reality consists of from interactivity, which will determine the sense felt by the user (Shih, 1998). More virtual reality visual and sound stimulation strong for give effect in convey information if compared with other media (Dinh et al., 1999). User man have ability hearing for estimate distance and angle sound. Virtual reality provides experience new for user through sense will sophistication tool.

Sense is something feeling or turmoil emerging soul in the self somebody effect from existence stimulation, good from in self alone nor from outside. Emotions are very close relationship with condition psychology and atmosphere heart someone declared in form behavior certain. Feeling emotion can in the form of emotion positive (good emotions), and can negative emotions (bad emotions). On research this sense is very influential to visit intentions. This thing influenced when somebody feel happy in virtual reality journey, then possibility traveler the will visit return destination tour that. Influential sense by significant on experience tour (Kuo et al., 2009).

H1. Influential sense positive on flow experience

H3. Influential sense positive significant to visit intention

B. Quality Information

Quality information is how far is the information by consistent could Fulfill requirements and expectations everyone in need information the for perform the meaning process. Quality information fundamentally related with level product system information in convey meaning. Approach dimensions quality information namely : intrinsic quality, quality contextual, quality representation, and quality accessibility. Quality information have attributes like information obtained from a system, accuracy information, relevance information, accuracy time, and equipment information. Quality information often thank you dimensions key because regarding the satisfaction instrument user. Quality information is degree where individual consider message the current, precise, good, and useful.

Quality Information is something declared size how much far has fulfilled various requirements, specifications

and expectations from a activity for collect, store data, facts and messages, opinions and comments, so that people can knowing the situation that happened outside himself. *Quality information* take effect to *visit intention*, where when somebody get quality good information so somebody will interested for visit the place the even recommend to others. Virtual reality tourism provides mediating experience in explore the real world. So that quality information and content journey Becomes key main from good experience. quality lack of information good mediated with experience real will make user no focus so that damage quality journey (Gao & Bai, 2014).

H2. Quality Information matters positive and significant on flow experience

H4. Quality Information matters positive and significant to visit intention

C. Flow Experience

Flow experience is emotion positive feeling individual moment To do activity with involvement full. Emotion positive in related flow with enhancement capabilities and performance. Flow experience in surfing the website affects satisfaction users and intentions buy (Ali, 2016). Flow marked with narrowing focus realized, lost awareness self, responsive to clear goals and not ambiguous bait return, and a sense of control on environment as well as noted by a high sense of play (Csikszentmihalyi & LeFevre, 1989). If individual experience high flow, they tend do something because they feel more involved in activity with other people during experience journey them. In particular, this flow experience could formed by various sources include guide travel, attitude traveler others, and presence population local in group.

On study tourist previously, flow experience is positioned as construction undimensional (Choi et al., 2018). The flow experience in Virtual Reality consists of from a number of dimensions, such as Telepresence, Focused Attention and Temporal Distortion. Only telepresence and focused attention positive produce level high satisfaction. Effect of temporal distortion on satisfaction no significant . Satisfaction with experience Virtual Reality tours also positive cause visit to destination main Virtual Reality journey. because of that, flow experience is used as base for develop interesting experience .

H5. Flow experience matters positive and significant to visit intention

H6. Flow experience matters positive and significant mediate between sense and visit intention,

H7. Flow experience matters positive and significant mediate between quality information and visit intention
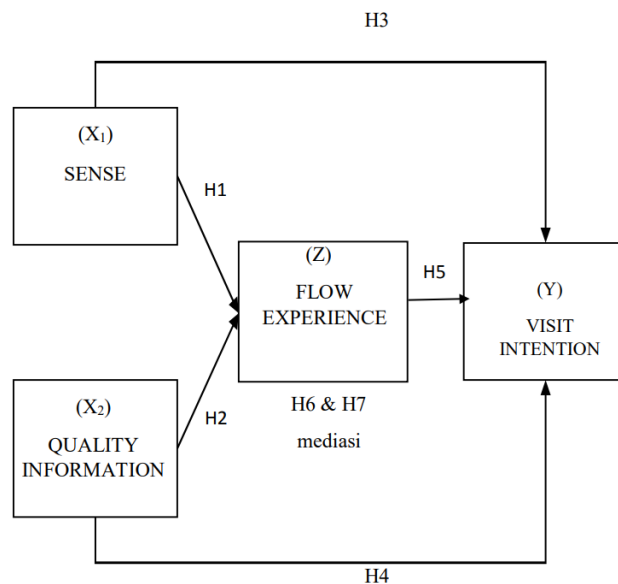
D. Visit Intention

Visit Intention is possibility traveler for repeat activity or visit repeat to something destination travel. If reviewed from consumption process perspective, behavior visitors shared Becomes three stages, namely pre-visit, during visit and post visit. Behavior tourist including choice visit, evaluate next, and future intentions behavior visitors. Temporary from perspective tourism, intention visit return is something condition traveler feel satisfied with experience visit previously (Guthrie & Anderson, 2010), at the same time as consequence from attitude emotional and satisfaction traveler to what they earn from the place goals (Hosany & Prayag , 2011). Interest traveler Becomes part from draft Act behavior. The more strong interest for visit return will reflected from Act behavior of tourists.

User will feel satisfaction based on experience private. satisfaction user rated by cognitive and effective from service. Satisfaction refers to evaluation user by whole about experience During use product / service. Quality service tall will produce satisfaction user, and will increase visit back. This thing reinforced by emotions and aspects cognitive satisfaction influence intention visit return festival (Mason & Paggiaro, 2012).

E. Virtual Reality

Virtual reality or virtual tourism basically as draft hybrid that combines definition virtual reality and tourism . Virtual tourism facilitates experience travel, without must To do journey anywhere. Technology used for gather information and improve interaction social with user others interested in the destination tourism (Sigala , 2009). Virtual tourism in form simple consist from the destination video travel. Tourists who watched the video involve sense hearing and sight them. Virtual tourism includes spectrum large from mediated reality digitally which includes virtual reality.

Virtual reality refers to technology appearance interactive that provides experience deep to user in explore the virtual world with respond visual, motion, and audio cues. Virtual reality application that depicts destination travel in the real world called "VR Travel" or "VR Tourism" (Kim et al., 2020). Three visual images dimension (3D) controlled by the user 's kinetic movement supported by audio enable traveler accept information rich sensory and more understand aspect spatial and cultural from something destination (Guttentag, 2010). Experience Virtual reality journey in explore something destination could by positive influence actual (Cho & Fesenmaier, 2000).

III. RESEARCH METHODOLOGY

Study this is study quantitative with primary data source through technique questionnaire. Population in research this that is Indonesia Virtual Tour visitors. Determination number of samples using formula slovin with a margin of error of 10% as many as 100 respondents. Taking sample using purposive *sampling technique*. How to take this sample whole member population assumed have same opportunity for selected Becomes sample research. Purpose of *purposive sampling technique* chosen for get detailed data about all things on parts different inside something agency. Following amount visitors on the Indonesia Virtual Tour.

Table 1. Population

No	App Name	Object	Amount Visitors
1.	Indonesia Virtual Tour	Istiqlal Mosque	2740
2.	Indonesia Virtual Tour	Puppet Museum	1606
3.	Indonesia Virtual Tour	Jakarta History Museum	961
4.	Indonesia Virtual Tour	Jakarta Art Building	272
5.	Indonesia Virtual Tour	National Monument	7092
6.	Indonesia Virtual Tour	Jakarta Theater	1502
7.	Indonesia Virtual Tour	Planetarium Jakarta	3446
8.	Indonesia Virtual Tour	Fatahillah Park	1850
9.	Indonesia Virtual Tour	Youth Oath Museum	4991
10.	Indonesia Virtual Tour	monument Proclamation	1589
11.	Indonesia Virtual Tour	Sentul City	1351
12.	Indonesia Virtual Tour	Aston Kartika Grogol	1064

13.	Indonesia Virtual Tour	Bobobox Juanda Jakarta	1581

Study this use Structural Equation Modeling (SEM) approach with use path diagrams that allow for enter all observed variables match with the theoretical model built. SEM analysis used namely Partial Least Square (PLS) with the calculation process use tool analysis SmartPLS 3.0. Partial Least Square (PLS) one of the method based SEM statistics designed variant for complete regression multiple when occur problem specific to data such as size sample study small, there are missing data (*missing values*) and multicollinearity. Evaluation of the Partial Least Square (PLS) model is carried out with evaluation *outer model* and evaluation *inner model*.

IV. RESULT / FINDING

Indonesia Virtual Tour is a work program from State Children's Visual company for promote Indonesian tourism through content *Virtual Reality*, already stand up since 2018. One of the The advantages of Indonesia Virtual Tour are: being the first media to display Virtual Reality in Indonesia and the world, can accessed via the *indonesiavirtual.com* website without collected cost . the weakness of the current Indonesia Virtual Tour this that is lack of content location tourism in Indonesia and when this in production process. Experimental marketing strategy for Indonesia Virtual Tour with method educate government, party private sector, students, students, and all Public about benefit Virtual Reality content for Fulfill needs information, promotion, digital recreation, and documentation. Development process Indonesia Virtual Tour innovations, namely with give information more deep from existing content. On the picture will given a visual if picture the clicked will appear explanation and description about image. Impact positive experienced by Indonesia Virtual Tour since Covid-19 pandemic due to The content provided by Indonesia Virtual Tour contains: education, so that people who haven't once visit something the place tour Becomes know about the place tour through content provided by Indonesia Virtual Tour without must visit the place tour by straight away.

Characteristic results respondent from study this is as following. Respondents who filled in questionnaire consist of 100 divided respondents to 48 respondents man male (48%), and 52 respondents women (52%). According to range age , majority age respondent in 17-24 years old as many as 55 respondents (55%), age in span of 24-27 years as many as 29 respondents (29%), age in 27-30 years old as many as 12 respondents (12%), age > 30 years as many as 4 respondents (4%).

Analysis using SEM-PLS via application SmartPLS 3.0. Step first analyze evaluation *outer model* is measurement for evaluate validity and reliability of the model. Evaluate this model conducted through validity tests (convergent validity and discriminant validity), reliability tests (Cronbach's alpha and composite reliability) and multicollinearity tests. Outer model analysis is done for ensure that measurement used already worthy for made measurement (valid and reliable) through the following outer model picture this.
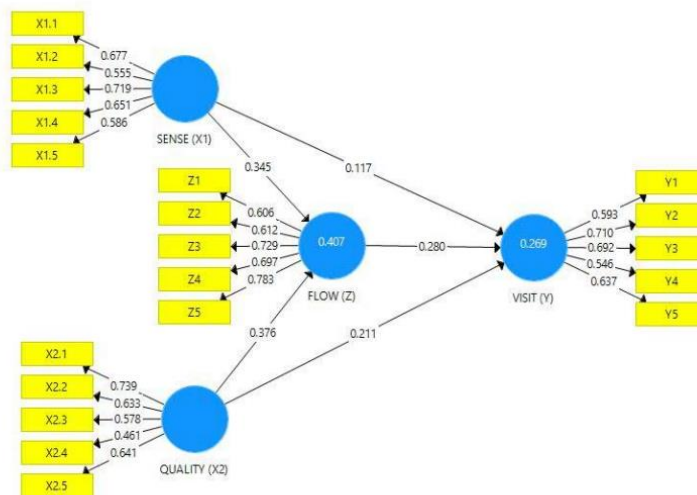
Fig 2. Outer Model

Based on Fig 2. Outer model above, every indicator show score *outer loading* > 0.7 by *communality* > 0.5 and not show existence indicator with score *outer loading* < 0.5. Thing this show that every indicator study this could said to be valid *convergent validity* .

Table 2. Outer Model

	AVE	Cronbach's Alpha	Composite Reliability
SENSE (X1)	0.646	0.644	0.775
QUALITY (X2)	0.603	0.585	0.751
VISIT (Y)	0.623	0.642	0.773
FLOW (Z)	0.745	0.723	0.817

Validity discriminant be measured from Average Variance Extracted (AVE) value for each construct. Every indicator must correlated tall to the construct so that is said to be valid if AVE value > 0.5. based on table 2. on every variable show AVE value > 0.5 with score Sense variable (X1) is 0.646, the value of Quality variable (X2) is 0.603, the value of Visit variable (Y) is 0.623, and the value of Flow variable (Z) is 0.745. so could concluded that every variable study said to be valid *discriminant validity.*

Reliability rated from score cronbach's alpha or composite reliability on each construct. Variable said *reliable* if have score cronbach's alpha or composite reliability is > 0.7 but 0.6 is still accepted. Based on table 2. above, every variable show score cronbach's alpha sense variable (X1) is 0.644, the value of Quality variable (X2) is 0.585, the value of variable Flow (Z) of 0.723, the value of Visit variable (Y) is 0.642 . temporary score *composite reliability* with score Sense variable (X1) is 0.775, the value of Quality variable (X2) is 0.751, the value of Flow variable (Z) is 0.817 and the value of Visit variable (Y) is 0.773. so could concluded that every variable study this said *reliable*.

Multicollinearity tested through value of VIF (Variance Inflation Factor) < 5 which means regression model free from multicollinearity . Based on table 2. multicollinearity test results show VIF value on each variable. VIF value on the Sense variable (X1) against variable Flow (Z) of 1.475, the value of variable Quality (X2) against variable Flow (Z) of 1.475, the value of Sense variable (X1) against Visit variable (Y) is 1,676 , value variable Flow (Z) to Visit variable (Y) is 1,687, and the value of variable Quality (X2) against Visit variable (Y) is 1,713. so could concluded that all variable free from multicollinearity.

Inner model is a structural model for predict connection causality between latent variable. Evaluation *inner model* use *Coefficient Determination* (R2), Goodness test (*Godness of Fit*), *Effect Size test* (f²) , and Hypothesis Testing (T-test, *Direct Effect* and *Indirect Effect*).

Table 3. Inner Model

	VIF	f Square	t Statistics	t Table	Original Sample	P Values
SENSE (X1) → FLOW (Z)	1.475	0.136	3.943	1988	0.345	0.000
QUALITY (X2) → FLOW (Z)	1.475	0.161	3.606	1988	0.376	0.000
SENSE (X1) → VISIT (Y)	1,676	0.011	0.958	1988 TD	0.117	0.338
QUALITY (X2) → VISIT (Y)	1,713	0.035	1,612	1988 TD	0.211	0.108
FLOW (Z) → VISIT (Y)	1,687	0.064	1990	1988	0.290	0.049

Table 4. Coefficient Determination

	R Square	R Square Adjusted
VISIT (Y)	0.269	0.246
FLOW (Z)	0.407	0.395

Determination coefficient value expected between 0 and 1 with criteria score *R Square* below 0.33 – 0.19 stated have score low, then 0.33 – 0.67 has score medium, for value 0.67 and above have score strong. Based on table 4. above, *R Square* used for see big the effect of SENSE (X1) and QUALITY (X2) on VISIT (Y) with score is 0.269 then declared weak. Then *R Square* used for see big the effect of SENSE (X1) and QUALITY (X2) on FLOW (Z) with score of 0.407 then declared have score medium.

Test of goodness (Godness of Fit) is measured from score quantity *Q Square*. If the quantity *Q Square* have score with range $0 < Q^2 < 1$. Here Q Square calculation of construct study this :

$Q \: Square = 1 - [(1 - R^21) \: x \: (1 - R^21)]$

$= 1 - [(1 - 0.269) x \: (1 - 0.407)]$

$= 1 - (0.731 \: x \: 0.593)$

$= 1 - 0.433483$

$= 0.56617$

Q Square Nilai of 0.56617 or 56% who meet quantity range *Q Square* that is with range $0 < Q^2 < 1$. It means level the variety of models shown independent variable in explain variable dependent by 56% and the rest by 44% still influenced factors other. In other words result calculation show that research model declared have *predictive relevance*.

Test *effect size* with score *f square* for evaluate big influence between variable with criteria value 0.02 declared have score small, criteria value 0.15 declared score medium, and criteria value 0.35 declared score big. Based on table 3. on score *f square* on the Sense variable (X1) against variable Flow (Z) of 0.136 is stated small, value influence variable Quality (X2) against Flow variable (Z) of 0.161 is stated medium, value influence Sense variable (X1) against Visit variable (Y) of 0.011 is declared small, value the effect of Quality (X2) on Visit (Y) of 0.035 is stated small and value the effect of Flow (Z) on Visit (Y) of 0.064 is stated small.

Hypothesis test is method taking decisions based on data analysis. Hypothesis test using the T test (*T-test*), the effect of direct (*direct effects*) and influence no direct (*indirect effects*).

H1. Sense of flow experience

Influential sense positive significant to the flow experience, according to with hypothesis test results from score *T Statistics* 3,943 > 1,988 and result direct effect analysis influential positive significant seen from score *Original samples* of 0.345 and *P Values* 0.000 < 0.05. Thing this describe that the more good sense then the more good flow experience too.

H2. Quality Information on Flow Experience

Quality Information matters positive significant to the flow experience according to with the results of the hypothesis test shown from score *T Statistics* 3.606 or > 1,988 (t- table) and the result direct effect analysis which has influence positive significant proved with score *original sample* is 0.376 and *P Values* 0.000 < 0.05.

H3. Sense of visit intention

Influential sense positive no significant to visit intentions. In accordance with the results of hypothesis testing that show results the t-statistic value is 0.958 or <1.988 (t-table) and the results stated direct effect analysis have negative influence no significant proved with the original sample value is 0.117 and *p values* are 0.338 > 0.05.

H4. Quality information on visit intention

Quality information has an effect positive no significant to visit intention, p this in accordance with the results of the hypothesis test shown from score *T Statistics* 1.612 or < 1.988 (t-table) and results direct effect analysis stated have influence positive significant proved with the original sample value is 0.211 and the P values are 0.108 > 0.05.

H5. Flow Experience on Visit Intention

Flow experience matters positive significant to the appropriate visit intention with the results of hypothesis testing that show T Statistics value 1.990 or > 1.988 (t-table) and the result direct effects analysis stated have influence positive significant proved the original sample value is 0.290 and P values are 0.049 <0.05.

H6. Flow Experience as mediation Among sense of visit intention.

Flow experience mediates influence sense of visit intention. This thing in accordance with results analysis of both stated indirect effects same same positive significant proved with results Sense analysis (X1) → Flow (Z) → Visit (Y) show score *original sample* of 0.097 with *P Values* 0.31 < 0.05.

H7. Flow Experience as Mediation Quality information on Visit Intention

Flow experience mediates influence *Quality information* to *Visit Intention* proved with Analysis of Quality (X2) → Flow (Z) → Visit (Y) shows the original sample value is 0.105 with *P values* 0.041 < 0.05.

V. DISCUSSION

Visualization in virtual reality becomes key for promote destination travel. Study this researching flow on the virtual experience felt by tourists, to convey the effect of sense, flow experience and quality of information obtained. Component main in virtual tourism that affects experience tourists, namely sense and quality information. Second component this relate with psychological tourists, so that the sense and flow experience will increase satisfaction tourists. If satisfaction traveler tall so will increase interest traveler for explore destination tour more continued. Virtual reality can used as tool effective marketing (Huang et al 2013, Kim Lee & Jung 2020).

future development of virtual reality, we recommend for give experience quality sensory height, from side diversity and depth senses that feel, as well as information sensory will accepted by tourists. This thing means no only quality visual images high, but also accompanied by with audio and experience sense smell or different touch, so user will get description situational on a virtual reality tour. Besides virtual reality development, quality information loaded could add information that is influenced by time, season, and weather. So that aspects entered diverse and detailed from destination travel.

VI. CONCLUSION AND RECOMMENDATION

Innovation technology in industry tourist as one method for Fulfill needs with give experience great tour ordinary. Innovation technology give opportunity new along development internet technology. Innovation technology tourist moment it's on development global network and reservation, marketing and management electronics and design virtual tourism. Moment this has many give birth to tourism virtual community such as TripAdvisor, Ctrip, Mafengwo (Chen et al., 2021; Chiao et al., 2018; Voronkova, 2018) tourism design using virtual reality is becoming a opportunity potential in industry sustainable tourism. Virtual reality will revolutionize experience consumer with cost affordable. This thing make virtual tourism an opportunity big in the future come (Verma et al., 2022).

Study this produce that Sense matters positive significant on flow experience, Quality Information has an effect positive significant on flow experience, Sense has an effect positive no significant on visit intention, quality information has an effect positive no significant on visit intention, Flow experience has an effect positive significant to visit intention, Flow experience mediates the influence of sense on visit intention, Flow experience mediates influence *Quality information* to *Visit Intention.*

Limitations study this is respondents used only ever using the Indonesia Virtual Tour, in addition to that there is qubic360, and atlasvirtual.id. for future study, need existence research on video based virtual tours from youtube, like tourism vlogs. More steps advanced must developed for catch component technical and experience unique from virtual reality technology. Studies in Century front must researching about things that affect experience trip that is individual, as well as add source respondent similar.

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The Leadership In Indonesia: Students' Perception

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Abstract
Since its independence in 1945, Indonesia has experienced several changes in President, beginning with the demands of students and the public for the President to step down as leader of the state and government. These demands are driven by political tensions and economic conditions, which make it enjoyable to examine from the perspective of leadership in Indonesia based on student perceptions. The research method was carried out by surveying students from the 2018 class of the Management study program, Faculty of Economics, Galuh University. Analysis of the data used is descriptive analysis taken from 106 questionnaires as research samples. Based on student perceptions so far, leadership in Indonesia concludes; they agree that the leader has a vision to improve the fate of the people, that the leader is not selfish, doubts that the leader pays attention to the chance of the people, doubts that the leader knows the condition of society, doubts that the leader has a clear mission to achieve the vision, doubts that the leader has a clear goal of achieving the vision, doubt the leader has a clear strategic plan to achieve the vision doubts that the leader is committed to achieving the vision suspects that the leader is consistent in achieving the vision doubts the leader keeps his promises to attain the vision doubts that the leader can achieve the vision doubts that the leader has the skills to achieve the vision. They suspect that the leader has experience in achieving the vision.

Keywords— *Leadership; Students' perception*

I. INTRODUCTION

Indonesian state, which adheres to a presidential system, is led by a president as an executive elected through a general election and assisted by a vice president and ministers in the cabinet. The President is the head of the state and the head of the government who must fight for a just and prosperous people's life per the 1945 Constitution and Pancasila mandate. The President, as head of the state and the head of the government, is a state leader who is obliged to uphold national, religious, and cultural values prevailing in society. In the provision of the Presidential Constitution, special requirements have not been set for having the ability to lead, even though carrying out his duties and responsibilities. A president has the highest power of the executive institution by the mechanisms regulated by the legislation.

A leader has advantages over others in ability, trait, and attitude. A leader with various benefits will develop a behavior of influencing others to achieve a common goal. This is what is meant by leadership according to (Hutahaean & SE, 2021) "*Community leadership helps to develop a 'new shared vision for the future to reflect the collective needs of the group.*

A leader is also the best person who is chosen to be able to direct all available resources to achieve a common goal elected by all members both formally and informally. The common goal deals with the group's plan, and the broader goal deals with the organization's vision.

Within the interaction among group members, a leader will generate leadership behavior. This follows the opinion of (Terry, 2021), who stated, "The leadership is activities to influence people willing to work together to achieve group goal voluntarily."

Based on the definition above of leadership, it can be concluded that the administration is:

a. A leader is a person with a vision with a broader future plan or visionary who is concerned with their interests and the fate and condition of the people they lead in the long term.

b. People with clear direction to achieve the vision. a leader has a clear path to achieving the image that is described through goals and objectives, as well as a strategic plan that can be implemented properly

c. People who commit to achieving the vision. A leader who is determined to achieve the vision and always keeps the promises has made himself to realize a common goal.

d. People who have the skill to achieve the vision. A leader certainly has the competence and skill to lead in achieving the vision he has made.

Several Presidents in Indonesia had to step down before the end of their office term due to the people's demand who were dissatisfied with their leadership. This signals how important it is to have a future presidential candidate with a leadership quality that is by the community's noble values and understands the community's wishes. Indonesian people's disappointment with their leaders peaked in 1965 and 1998, which resulted in student demonstrations demanding the resignation of the state leadership. So far, the President, either directly elected by the people or in office due to the transition of power, has not been able to solve the problem of corruption in Indonesia. This is important to find a leadership format in the future that is to the expectation of the Indonesian people to be able to make a just and prosperous nation as well as a developed country. In this era of globalization, it has unwittingly threatened the awareness of human "spirituality ."One of its forms is a justification for an action that harms others, such as corruption. Based on a quote from Tempo Magazine (27 January 2016) that in 2015 there were 168 countries observed by the CPI (Corruption Perception Index).

The countries in the top ranking are Denmark, Finland, Sweden, New Zealand, Netherlands, and Norway. Meanwhile, the countries at the bottom are South Sudan, Sudan, Afghanistan, North Korea, and Somalia. Indonesia ranks 88th with a CPI score of 36. This means that Indonesian people still tend to commit acts of corruption. (Agustina, 2016). The information achieved by Indonesian people dealing with the increased crime in the governance decreased public trust in the government. The leaders in Indonesia have not been able to manage the nation's problems until now, and it is not clear yet whether the cause is from the leadership, power, legitimacy, or other things. This makes the author interested in examining more deeply the leadership in Indonesia.

This research is expected to be helpful for those who are given the mandate to lead the Indonesian nation, both from the highest to the lowest leadership in the community in the administration of the Indonesian state, to have a reference or guide about Indonesia's Future Leaders who bring Justice and People's Welfare. Furthermore, in addition to the aforementioned practical benefit, this research is also helpful in developing knowledge in the field of Management Science, particularly in the area of leader and leadership.

II. Literature Review

The leader and the leadership have different meanings. The leader focuses more on people as the subject, while the leadership focuses more on the issue's nature, attitude, and behavior. A leader arises because there is interaction in a group with a common goal, either formally or informally chosen. It is during the exchange in the group that the leadership grows, and it can be observed that various theories about leadership emerge.

A. Leader

The leader, according to "*In the broadest, one who leads by initiating social behavior; by directing, organizing, or controlling the efforts of others; or by prestige, power or position. The effective stimulus giver in social behavior"* (Northouse, 2021). The leader, according to Gage Allee. (1969:214) in Winardi (2012:304), "*In a restricted sense, one who leaders using persuasive qualities and voluntary acceptance on the part of follower."*

The formal leader, according to Winardi (2012:331), is "a person (male or female) who is appointed by a certain organization (private or government) to hold a position (based on the letter of appointment from the organization concerned) in its organizational structure with all rights and obligations related to it to achieve the organization goals that were originally set."

The informal leader, according to Winardi (2012:337), is "an individual (male and female) who has some qualities (objective or subjective although they did not receive a formal juridical appointment as a leader that enable to reach the position as persons that give the influence to such a community group's action and behavior either in a positive or negative meaning."

Tampubolon (2012:115) states that "the leaders must provide direction, encourage, and represent group members based on their respective levels. They should understand what is being done and what is being done by coordinating all efforts in the group towards one direction, namely the target to be achieved."

Tampubolon (2012:117) lists some essential traits for a leader: integrity, intelligence and knowledge, sincere human sympathy, and self-awareness.

According to Ivancevich at. al. (2008:413): *Leadership is defined as the process of influencing others to facilitate the attainment of the organizationally relevant goal. Leadership uses influence in an organizational setting or situation, produces meaningful effects, and directly impacts accomplishing a challenging goal.*

Leadership is said to be a process of influencing others to facilitate the achievement of relevant organizational goals. The administration uses the influence within an organizational framework or situation to produce a meaningful effect and directly impact the achievement of challenging goals.

Leadership is about influencing, motivating, and enabling others to contribute toward the effectiveness and success of the organizations they are members of. (McShane, 2010:360). Therefore, it implies that leadership is about influencing, motivating, and enabling others to contribute to the effectiveness and success of an organization.

Flippo's leadership style (1984:122) can be formulated as a behavior pattern that combines organizational and personal interests to pursue several goals. Furthermore, Flippo divides leadership styles into (1) coercive autocracy. If necessary, the leader gives orders and threatens (2) benevolent despotism. The leader provides order and explanation and gives positive encouragement if the desired behavior is carried out, (3) manipulative leader. The leader drives subordinates to think that they are highly participative when the leader is pulling the strings behind the scenes, which results in a sophisticated leader, (4) consultative leadership makes employees feel and believe that their inputs are wanted. It can impact the decision in question, and (5) a laissez-faire approach. An approach in which the leader wants to join the group as a fellow participant and do what the group wants to do.

A leader may adopt more than one leadership style to run the organization because a leader's leadership style is influenced by the strengths of subordinates, leaders, and situations. According to Flippo (1984:123), the theory on the situational framework of leadership style concludes:

B. Theory 3-D Reddin

Theory 3-D Reddin revealed that initiating and considering are the two most important leadership behaviors. Reddin introduces a mix of styles in four types of main situations using task orientation and relationship orientation dimensions. The division of the entire field into four cells results in cases in which the manager can be (1) detached from both human and task consideration, (2) highly task-oriented and less concerned with people, and (3) highly human-minded with little concern for tasks, and (4) very concerned about the integration between tasks and humanitarian goals.
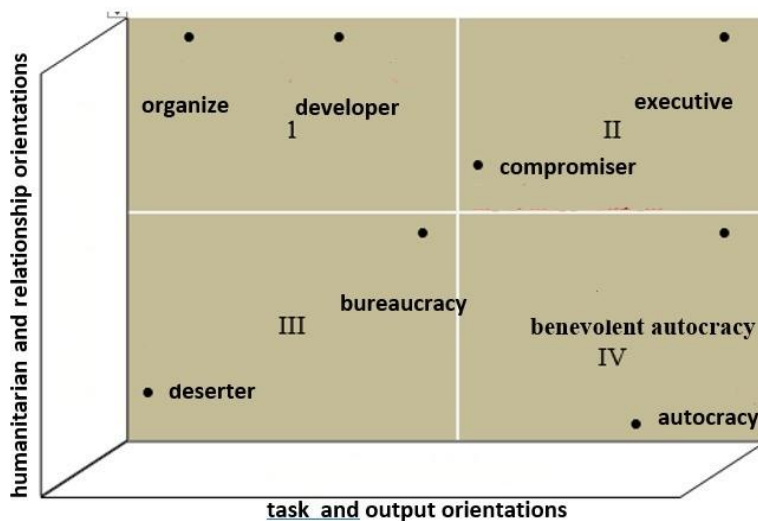
The situation I - Work with a humanitarian orientation, e.g., personnel department.

Situation II - Work with an integrated orientation, e.g., top management
Situation III - Somewhat separate work, e.g., financial data processing
Situation IV - highly task-oriented work, e.g., production.

The figure of Leadership style
Framework (Reddin)
Source: (Flippo, 1984:124)

In situation I, the "missionary" style is too extreme, and the more effective manner is "development" (developer), where the orientation is more directed at helping humans describe skills that will be useful in completing tasks. Managers who work in personnel units tend to have styles within this area.

Situation II is typical for top positions in the organization. In this situation, long-term achievement demands task integration and human values. The executive style, which is more effective, tries to maximize both value sets. At the same time, the "compromiser" is willing to plan a political exchange through a trade-off approach and a "minimizing difference" approach. The work related to enforcing procedures, data processing, and finance tend to place more emphasis on the technique than the goal. This is covered in situation III, where the more effective style is called "bureaucrat," and the less effective is called a deserter. Finally, situation IV relates to the work where the priority is task completion. Benevolent autocrats try to "buy" cooperation through appeals, paternalism, benefits, and executive justice. The more extreme "autocratic" style leads to resistance and disobedience.

According to Reddin, the situational framework of the leadership style means if all good ones or only effective ones are taken, then a leader is;

a. a developer who always helps his subordinates to have skills that will be useful in completing tasks,
b. an executive who always puts a priority on human values and task values
c. a bureaucrat who always tries to optimize the way of work, procedures, and processes with a clear hierarchy.
d. a benevolent autocrat who always cooperates and provides benefits and justice.

C. Fiedler Contingency Theory

This leadership theory approach uses a situational system composed of eight very different situations and two main leadership styles. In identifying the eight situations, three main elements were analyzed: (1) leader-member relationship, (2) task structure, and (3) positional power of the leader. The measurement of member-relationship is carried out on a group atmosphere scale, indicating the level of recognition of subordinates towards the leader. Task structure is measured by evaluating the clarity of objectives, the verifiability of the decisions taken, the firmness of the solution, and the number of options available for problem-solving. Finally, the strength of a leadership position is determined by its influence on reward and punishment and by the amount of official authority.

Two leadership styles proposed by Fiedler are task-oriented leadership and relationship-oriented leadership. The first style will be effective if the situation is straightforward (1,2, and 3) or the problem is complicated (8). The second style will be more effective in a medium or intermediate situation with moderate difficulty.

According to James A.F. Stoner & R. Edward Freeman (1994: 538), power is obtained not only from one's level in the organizational hierarchy but also based on five sources or power bases according to John French and Bertam Raven. Each can occur at all levels.

a. Reward power: is based on the ability of an influencer who can reward other people who are influenced to carry out orders or fulfill additional requests.
b. Coercive power: is based on the ability to influence to punish influencers for not complying with requests which is a negative side of reward power.
c. Legitimate power: deals with the term authority, which occurs when subordinates or those receiving influence acknowledge that the influencer has the right to influence within certain limits. It also means that the influence recipient must recognize this power.
d. Expert power: is based on the opinion or belief that the influencer has relevant expertise or knowledge that the influencer does not have.
e. Referent power: which a person or group can have, is based on the desire of the influencer to imitate the influencer.

III. RESEARCH METHODOLOGY

This study uses a survey method on students of the Management Study Program, Faculty of Economics, Galuh University, by distributing perception questionnaires online. The online questionnaire link is distributed through the Whatsapp Class Group. Of the 376 active students in the 2018 or seventh-semester population, 106 questionnaires were collected using incidental random sampling of the sample in the study. According to Sugiyono (2016; 124), Incidental Sampling is a sampling technique based on chance; that is, any patient who coincidentally meets the researcher can be used as a sample if it is deemed that the person who happened to be completed is suitable as a data source. Data analysis techniques using descriptive statistics, which include; average score, lowest score, highest score, frequency, total score, and Graph.

IV. RESULT / FINDING

So far, the measurement result of the leadership in Indonesia is based on students' perceptions consisting of the vision of the leader to improve the fate of the people, the leader is not selfish, or he thinks about his group, the leader cares about the future of the people, the leader knows the condition of the people, the leader has a clear mission to achieve the vision, the leader has a clear goal to achieve the invention, the leader has a clear strategic plan to achieve the image, the leader has a commitment to achieve the vision, the leader is firm to attain the invention, the leader keeps promises in achieving the picture, the leader can reach the image, the leader has the skills to achieve the vision and has experience in achieving the vision. Further explanation is as follows;

Indonesian leaders have a vision so far to improve the fate of the people.

Source: Kuesioner
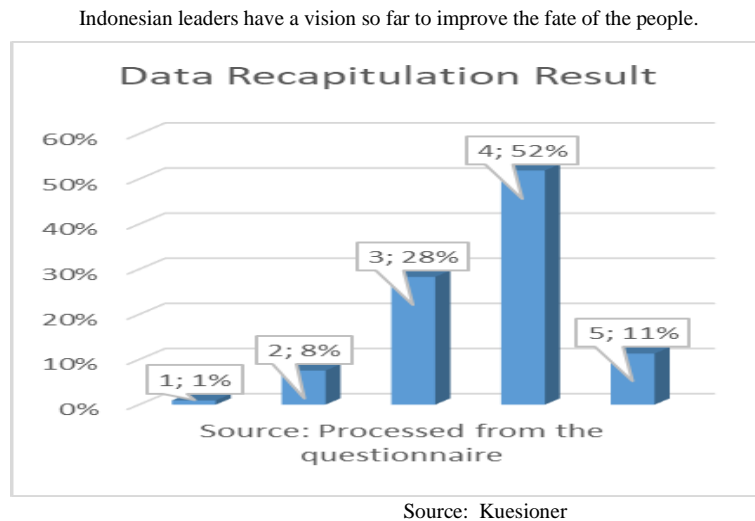
The survey result shows that 52% of students agree that leaders in Indonesia have the vision to improve the fate of the people. Each presidential period, the President's vision is reflected in the National Long Term Development Plan (NLTDP). In the NLTDP, the economic development goal is essential in reducing poverty.

Leaders in Indonesia have not prioritized their interests or one group's interests so far.
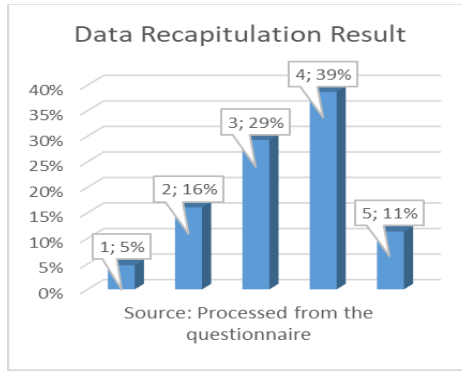
Source: Kuesioner

The result shows that 39% of students agree that leaders do not care about themselves and their groups. Therefore, the people can feel that the leadership in Indonesia is not concerned with their interests or for one group. This is evidenced by the people having equal opportunities or the absence of discrimination against them to obtain their rights as citizens.

Leaders in Indonesia have cared about their people's fate so far.
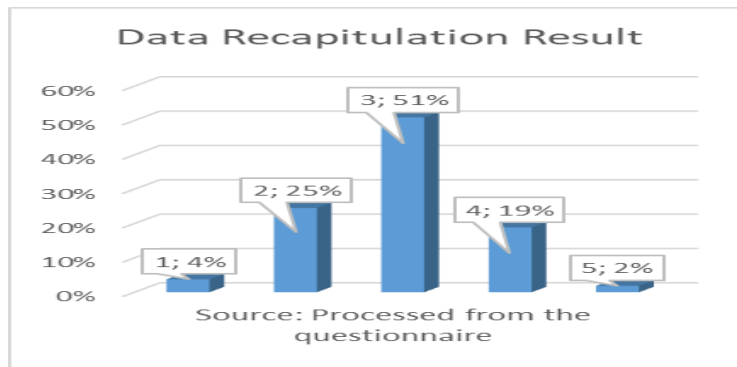
Source: Kuesioner

The survey results show that 51% of students are doubtful that leaders in Indonesia care about the fate of their people. Programs for alleviating poverty, improving welfare, reducing illiteracy, a program of empowering the community, and gender equality to improve the human development index are still sustained every year. This is a kind of government concern for its people's fate. However, the students' perception revealed that they are still doubtful about the programs put forward as a kind of leaders' concern for the future of their people.

Leaders in Indonesia know their people's condition so far.
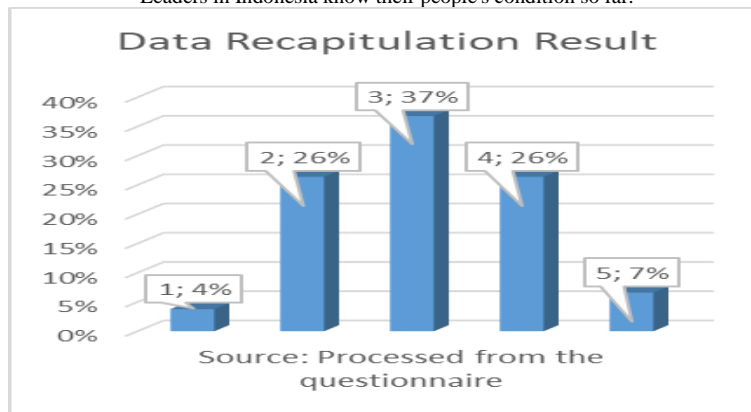
Source: Kuesioner

The survey result showed that 37% of students are doubtful that leaders in Indonesia know the condition of their people. Population and economic census, conducted by the Central Statistics Agency and the SDGs of Bappenas, are data sources for leaders to make decisions regarding sustainable development plans.

Leaders in Indonesia have a clear mission so far to achieve the vision.
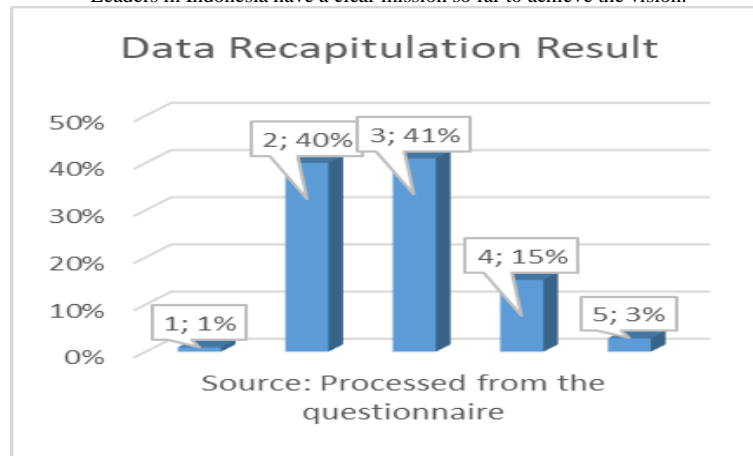
The survey result showed that 41% of students are doubtful that leaders in Indonesia have a clear mission in achieving their vision. There is planning that involves many parties and the emergence of various interests of individuals and groups that can distort the task of leaders to achieve their vision.

Leaders in Indonesia have a clear goal so far to achieve their vision.
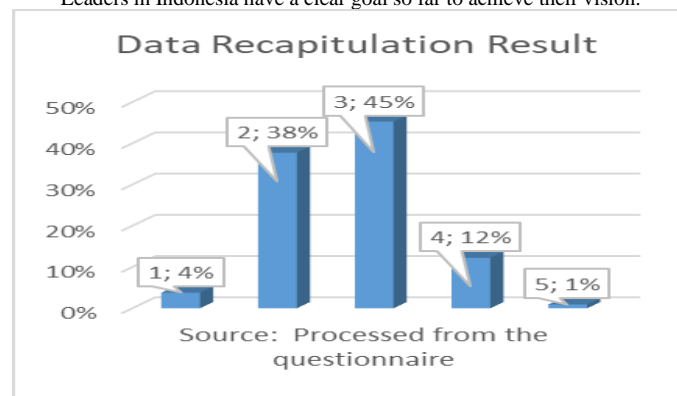
Source: Kuesioner

The survey result showed that 45% of students are doubtful that leaders in Indonesia have clear goals in achieving their vision. Bias in planning shows that the purpose of performing the invention is hampered. The reality of state conditions can change the plans that have been previously determined.

Leaders in Indonesia have precise strategic planning so far to achieve their vision.
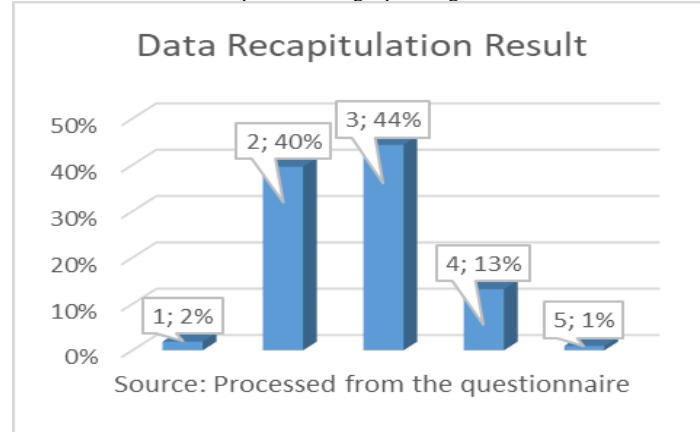
Source: Kuesioner

The survey results showed that 44% of students are doubtful that leaders in Indonesia have a clear strategic plan to achieve their vision. Strategic plans that affect the achievement of the invention, the pattern of short-term planning to facilitate the evaluation of the results of the implementation of the program is still unable to describe the achievement of the vision.

Leaders in Indonesia have committed so far to achieving the vision.
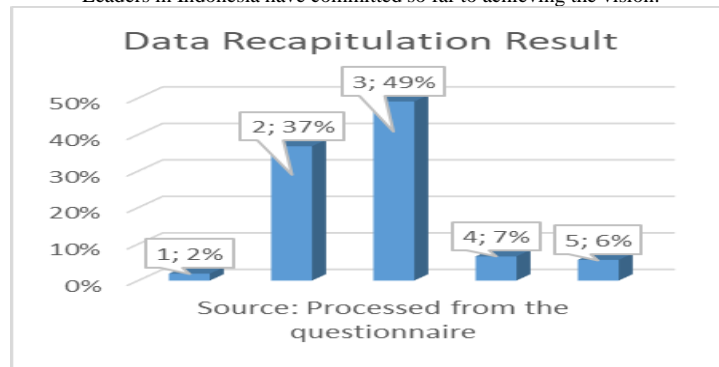
Source: Kuesioner

The survey results showed that 49% of students are doubtful that leaders in Indonesia commit to achieving their vision. The hard work to realize the nation's ideals to become a competitive nation has not been enough to describe the leader's commitment.

Leaders in Indonesia have firm principles so far to achieve their vision.
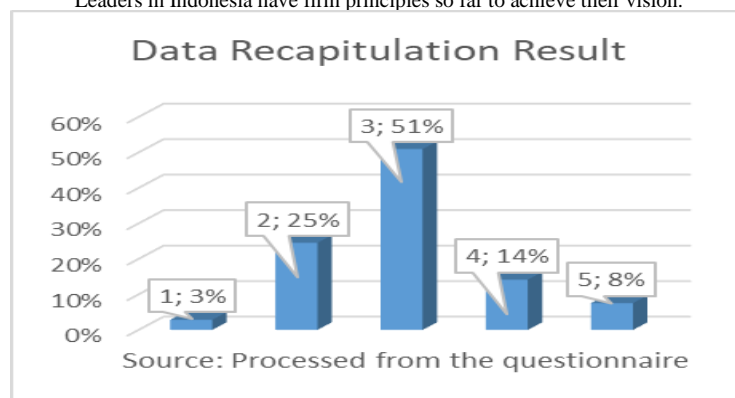
Source: Kuesioner

The survey results showed that 51% of students are doubtful that leaders in Indonesia are firm in their stance to achieve their vision. Therefore, the implementation of supervision and control or supervision of the leader is implemented so that the image they make is achieved, as a kind of firm stance.

Leaders in Indonesia have kept their promise so far to achieve their vision.
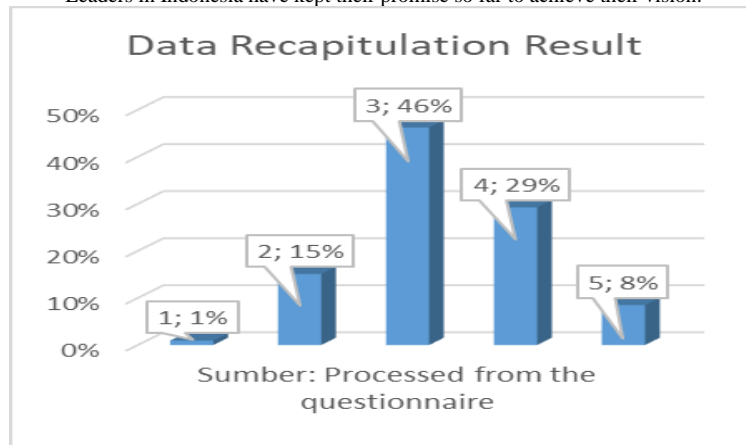
Source: Kuesioner

The survey results showed that 46% of students are doubtful that leaders in Indonesia fulfill their promises to achieve their vision. This is because many political commitments that are not realized have resulted in people's doubt that their leaders can fulfill their promises to attain their idea or not.

Leaders in Indonesia can achieve their vision.
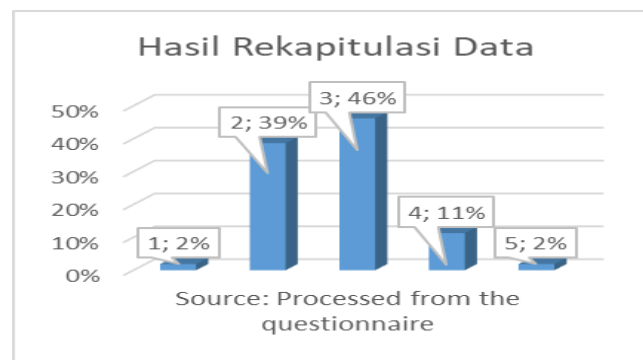
Source: Kuesioner

A survey showed that 46% of students doubt that leaders in Indonesia can achieve their vision. However, the minimum requirement for high school education for prospective presidents reflects that academic ability is not essential for future leaders.

Leaders in Indonesia have the skill to achieve their vision.

Source: Kuesioner

The survey results showed that 52% of students doubt that leaders in Indonesia have the skill to achieve their vision. The outcome of a democratic election that does not require specific competencies for a leader becomes a measurement bias of a person's skill to become a leader.

Leaders in Indonesia have the experience to achieve their vision.

Source: Kuesioner

The survey result showed that 45% of students doubt that Indonesian leaders have the experience to achieve their vision. The length of the office term is not the experience standard of a leader.

The leadership condition, based on the survey, is not in line with the concept of Leader Self-efficacy from Rehm, Rehm & DeVona (2021) stated that "A leader's assessment of their ability to organize and carry out the action necessary to achieve the type of determined leadership outcome."

V. DISCUSSION

In Indonesia, in this case, state leaders are needed leaders who have a vision of the fate of their people, do not care about themselves or groups, know the future of the people, have a clear mission, and have goals to achieve the vision, have a strategic plan, high commitment to achieving the vision, have Leaders who are firm in their stance in achieving the vision, always keep promises, have the ability and skills to achieve the dream, and are experienced.

VI. CONCLUSION AND RECOMMENDATION

Indonesian leaders have the vision to improve the fate of the people, do not prioritize their interests and specific groups, pay less attention to the future of the people, do not know the fate of the people, and lack a clear mission in achieving the vision, lack clear goals to attain the vision, lack a clear strategic plan in achieving the vision, achieve the vision, lack of commitment to achieve the vision, lack of firm principle in achieving the vision, lack of promise in achieving the vision, lack of skills to achieve the dream, and lack of experience in fulfilling the vision.

Leaders and potential leaders in Indonesia should be able to self-assess their ability to achieve their vision (the concept of Leader Self-efficacy).

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Analysis Of The Role Original Local Government Revenue On Economic Growth Of Garut Regency: Moderating Variable Tourism

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Abstract
The COVID-19 pandemic has had an impact to economy of Indonesia. The sector of transportation, tourism, trade, health and other sectors had experience a decline. The decline of economic growth occurred in all regions including Garut which is the object of this research. The potential tourist attraction of Garut in the form of biodiversity, uniqueness and authenticity of regional culture, the beauty of landscape and historical heritage is a source of original local government revenue and becomes opportunity for recovery of economic growth and implementation of economic development. The purpose of this study to analyze the role of local revenue on economic growth of Garut where tourism is a moderating variable. This research method is qualitative with a case study approach. The results showed that Covid-19 pandemic had an impact on decreasing the original local government revenue and economic growth of Garut, while the opportunity to increase local revenue was through the tourism sector with new infrastructure and a more comprehensive classification to increase economic growth.

Keywords— Original Local Government Revenue; Economic Growth; Economic Development; Tourism

I. INTRODUCTION

An economic development plan can be based on several aspects of consideration, one of them is normatively and taken from the results of scientific studies, then be positively implemented in certain development patterns. Economic development can work from the results of economic growth as capital to implement it, where economic development and economic growth are two of main economic analysis agendas for realizing prosperity (Muhamad Ferdy Firmansyah, 2021). Economic growth is a process of increasing output per capita in a long term (Ika Novita, 2014). The formation of economic growth isn't instantaneous there must be a process that leads to per capita output.

The COVID-19 pandemic impacted to the economy of Indonesia, there was a decline on transportation's sector, tourism, trade, health and other sectors and the most affected sector by COVID-19 is the household sector (Susilawati Susilawati, Reinpal Falefi, Agus Purwoko, 2020) . There are several strategies of government in countries of Southeast Asia to maintain economic stability in the midst of the crisis due to the COVID-19, first carry out massive spending to reduce the economic contraction, then forming a Covid-19 Handling Committee and National Economic Recovery, providing low-interest credit assistance, and preparing various programs for MSMEs could revive, placing funds in bank to turn the wheels of the economy and the government guarantees working capital loans for corporations (Inadha Rahma Nidya, 2020).

Economic growth experienced a decline in all regions of Indonesia, including Garut which was the object of this research. The economic growth of Garut for 2020 turned out to be minus around 1.3 percent, while the economic growth for 2022 reached 3.67 but still far below the West Java average and the national average. One of the efforts to solve this problem by developing the tourism potential in Garut (Garut Regional Government, 2021) . Tourism is traveling from a certain place to one or several places, stopping or staying for a while without intending to stay, and then returning to the place of origin (Soebagyo, 2012). Tourism has a positive effect for quality of life, economic growth, job creation, cultural development, and infrastructure development. Infrastructure and facilities are the key of factors tourism development in a region or country (Abdullah et al., 2014).

The potential tourist attractions of Garut are biodiversity, the uniqueness and authenticity of regional culture, the beauty of landscape and historical heritage (Desi Qoriah, Marti Dewi Ungkari, Husni Muharam, 2019). Garut Tourism and Culture Office (Disparbud) noted, in the span of 2019 there were approximately 2.8 million who visited to Garut. Of this amount, only about 5 percent of tourists are from foreign countries, while the target for 2020 is 3.1 million tourists (Disparbud Garut: 2020). The tourism sector can develop Micro, Small and Medium Enterprises (MSMEs) which have the potential to absorb labor (Hani Siti Hanifah, Deri Alan Kurniawan, Rostiena Pasciana, 2018). The level of visitor to Garut is still low due to the impact of the COVID-19 outbreak. In general, there has been decline about 50 percent (Antara, 2020).

The government carried out several strategies such as massive spending to reduce the economic contraction due to the Covid-19 pandemic, forming the Covid-19 Handling Committee and National Economic Recovery (T. Tetep, 2021). The original local government revenue (PAD) is regional income sourced from regional tax results, regional retribution results, separated regional wealth management results, and other legitimate regional original income, which provide for regions to exploring the funds in the implementation of autonomy as the embodiment principle of decentralization (Rudy Badrudin, 2021). Below is the Realization Report of Original Local Government Revenue in terms of taxes and levies for Garut:

Table 1. Report Realization of Original Local Government Revenue from Garut Taxes and Levies (Rupiah)

Number	Year	Realization of Taxes	Realization of Retribution	Amount
1	2018	128.132,223,278	22,839,731,670	150,971,954,948
2	2019	131.675,124,090	17,001,093,720	148,676,217,810
3	2020	116.413,508,912	11,970,216,330	128,383,725,242

BAPENDA Garut, 2021

Table 1 shows a decline from year to year where the total number cannot exceed the figure in 2018, causes delays in the realization of welfare programs and economic growth (Fajar Andriansyah, Amalia Risti Rahayu, Maulfy Aulia Putri, Khumairah Khumairah, 2021). The purpose of this study was to analyze the role of local revenue on economic growth in Garut Regency: Tourism Moderating Variables.

II. LITERATURE REVIEW

A. *Original Local Government Revenue (PAD)*

Original local government Revenue (PAD) is all regional revenue sourced from the original regional economy (Halim & Kusufi, 2014) which comes from regional taxes, regional retribution, local revenue which separated and other regional original revenues that legitimate. The tourism sector is generates regional retribution.

PAD as the main source of regional income is intended for the implementation of development by the Regional Government so the results of development can be enjoyed for the whole of community. This means, the greater PAD funds obtained by the region will be proportional to the rate of development in the area (Muhamad Safar Nasir, 2019).

B. *Economic Growth*

Economic growth is defined as the development of economy activities that causes increased of produce goods and services in the community and increase the prosperity of society (Sukirno, 2011) natural resources (SDA), human resources (HR), capital accumulation of managerial staff and production organization as supporting factors.

C. *Tourist*

According to Kurniansah (2019), tourism is a temporary journey from one place to another, carried out by individuals or groups, as an effort to find balance or harmony and happiness with the environment in the socio-cultural, natural and scientific dimensions. The supporting factors for tourism are accessibility, Infrastructure and Accommodation (Fitria Crli Wiseza, 2017).

III. RESEARCH METHODOLOGY

The research method of this paper used qualitative descriptive method, with the type of library research using library data collection methods, reading and processing research materials. The research design was carried out through several stages. First stage is tracing, recording, and reading various findings for each discussion of research results, articles, news, website of official government institutions, international institutions and other sources relevant to this study. Second stage is combining all of findings, both of theories, models and research concepts. Third stage is analyze each finding from various readings, both in term of advantages, disadvantages and the relationship between the writings discussed. The last stage is to provide a critical review by elaborating models and approaches that are different from the findings in the previous article (Zed, 2004). The research model described as follows:
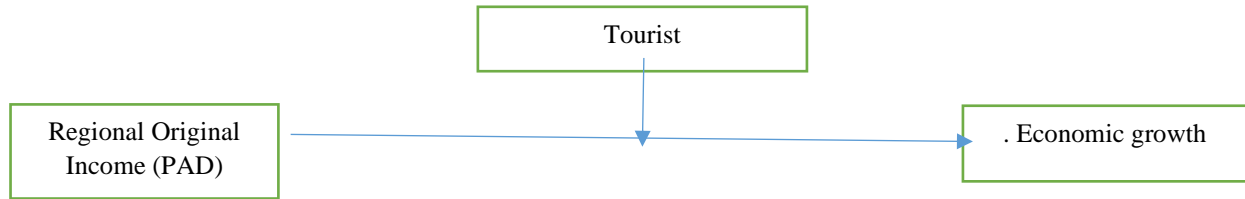
Fig 1. Research Model

IV. RESULT/ FINDING

Based on survey and interview equipped with data, reveal that economy development of Garut experiencing a decline due to the contraction of economic growth as an impact of Covid-19 pandemic. On the other hand, the tourism sector from all the existing potential is an opportunity for economic recovery to increase local revenue as a sources for economic development.

V. DISCUSSION

The Economic Growth Rate (LPE) of Garut For 2020 is minus 1.6 percent. However, based on data from the Central Statistics Agency (BPS) for 2021 the rate growth is 3.67 percent, means need to be improved by exploring sources of local revenue such as the tourism sector. Economic growth as a source of economic development in Garut still heavily subsidized from the center. At the beginning of the Covid-19 pandemic, original local government revenue of Garut (PAD) decreased as well as Local Revenue and Expenditure Budget Draft (RAPBD) for 2022 which was lower than expenditure due to various factors, one of which was the impact of the COVID-19 pandemic. Garut local revenue only contributes 7 percent, the remaining 93 percent comes from the central government and funds from the West Java Provincial Government (Antara, 2022). The largest decline occurred in the regional income sector from taxes and regional levies, with the largest contribution to the decline is hotel, restaurant and entertainment tax revenue. The decline in this sector is related to the existence of social restriction policy (PSBB) which has an impact on domestic and international tourist visits entering to Garut and affecting the economic chain, especially providers of accommodation, food and beverage for tourists. The decline in trading volume and activity has an impact on unachieved targets and decreased PAD for Regional Retribution Revenue Sector, especially for market service fees and retribution for recreation and sports (Garut Regional Government, 2020).

The opportunities to increase local revenue through the tourism sector by developing at various weak points of this sector. Should pay attention to influencing factors such as the number of tourism object that offered, the number of tourist both domestically and internationally, hotel occupancy rates, per capita income, the size of hotel taxes. and restaurants, and the size of the tourist attraction fees for help growth of regional revenue by increasing development of tourism sector (Sely Pratyka, 2020). The Tourism & Transport/TTF Forum (2012), stated that tourism infrastructure is a tourism supply chain consisting of three domains/regions, namely Transportation Infrastructure, Environmental Infrastructure and Social Infrastructure which is described as follows:
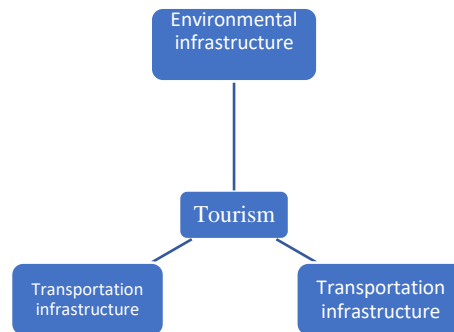
Fig 2. Supply Chain Interaction 3 Tourism Infrastructure

The correlation between the three domains can be a strategic step in efforts to improve the tourism sector which has contribution to PAD in terms of transportation, supporting environment and social infrastructure of the

community. In this case the government's role is very dominant in forming policies.Consequently, as an example of tourism infrastructure need more comprehensive classification as illustrated in the following chart (Yoga Pratama, Bima (2019):
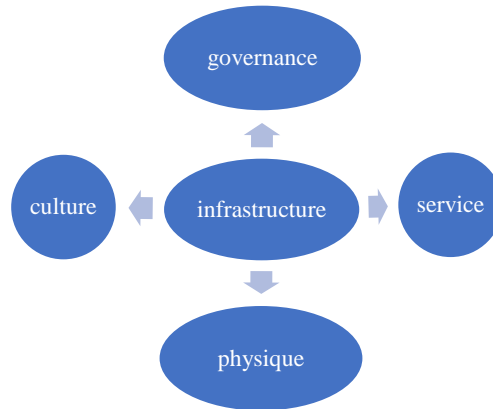
Figure 3. Comprehensive Tourism Infrastructure

Comprehensive efforts can also be made with a resource-based tourism approach, including: (a) Ecotourism; (b) Adventure tourism (Adventure Tourism); and (c) Cultural tourism. The tourism resources are mapped as follows:
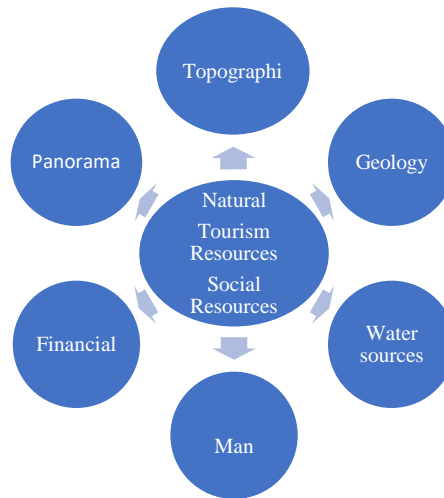
Figure 4. Tourism Resources

Through this effort, it is expected to increase PAD which has a positive impact on economic growth of Garut. There is a unidirectional causal relationship running from tourism to economic growth, confirming the tourism-led growth hypothesis. To increase Indonesia's economic growth, the tourism sector should be further promoted by making it more attractive, supported by sophisticated IT facilities, warm hospitality, and diverse tourist attractions (Mardhani, M., Majid, M.S.A., Jamal, A., & Muhammad, S. 2021). Through a comprehensive infrastructure, it is expected to optimize tourism which will increase regional revenue and economic growth of Garut.

VI. CONCLUSION AND RECOMMENDATION

The research conclusion and recommendation as follows:

a. The Covid-19 pandemic has an impact on the decline of regional revenue and economic growth in Garut.
b. Opportunities to increase regional revenue through the tourism sector with new infrastructure and a more comprehensive classification to increase economic growth.

There are recommendations, including:

c. Improving the tourism sector with a comprehensive tourism infrastructure through a resource based tourism approach
d. Strengthening factors that support economic growth and reduce constraints.

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Analysis of the Effect of Population, GRDP Growth, and Unemployment on Poverty in the Ex Residency of Pati in 2017-2020

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Abstract

Poverty is a fundamental problem that is often faced by every country, including developing countries like Indonesia. This study aims to determine the effect of population, GDP growth, and unemployment on poverty in the former Pati residency of Central Java in 2017-2020. In this study, how is the influence of the poverty factors studied. The sample of this research was conducted in 6 districts/cities in the former residency of Pati. The data used in this study is secondary data obtained from the Central Statistics Agency (BPS). The data analysis method used is panel data regression which is a combination of time series data and cross section data. The best model in this study is the Fixed Effect Model (FEM). Based on the results of data analysis shows that there is a significant effect of population on poverty in the former Pati residency, while GRDP growth has no significant effect on poverty in the former Pati residency. The f test results show that the estimation model used in this study exists, with a coefficient of determination of 0.982526. This means that 98.25% of the variation in Poverty change (KMS) in the former Pati Residency is explained by variations in population (JP), GRDP growth (PPDRB), movement (UNP). While the rest, which is 1.75%, is explained by variations of other variables that are not included in the model.

Keywords— Poverty; Population; GRDP Growth; Unemployment.

I. INTRODUCTION

One of Indonesia's national development goals is to promote general welfare. General welfare is a condition of meeting the material, spiritual and social needs of the country's population so that they can live properly and be able to develop themselves, so that they can carry out their social and economic functions (BPS, 2016) . Public welfare in Indonesia can be described, one of which is based on the level of poverty in Indonesia.

Poverty is a fundamental problem that is often faced by every country so that it becomes the center of attention of the government in any country, including developing countries such as Indonesia. The term poverty arises when a person or group of people is unable to meet the level of economic prosperity which is considered the minimum requirement of a certain standard of living. Poverty is one of the factors causing various problems regarding welfare, such as the inability to meet basic needs, remoteness, alienation, dependence, and limitations in accessing social services. (Nisbah, 2018) . According to Kuncoro (2010) the existence of poverty is a very complex problem caused by the inequality of resource ownership patterns that lead to an unequal distribution of income, Poverty arises due to differences in the quality of human resources (HR), low quality of human resources means low productivity This will ultimately result in lower wages. The condition of the low quality of human resources is caused by the low level of education among the poor, in addition there are factors of discrimination or heredity and differences in access to capital. If not handled properly, it will result in the emergence of other social problems. Therefore, poverty alleviation efforts must be carried out comprehensively, because it involves various aspects of people's lives. For this reason, the government's role in taking policies to reduce poverty is very much needed.

In the case of poverty , the population also has an effect. In each year the number of residents in a place / area will increase depending on the number of births. The population will be a problem for the government if it cannot be controlled, because if the population is increasing every year it will also cause high poverty rates. Population growth can reduce poverty depending on people getting jobs that can meet their needs. It is difficult for the government to provide jobs for the community if the population is high (Azizah et al., 2018) .

Another factor that also affects poverty is unemployment. Unemployment is the number of workers in the economy who are actively looking for work but have not yet found one. One of the elements that determine the prosperity of society is the level of income. The high unemployment rate shows the low level of income in the community. With low incomes, people will find it difficult to access goods and services, resulting in a decrease in welfare levels. The

increasing unemployment rate will hamper economic growth, as a result it will increase the poverty rate (Azizah et al., 2018)

GRDP is also a factor that influences poverty. GRDP is the amount of added value produced by all business units in a certain area and can also be said to be the sum of the value of final goods and services produced by all economic units (BPS, 2016) . The increasing GRDP in each region indicates that the government is able to improve the welfare of its people, thereby reducing poverty. The following data on poverty in Indonesia in 2017-2020 is shown in table 1.1.

Number of Poor People (Millions)
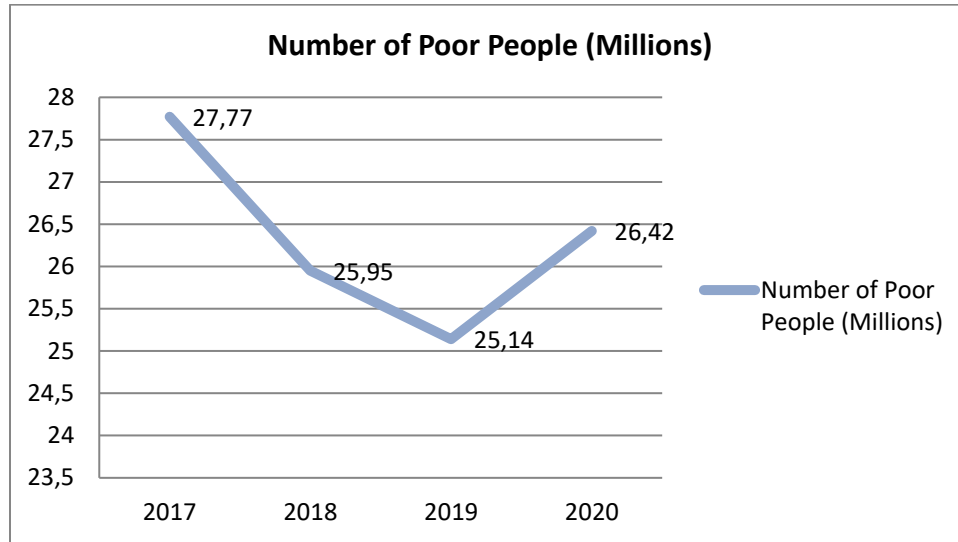
Fig 1. Number of Poor People in Indonesia in 2017-2020 (Source: Central Bureau of Statistics, 2022)

Fig 1. shows the poverty rate in Indonesia from 2017-2020. It can be seen that from year to year the poverty rate continues to decline, but the decline in the poverty rate in Indonesia can be said to be slow and the number of poor people in Indonesia is still large.

Number of Poor People (Thousand People)
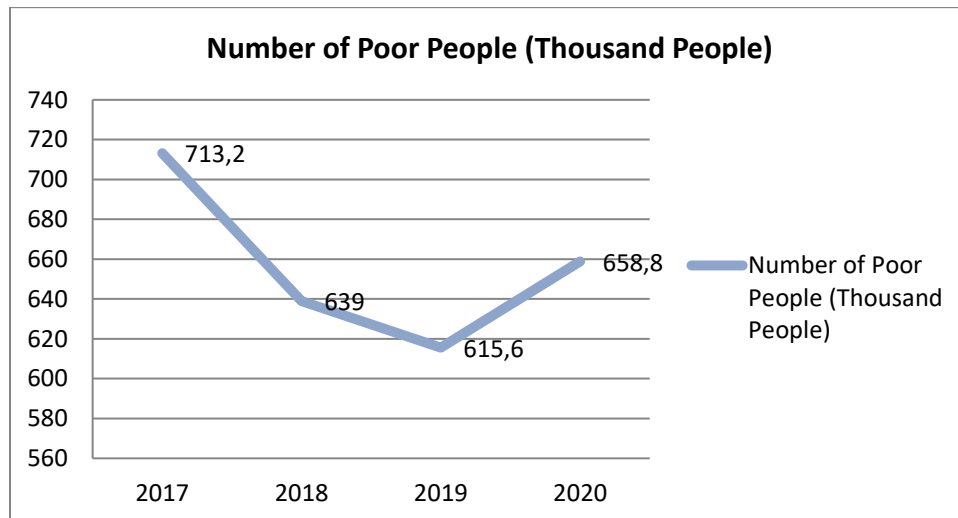
Fig 2. Number of Poor People in the Ex Residency of Pati Tahun 2017-2020 (Source: Central Bureau of Statistics, 2022)

The uneven number of poor people in the former Pati Residency reflects the lack of an even distribution of people's income. Figure 1.2 shows that the poverty rate in the former Pati Residency in 2017-2019 tends to decrease, but will increase in 2020. In this case, the problem of poverty is something that the government needs to pay attention to. If the number of poor people is still large, it will have a negative impact on the welfare of the community. When viewed

from the aspect of previous research, research on poverty in an area has been widely carried out and has shown mixed results.

Andhykha et al. (2018) , this study uses panel regression model data. The results of this study are GRDP and the Unemployment Rate have a positive effect on the Poverty Level in 35 Regencies/Cities in Central Java Province, while HDI has a negative effect on Poverty Levels in 35 Regencies/Cities in Central Java Province.

Azizah et al. (2018) , this study uses a panel data regression model. The results of this study are that the variables of education and income per capita have a negative and significant effect on poverty in the districts and cities of East Java Province, while the population variable has a positive and significant effect on poverty.

Yacoub (2012) , states that the results of this study are the unemployment rate has a significant effect on the poverty level of districts/cities in West Kalimantan Province. Empirical data shows a pattern of relationship that is not always unidirectional between the unemployment rate and the poverty rate. The unemployed in the household do not automatically become poor because there are other family members who have sufficient income to keep their family living above the poverty line.

Hassan (2015) , stated that GDP growth has not had a positive impact on the poor through the creation of sufficient employment to reduce the percentage of unemployment and the incidence of poverty during the study period.

Setyowati & Rahayu (2020) , the results of this study indicate that the variables that have a significant and significant effect on poverty are income, number of dependents, and training attended. Factors that affect poverty in this study are training, number of dependents, age and loan money.

Based on the description above, in order to reduce poverty in the former Pati Residency, this study aims to examine and analyze the Effect of Population, GRDP Growth, and Unemployment on Poverty in the Ex Residency of Pati.

II. LITERATURE REVIEW

A. Poverty

According to the Central Statistics Agency (BPS) poverty is the inability to meet the minimum standard of basic needs, which includes both food and non-food needs. The poor are people who are unable to obtain sufficient resources to meet basic needs. They live below the minimum real income level or below the poverty line (Nehen, 2012) . Poverty is a condition in which a person cannot enjoy all kinds of choices and opportunities in fulfilling his basic needs, such as not being able to meet health, decent living standards, freedom, self-respect, and a sense of respect like other people, as well as a bleak future for the nation and state. Poverty is a problem faced by all countries, especially in developing countries like Indonesia. This is because poverty is multidimensional, meaning that because human needs vary, poverty also has many primary aspects in the form of being poor in assets, socio-political organization, knowledge, and skills as well as secondary aspects in the form of being poor in social networks, resources. finance, and information (Wiguna, 2013) .

Living in poverty is not only living in a lack of money and low income levels, but also many other things, such as health, low education, unfair treatment in law, vulnerability to the threat of crime, powerlessness in determining their own way of life (Suryawati, 2005). .

B. Characteristics of the Poor

Poverty is a general term, characterized by the inability of a person to meet the minimum necessities of life that are considered decent, but poverty has different characteristics between regions. This difference is related to the poverty of natural resources (SDA), human resources (HR), and local institutions.

The characteristics of the group (poor people) are as follows:

a. On average, they do not have their own production factors, such as land, capital, work equipment, and skills.
b. Have a low level of education.
c. Most work or are self-employed and are small businesses (informal sector), underemployed or unemployed (not working).
d. Most are in rural areas or certain urban areas (slum areas).
e. Lack of opportunity to obtain (in sufficient quantities) basic necessities, clothing, housing, other social health facilities (Suryawati, 2005) .

C. Poverty Measure

Arsyad (2004) in measuring poverty is divided into two ways, namely absolute poverty and relative poverty:

a. Absolute Poverty
b. That is a measure that links poverty with income levels and needs. If the income does not reach the minimum requirement, then people can be said to be poor. The main difficulty in the concept of absolute poverty measurement is to determine the composition and level of minimum needs because they are not only influenced by cultural factors but also by climate and other economic factors.
c. Relative Poverty
d. This poverty is caused by the inequality of income distribution. According to some experts, if a person's income has reached the level of minimum basic needs, but in fact that person's income is still much lower than the income of the surrounding environment, then that person is included in the category of poor people.

D. Relationship between Population and Poverty

According to the Central Statistics Agency (BPS) Population is all people who live in the geographical area of the Republic of Indonesia for 6 months or more and or those who live less than 6 months but aim to settle down. The number of residents in the economic development of an area is a fundamental problem, because uncontrolled population growth can result in not achieving the goals of economic development, namely people's welfare and reducing poverty.

There is a direct influence between population growth and the level of community welfare. Nelson and Leibstein show that rapid population growth in developing countries causes the level of community welfare to not experience a significant improvement and in the long term will experience a decline in welfare and increase the number of poor people (Sukirno, 2010) . According to Silastri et al. (2017) , in his research that population has a negative and significant effect on poverty, meaning that by increasing the population as a driver of development so that it will drive various kinds of economic activities and in the end it will improve people's welfare so that the poverty rate will decrease.

E. The Relationship between GRDP Growth and Poverty

According to Sukirno (2000) , the rate of economic growth is an increase in GDP regardless of whether the increase is larger or smaller. Furthermore, economic development is not solely measured based on the growth of the gross regional domestic product (GRDP) as a whole, but must pay attention to the extent to which income distribution has spread to all layers of society and who has enjoyed the results. So that the decline in the GRDP of an area has an impact on the quality of household consumption. And if the income level of the population is very limited, many poor households are forced to change their basic food pattern to the cheapest goods with a reduced number of goods.

Meanwhile, according to Saputra (2011) , growth and poverty have a very strong correlation, because in the early stages of the development process the poverty rate tends to increase and as it approaches the final stage of development, the number of poor people gradually decreases. Thus, economic growth has a negative effect on poverty.

F. The Relationship of Unemployment to Poverty

Unemployment is someone who has been classified in the workforce who is actively looking for work at a certain wage level, but cannot get the job he wants (Sukirno, 2010) . Unemployment is generally caused because the number of labor force or job seekers is not proportional to the number of available jobs. Unemployment is often a problem in the economy, because with unemployment the productivity and income of the community will decrease so that it can cause poverty and other social problems.

Unemployment has a very close relationship in influencing the level of poverty. Low standards of living are implemented in the form of low income levels, inadequate housing, poor health, minimal or even non-existent education provision, high infant mortality rates, relatively short life expectancy and opportunities. to get a low job. In terms of opportunity to get a job low means unemployment. High unemployment will cause income to decrease so that it cannot meet daily needs which will ultimately lead to poverty. Thus the number of unemployed has a positive relationship to poverty (Todaro & Smith, 2004) . Efforts to expand employment opportunities are carried out to create jobs so that the poverty rate will decrease (Ashcroft & Cavanough, 2008) .

III. RESEARCH METHODOLOGY

The analytical method used in this research is quantitative descriptive analysis . The data used in this study is secondary data, namely data obtained based on information that has been compiled and published by certain agencies.

The secondary data used is a combination of *cross section data* from 6 regencies/cities in the former Pati Residency and the *times series* from 2017 to 2020. The data in question are population data, GRDP growth, unemployment, and poverty in the former residency. Starch. The source of the data was obtained from the Central Statistics Agency (BPS) of Central Java.

A. *Operational Definition of Research Variables*

This study uses one dependent variable, namely poverty in the former Pati residency and three independent variables, namely population, GRDP growth, and unemployment.

  a. Poverty (KMS)
     Poverty is a state of inability to meet the minimum standard of basic needs which includes food and non-food needs. The data used in this study is data on the number of poor residents of the former Pati Residency in 2017-2020 (in thousand inhabitants).
  b. Total Population (JP)
     The population is the number of people who live or domiciled in an area and have a permanent livelihood in that area and are legally registered based on the regulations in force in the area. The data used in the research is the population of the former Pati Residency in 2017-2020 (in million people).
  c. Growth of Gross Regional Domestic Product (GRDP)
     GRDP is the amount of added value generated for all business units in a certain region/region or is the total value of goods and services produced by all units of economic activity in a region in a certain period. The GRDP data used in this study is GRDP data based on constant prices of the former Pati Residency in 2017-2020 (in percent%).
  d. Unemployment (UNP)
     Unemployed are those who can and often desperately want to work but there are no suitable jobs for them. In this study, the unemployment rate was measured based on the annual open unemployment rate (TPT) in the former Pati Residency in 2017-2020 (in percent).

B. *Analysis Techniques*

This study analyzed the data by statistically testing the variables used. To analyze the effect of population, GRDP growth, and unemployment on poverty, a regression analysis tool with panel data model is used, which is a combination of *time series* and *cross section data* with the following econometric model :

$$KMS_{it} = \beta_0 + \beta_1 JP_{it} + \beta_2 PPDRB_{it} + \beta_3 UNP_{it} + \varepsilon_{it}$$

where :

KMS	= Poverty
JP	= Total Population
PPDRB	= Gross Regional Domestic Product Growth
UNP	= Unemployment
β_0	= Constant
$\beta_1, \beta_2, \beta_3$	= Regression coefficient
ε	= element of error (error term)
i	= Regency/City (1 ,2,3 ,…,6)
t	= year (2017-2020)

The estimation stage of the econometric model above will include: parameter estimation of the panel data model using the Pooled Least Square (PLS) approach, Fixed Effect Model (FEM), and Random Effect Model (REM); selection of the best estimated model using the Chow test and Hausman test; test the goodness of the model on the selected model; and test the validity of the influence of independent variables on the selected model.

IV. RESULT/FINDINGS

The results of the research using the Pooled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM) approach along with the results of the model selection test are summarized in table 1.

Table 1. Estimation Results of Panel Data Regression Econometric Model – Cross Section

Variable	Regression Coefficient		
	PLS	FEM	REM
C	4.86634	0,903733	1,046984
Log(JP)	-0,002669	0,262511	0,252322
PPDRB	0,005895	0,002358	0,002638
UNP	-0,052468	0,017487	0,017008
R2	0,0465	0,982526	0,29169
Adjusted R2	-0,096525	0,973207	0,185444
F-Stat	0,325115	105,4275	2,745413
Prob.F Stat	0,807171	0	0.069964

Model Selection Test
Chow
Cross-section $F(5,15) = 160{,}700711$; Prob.$F(5,15) = 0.0000$

Hausman

Cross section random $\chi^2(3) = 12{,}687540$; Prob. $\chi^2(3) = 0.0045$

Source : Eviews, processed.

The Chow test is used to select the Pooled Least Square (PLS) or Fixed Effect Model (FEM) estimated model. Chow's test shows that the model chosen in this study is the Fixed Effect Model (FEM) with an empirical statistical significance value of F of (0.00000) (0.01).

While the Hausman test is used to select the estimated Fixed Effects Model (FEM) or Random Effects Model (REM). Hausman test shows that the model chosen in this study is the Fixed Effect Model (FEM) with an empirical statistical significance value χ^2 of 0.0054 (0.01). From the Chow test and the Hausman test in advance, the Fixed Effect Model (FEM) was chosen as the best estimated model. The complete estimation results of the Fixed Effect Model (FEM) are presented in Table 4.2.

Table 2. Fixed Effect Model (FEM) Estimation Model

$Log(\overline{KMS})_{it} = 0{,}903733 + 0{,}262511\ Log(JP)_{it} + 0{,}002358 PPDRB_{it} + 0{,}017487 UNP_{it}$
(0.0062)* (0.7466) (0.5169)
R2 = 0.982526; DW = 1.886051 ; F-statistic = 105,4275; Prob. F = 0.000000
Information:
*Significant at = 0.01
**Significant at = 0.05
***Significant at = 0.10
The number in brackets is the t-statistical probability value

Source : Eviews, processed

The model exists at least one independent variable affects the dependent variable (not all regression coefficients are zero). The model existence test is the F test. The goodness of the model statistic shows that the model exists, it can be seen from the probability value or the empirical significance of the F statistic is 0.0000 (< 0.01).

Meanwhile , the t-test shows that the variable that significantly affects poverty is the population with an empirical t-statistical probability of 0.0062 (<0.01). Meanwhile, the variables of GRDP growth and unemployment have no effect on poverty with t-statistical empirical probability values of 0.7466 (> 0.10) and 0.5169 (> 0.10) .

The coefficient of determination (R^2) indicates the predictability or goodness of the estimated model. It can be seen that R^2 the estimated model, namely the Fixed Effect Model (FEM) is 0.982526. This means that 98.25 % variation in changes in Poverty in the former Pati Residency is explained by variations in the log of population, GRDP growth, unemployment. While the remaining 1.75 % is explained by variations of other variables that are not included in the model.

Table 3. Area Constants and Effects

Region	Effect	Constant

1	Grobogan District	0.456332	1.360065
2	Blora Kabupaten Regency	0.048946	0.952679
3	Rembang Regency	-0.067979	0.835754
4	Pati . District	0.247868	1.151601
5	Kudus District	-0.570971	0.332762
6	Jepara Regency	-0.114196	0.789537

Source: Eviews, processed

The constant values for each district/city are shown in table 4.3. The low constant value is in Kudus Regency with a constant value of 0.332762 , which means that Kudus Regency has the lowest poverty rate compared to other regions. Meanwhile, the highest constant is in Grobogan Regency with a constant value of 1.360065, which means that Grobogan Regency has the highest poverty rate compared to other regions.

V. DISCUSSION

The results of this study indicate that the Population Log (JP) has an effect on the Poverty Log (KMS) in the former Pati Residency Meanwhile, the Growth of Gross Regional Domestic Product (PPDRB) and Unemployment (UNP) proven to have no effect on the Poverty Log (KMS) in the former Pati Residency. Variable Number of Population (JP) has a regression coefficient of 0.2625, where the relationship pattern between Total Population (JP) and Poverty (KMS) are logarithms, so that if the Total Population (JP) increases by 1% then Poverty will increase by 0.2625 % , as well as if JP decreases by 1 % then Poverty (KMS) will decrease by 0.2625 %. The results of this study indicate that the population has a positive effect on poverty in the former Pati Residency, meaning that the higher the population, the higher the poverty rate, and vice versa. The lower the population, the lower the poverty rate. These results are not in accordance with the hypothesis of this study that population has a negative effect on poverty. According to Silastri et al. (2017) , by increasing the population as a driver of development so that it will drive various kinds of economic activities and in the end it will improve the welfare of the community so that the poverty level will decrease.

Azizah et al. (2018) , said that this is because the growth in food supplies cannot keep up with the very fast and high population growth, the per capita income will tend to fall very low, which causes the population to be unstable.

The results of the panel data estimation show that the GRDP growth variable has a regression coefficient of 0.0023 with a statistical empirical probability value t of 0.7466 (> 0.10), meaning that GRDP growth has no effect on poverty in the former Pati Residency. These results are not in accordance with the hypothesis of this study which states that GRDP growth has a negative effect on poverty. Growth and poverty have a very strong correlation, because in the early stages of the development process the poverty rate tends to increase and as it approaches the final stage of development, the number of poor people gradually decreases (Saputra, 2011) .

Astuti (2018) and Harefa (2021) , state that economic growth has no effect on poverty. This can identify that the quality of economic growth that occurred was relatively poor, partly because most of the economic growth was supported by the consumption sector. In addition, the aspect of income distribution in economic growth is less than optimal, so that the increase in income tends to be enjoyed by only some groups.

The results of the panel data estimation show that the unemployment variable has a regression coefficient of 0.0174 with a statistical empirical probability value t of 0.5169 (> 0.10), meaning that the unemployment rate has no effect on poverty in the former Pati Residency. These results are not in accordance with the hypothesis. This study states that the unemployment rate affects poverty. High unemployment will cause income to decrease so that it cannot meet daily needs which in turn will experience poverty (Todaro & Smith, 2004) .

Zuhdiyaty & Kaluge (2018) and Giovanni (2018) , state that people who fall into the unemployment category are not necessarily poor people if in their household there are family members who work with high incomes so that it will be enough to support unemployment. In relation to poverty, the unemployed in the household do not automatically become poor because there are other family members who have sufficient income to keep their family hidden above the poverty line.

VI. CONCLUSIONS AND RECOMMENDATIONS

This study was conducted with the aim of knowing the influence of population, GRDP growth, and unemployment on poverty in the former Pati residency in 2017-2020, using panel data regression analysis tools. Based on the results of the regression in this study the selected model is the Fixed Effect Model (FEM). The coefficient of determination ($R2$) is 0.982526. This means that 98.25% of the variation in Poverty changes (KMS) in the former Pati Residency is explained by variations in Population (JP), GRDP Growth (PPDRB), Unemployment (UNP). While the remaining 1.75 % is explained by variations of other variables that are not included in the model. Population has an effect on poverty in the former Pati Residency with a regression coefficient of 0.262511. While the GRDP and Unemployment growth variables have no effect on Poverty in the former Pati Residency with a regression coefficient of 0.002358 and 0.017487.

Based on the results of the analysis and conclusions, the suggestions that can be given for this research are specifically for the district/city government of the former Pati residency which is expected to be able to reduce the problem of poverty by making maximum use of the population, GRDP growth, unemployment in the regency/city tisp in the former Pati residency by utilizing a qualified workforce. Meanwhile, it is hoped that for future researchers, this research can be used as a reference for conducting research to be carried out and so that in the future they can use more complete data with a longer period of time so that broad identification can be carried out.

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Accuracy Analysis Of Government Program In Poverty Reduction In Sukoharjo Bulu District 2017-2021

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Abstract

Poverty is a problem related to the inability to access economic, socio-cultural, political and participation in society. This study aims to determine the effect of the influence, population, and literacy rate on poverty in Indonesia in 2016-2020. in this study reveals how the influence of poverty affects the factors studied. In this study the data used were secondary data in the form of time series (2016-2020) and cross sections (34 provinces in Indonesia). The selection of the best method in this study using the Fixed Effect Model (FEM). By using panel data analysis tool using eviews 9. The results of this study indicate that the population and literacy rate have a significant effect on poverty in Indonesia. Meanwhile, the movement has proven to have no effect on poverty in Indonesia. This study shows that the estimated model, namely the Fixed Effect Model (FEM) is 0.642049. This means that 64.20 percent of the variation in poverty changes in Indonesia is explained by variations in composition, population, and literacy rates. While the remaining 35.8 percent is explained by variations of other variables not included in the model. The conclusion shows that poverty has a positive effect on the total population, population, and literacy rate in Indonesia..

Keywords—poverty rate; Family Hope Program (PKH); National Community Empowerment Program (PNPM); Village Fund Allocation

I. INTRODUCTION

Poverty is one of the most serious problems in economic development faced by the People of Indonesia and and it is not easy to get out of the problem of poverty. Efforts have been made by the government, among others, through poverty alleviation programs such as, Family Hope Program (PKH), National Community Empowerment Program (PNPM), Village Fund Allocation and so on which cost the state budget reaching Rp.17 trillion (TNP2K, 2014).

Related to the problem of poverty in Bulu District is the lack of jobs that are in accordance with the potential of the community in Bulu Subdistrict, lack of socialization of community empowerment for ability development, geographical location, low level of education, individual factors of the community itself (prestige), expectations with high income, hard-to-reach transportation routes.

Table 1. Percentage of Poor Population of Bulu Sukoharjo Subdistrict (Percent) 2017-2021

Village/Year	2017	2018	2019	2020	2021
BULU	6,34	7,74	7,01	7,02	7,08
LENGKING	6,07	5,97	7,55	7,36	7,41
PURON	7,01	6,83	6,30	6,50	6,59
KARANGASEM	6,12	6,39	6,34	6,35	6,45
MALANGAN	8,17	7,87	6,59	6,76	6,84
KUNDEN	6,43	6,64	7,58	7,39	7,44
GENTAN	7,66	7,83	8,12	7,77	7,80
KEDUNGSONO	15,39	15,43	15,37	15,47	15,10
MALANGAN	11,15	11,12	10,55	10,21	10,11
KAMAL	7,46	7,50	7,80	7,86	7,88
SANGGANG	9,30	8,97	7,36	7,93	7,95
TIYARAN	8,90	9,06	9,42	9,38	9,33

Source: Bulu Subdistrict in Numbers

In the table above the high percentage of poverty is Kedungsono Village, Malangan Village and Sanggang Village. Because in the village, the geographical location of some highlands, the difficulty of transportation, the lack of processing and utilization of the agricultural sector, some of the people are factory workers who earn at least wage so that the per capita income of the area is less.

In general, poverty reduction is mainly caused by ineffective socialization in both members of the community who are targeted by the program itself. And the program includes PNPM Mandiri (National Program for Independent Community Empowerment), BLT (Cash Direct Assistance), PKH (Family Hope Program), BOS (School Operational Assistance). Most programs do not actively participate in the wider community. Thus many cases are found that the program implemented is not on target both the type of activity and the target group of members.

The allocation of village funds is part of the village finance obtained from the central and regional financial results received by the district for the village of at least 10%. According to Rozaki et al (2005, h.120) actually the village fund allocation policy that has been implemented has a big goal that is more or less the same, namely overhauling the orthodoxy of the district government in providing authority, services and financial assistance to the lower level government (village).

The National Program for Independent Community Empowerment (PNPM Mandiri) is a focused and intensive program to overcome the problem of poverty and community lag. Through PNPM Mandiri, it was formulated about the mechanism of poverty reduction efforts involving elements of society, ranging from the planning, implementation, to monitoring and evaluation stages. Through the process of participatory development, critical awareness and independence of the community, especially the poor, can be grown so that the poor are not as objects but as subjects of poverty reduction efforts.

The Family Hope Program (PKH) is one of the poverty reduction programs in 2007 launched by the government. The target or recipient of PKH assistance is a Very Poor Household (RTSM) that has family members consisting of children aged 0-15 years and / or pregnant women / nifas and are in a selected location. The main objective of PKH is to reduce poverty and improve the quality of human resources, especially in the poor. In the short term, this assistance helps reduce the burden of RTSM expenditure, while in the long term, by requiring the recipient's family to send their children to school, immunize toddlers, check the womb for pregnant women and improve nutrition, it is hoped that it will break the chain of poverty between generations.

II. LITERATURE REVIEW

A. Definition of Poverty

Poverty is an urgent nation problem and requires comprehensive, integrated and systemic steps and approaches Research conducted by Wahyudin, et al (2019) entitled Effectiveness of Village Fund Utilization in Alleviating Poverty in Kec Kuala Nagan Raya Regency. The study used panel data regression with the random effect model (REM) method. The results showed that the variable of village funds had a positive and significant effect on poverty, while the variable allocation of village funds had a negative effect on poverty.

B. Definition of Village Funds against Poverty Alleviation

Village funds are used to finance government administration, development implementation, community development, and community empowerment. Allocating budgets in the village is carried out by someone who has authority and is useful in accelerating infrastructure development plans to be comparable to the rapid growth of the community. Research conducted by Wahyudin, et al (2019) entitled Effectiveness of Utilization of Village Funds in Alleviating Poverty in Kec Kuala Nagan Raya Regency. The study used panel data regression with the random effect model (REM) method. The results showed that the variable of village funds had a positive and significant effect on poverty, while the variable allocation of village funds had a negative and significant effect on poverty.

C. Relationship Between Family Hope Program (PKH) Against Poverty Alleviation

Assistance in reducing the burden of RTSM expenditure, while in the long term, by requiring the recipient's family to send their children to school, immunize toddlers, check the womb for pregnant women and improve nutrition, it is hoped that it will break the chain of poverty between generations. The main objective of PKH is to reduce poverty and improve the quality of human resources, especially in the poor. Research conducted by Sarifah, Ulfah, and Genjik (2020) entitled Pengarh Family Hope Program (PKH) towards Poverty Alleviation in Sepauk District, Sintang Regency. This research uses descriptive methods with a form of relationship study research. The results showed that there is an influence between the Family Hope Program (PKH) in poverty alleviation.

D. Relationship Between Independent PNPM to Poverty Alleviation

PNPM participatory development process, critical awareness and independence of the community, especially the poor, can be grown so that the poor are not as objects but as subjects of poverty reduction efforts. Research conducted by Fuad Muchlis (2009) entitled Analysis of participatory communication in community empowerment programs (case studies on the implementation of deliberations in rural PNPM Mandiri in rural district bays).

E. Equations

This study will observe the effectiveness of the Village Fund, Family Hope Program (PKH), and the National Program for Independent Community Empowerment (PNPM Mandiri) towards poverty alleviation in Bulu District in 2017-2021 using panel data regression analysis, which formulated the estimator model is:

$$POV_{it} = \beta_0 + \beta_1 log DD_{it} + log PKH_{it} + log PNPM_{it} + \varepsilon_{it}$$

Where:

Y : Poverty (%)

β_0 : Constant

$\beta_1 \beta_2 \beta_3$: Independent variable regression coefficient

DD : Village Fund (million rupiah)

PKH : Family Hope Program (million rupiah)

PNPM : National Program for Independent Community Empowerment (million rupiah)

ε : *Error Term* (error factor)

I : 1st Village (*cross section)*)

t : Year (*time series)*)

III. RESEARCH METHODOLOGY

In estimating the econometric model of data regression panels required the following steps:

a. Estimate the *Common Effect Model* (CEM) panel data model is the simplest model. By combining *time series* data and cross section data into panel data and thengres using the OLS (*Ordinary Last Square)* method. In his estimation it is assumed that each individual unit has the same interception and *slope* (there is no difference in the dimensions of time). Or it can be said, the regression of the resulting data panel will apply to each individual (Juanda and Junaidi, 2012).

b. *Fixed Effect Model* (FEM) Panel data model *Fixed Effect Model* (FEM) or *Least Square Dummy Variable* (LSDV) allows heterogeneity between subjects with members in each entity to have different intercept values. The term *fixed effect* is that although the intercept varies for each subject, but the interception of each entity does not change over time (time invariant). This can be interpreted that *the Fixed Effect Model*

is able to show the coefficient of magnitude of influence on each variable in a different region (Gujarati, 2012).

c. *Random Effect Model* (REM) In *the Random Effect Model* (REM) method it is assumed that the difference in interceptions and constants is caused by residual / *error* as a result of differences between units and between time periods that occur randomly (Sriyana, 2015). With the REM model can save the use of degrees of freedom and not reduce the number. This has implications for parameters that are the result of estimates to be more efficient. To find out if the REM model is better than the PLS model, it can be used the Lagrange Multiplier (LM) test developed by Bruesch-Pagan. This test is based on the residual value of the PLS model (Juanda and Junaidi, 2012).

d. Chow Test Chow Test is a model testing stage to determine the most appropriate model between *Common Effect Model* (CEM) or *Fixed Effect Model* (FEM).

e. Hausman test stages to determine the best model between *fixed effect* and *random effect*. The test measures are as follows (Sriyana, 2015).

f. Test the goodness of selected panel data models and *R-square interpretations*

g. Effect validity test (partial)

The t test is a hypothesis test performed to determine the significance and absence of the influence of independent variables in the model.

The F test is performed to test whether independent variables are jointly or thoroughly affecting the dependent variable. The conclusion drawn from the F test is to look at prob-F statistics with the provision whether it is larger or smaller than alpha (α).

The coefficient of determination (R^2) is a *goodess of fit* measurement of the regression line against the data used in the study. R^2 describes what percentage of the total dependent variables are described by independent variables. A value of R^2 that is close to 1 means that an independent variable is able to explain the depedent variable well. A value of R^2 close to 0 means that independent variables are less good at describing dependent variables (Widarjono, 2013).

IV. RESULT / FINDING

F. Estimation Model Testing

The data analysis panel was examined by choosing between three methods: *Common Effect Model* (CEM), *Fixed Effect Model* (FEM) and *Random Effect Model* (REM). To select a *Common Effect Model* (CEM) with *a Fixed Effect Model* (FEM), do the Chow test first. Hausman test to consider *the Fixed Effect Model* (FEM) model with *the Random Effect Model* (REM) model if the selected model is then the selected is then *the Fixed Effect Model* (FEM). Chow test results shown in Table 2.

Table 2. Chow Test

Effects Test	Statistics	d.f.	Prob.
Cross-section F	31.499604	(10,41)	0.0000
Cross-section Chi-square	118.874115	10	0.0000

Source: Appendix 2

The chow test hypothesis states that H_0 = The exact CEM model and H_A = FEM model that remains Chow testing results in a probability of Chi-square 0.0000, which is smaller than α (0.05) proving that H_0 is rejected. Then it can be concluded that the selected model is *the Fixed Effect Model* (FEM). Furthermore, the hausman test was used to choose the optimal model in this study. Hausma test regression results are shown in Table 3.

Table 3.. Hausman Test

Test Summary	Chi-Sq. Statistics	Chi-Sq. d.f.	Prob.
Random cross-section	9.589415	3	0.0224

Source: Appendix 2

The hausman test hypothesis states that H_0 = The corresponding model *of the Random Effect Model* (REM) and H_A = the corresponding Model *fixed effect model* (FEM). In table 3 indicates that the value of prob. Chi-Sq is 0.0224, a value smaller than α (0.005) then H_0 is rejected this states that the best model used is the *Fixed Effect Model* (FEM).

G. Determination Coefficient Analysis

The selected model is the *Fixed Effect Model* (FEM) model then the Table shows the regression of the *Fixed Effect Model* (FEM) model model.

Table 4.. FEM

Variable	Coefficient	Prob.
C	23.13803	0.1611
LOG(DD)	-1.387761	0.0859
LOG(PKH)	0.128617	0.2274
LOG(PNPM)	0.539251	0.0246
R-squared	0.901688	
Prob. F-Statistic	0.000000	

The magnitude of ^{R2} is indicated in Table 0.90 or 90%. This figure shows that the ability of free variables, namely DD, PKH, and PNPM, explains the dependent variables, namely poverty by 90%, the remaining 10% is explained by variables outside this research model.

H. Simultaneous Test (uj F)

Regression results that have been performed Simultaneous Significant Test (Test F) get a prob value. F 0.00000 < 0.05. This explains that the variables) DD, PKH, PNPM jointly affect poverty or the model used by existing research.

I. Effect Validity Test (test t)

Table 5. Independent Variable Influence Validity Test Results

Variable	Sig.t	Criterion	Conclusion
DD	0.0859	< 0.10	Significant Effect on α = 0.10
PKH	0.2274	> 0.10	No Significant Effect
PNPM	0.0246	< 0,05	Significant Effect on α = 0.05

Source: Appendix 1

V. DISCUSSION

The Village Fund variable has a regression coefficient of -1.387761. The pattern of the relationship between the poverty variable and the Village Fund is linear-logarithm, meaning that if the Village Fund increases by 1 percent, the poverty will decrease by 1.387761 / 100 = 0.139 million rupiah. Conversely, if the Village Fund decreases by 1 percent, then Inflation will also decrease by 0.139 million rupiah.

The PNPM variable has a regression coefficient of 0.539251. The pattern of relationship between the poverty variable and PNPM is linear-logarithm, meaning that if PNPM increases by 1 percent then poverty will also increase by 0.539251 / 100 = 0.005 million rupiah. Conversely, if PNPM decreases by 1 percent, then poverty will also decrease by 0.005 million rupiah.

In line with research from Wahyudin, *et al.* (2019), which states that village funds have a negative effect on poverty. This is because village funds are aimed at infrastructure development that is considered to be able to boost the rural economy. The more advanced infrastructure in the village can have an impact on income equality, increased employment opportunities, and business opportunities for rural communities. Thus, village funding assistance can reduce poverty in rural areas.

PKH has no effect on poverty. This can happen because PKH itself is a social protection scheme for very poor households to improve access and quality of education and health and preferably for women or housewives. Where they are not very productive, so the assistance provided is only useful to increase non-productive consumption, so as not to help reduce their poverty.

In line with research from Jemadi (2013), which states that PNPM has a positive effect on poverty. This is because the general purpose of pnpm is to increase the welfare and employment opportunities of the poor independently. So that poverty reduction depends on the quality of human resources in the village, if the village community does not utilize the assistance program properly and correctly then PNPM fails in tackling existing poverty.

VI. CONCLUSION AND RECOMMENDATION

To achieve the research objectives, a regression of panel data is performed with the selected *Fixed Effects Model* (FEM) model. The results of Test *F* showed that together, the Village Fund, PKH, and PNPM had a real effect on the poor. While partially, the Village Fund and PNPM proved to have a positive effect on poverty, while PKH was not shown to have an effect on the poor.

Based on the determination coefficient test, it shows that the ability of free variables, namely Village Funds, PKH, and PNPM, explains the dependent variables, namely poverty by 90%, the remaining 10% is explained by other variables outside the model.

Based on the results of the study, the government is expected to increase the receipt of domestic income, so that it will increase the amount of balance funds that will be sent to villages as village funds. In addition, the government is also expected to increase government spending to focus on building villages, such as sending PKH and PNPM assistance to provide capital to rural communities so that more and more village communities are prosperous and can reduce poverty. With high aid funds can improve the quality of human resources through trainings held by the village government using assistance funds from the central government, so it will be easier for people to get jobs then will improve their welfare and poverty down.

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The Importance Of Digital Product Presentation To Drive Behavioral Intention In The Context Of Digital Commerce

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Abstract

The pandemic has changed the shopping behavior of consumers, especially with the role of digitalization in facilitating the process. Even though there is an increase in online shopping, the purchases that occur are still categorized as low. One of the reasons is that the right formulation has not been found on how to sell a product online by displaying the right image and description. The purpose of this experimental study was to examine the effect of digital product presentation on consumer information processing and behavioral intentions in the context of the beauty product category. The Stimulus-Organism-Response Model and Multiple Coding Theory are used as theoretical frameworks. This study uses a factorial experimental design of 2 (visual: large vs. Small) x 2 (verbal: concrete vs. Abstract) by visualizing the stimuli given to 195 respondents. Based on the experimental results, visual factors (large and small) and verbal (concrete and abstract) have significant results on the three dependent variables including imagery processing, discursive processing, and behavioral intention with large visual variations and concrete verbal having the highest average results. The findings of this study provide new input related to the application of the best presentation product between visual and verbal to influence consumer buying intentions in terms of online shopping in Indonesia.

Keywords— Concreteness, Digital commerce, Information processing, Picture size, Productpresentation

I.INTRODUCTION

The pandemic has largely impacted Indonesia in various aspects. One of those is how it helps to accelerate the growth of digitalization in Indonesia. The outbreak has brought new phenomena in new shopping behavior (Butu et al., 2020; Donthu & Gustafsson, 2020; Shafi et al., 2020; Shehth 2020a, Sheth 2020b) in which gives sudden shift in consumer behavior toward their new way of buying or consuming products (Biswas, 2020; Diebner et al., 2020; Lowe, 2020). The condition where people need to stay at home during lockdown have limited the ability of people to commute and do their traditional way of shopping. As visits to physical stores were restricted, and many were running low on money, consumers went online to shop, causing online purchases to grow higher and higher (J.Theor, 2021). Then next, online shopping became the primary method to do daily transaction and occupy their basic needs, subsequently, change consumer purchase behavior (Crispell, 2020; Deloitte Monitor, 2020; Kim, 2020; Sheth, 2020a, Sheth, 2020b).

In Southeast Asia, Indonesia has ranked as the largest digital economy as it covered 40% of the total regional market share. It is also becoming a home of big unicorns for example Gojek, Tokopedia, Bukalapak & Traveloka. Beyond e-commerce, food delivery and omnichannel also got positive impact from this situation (IndonesiaAHK, 2021). Given this huge opportunity, not only small-medium enterprises jumped into the trend but also big companies such as retail and FMCG started to explore various ways to win the peak. Although retail stores in a minimarket form such Indomaret and Alfamart still place as the biggest one, but Shopee is now in the 4th rank with 7.3% penetration surpassing Superindo, Matahari, etc (Kantar, 2021). Digital commerce still has poor conversion rates compared to offline retail conversion rates despite its excellent growth rates (Neufeld and Roghanizad, 2018), which suggests that the consumer experience may not live up to expectations.

Indeed, with the push demand from market where consumers expectation raised while doing online shopping, retailer that shifted to online also has revolutionized their way to to consumer interaction (Algharabat and Shatnawi, 2014; Algharabat and Zamil, 2013;Parket al., 22016; Kim et al., 2011; Liao and Keng, 2013). According to Algharabat and Shatnawi (2014) ; Lee (2012), retailers has put their focus on extensively integrated their business

online and offline, combining their platform and traditional brick and mortar stores to remain competitive in the market. Moreover, where the competition is increasing in online market, retailers are actively looking to have new opportunities to match their customers' expectations and find a way to enhance their loyalty and directly-indirectly will link to strengthen their brand identity and profitability. The step starts from on how a platform can give more contribution to their customer's day to day activity by providing facilities and access to information, products, services without restriction such time or place (Bilgihan, 2016; Hung et al., 2012; Kokkinoua and Cranage, 2013;Lin and Lian, 2008; Zhu et al., 2013). However, their success in implementing the strategies it all depends on two factors which are presented products and website experience (Luan et al., 2016; Chen et al., 2015). This needs of finding best mechanism in winning online have pushed researchs to dig deeper in understanding about factors to boost customer's attitudes and expectation. According to Algharabat and Shatnawi, 2014; Luan et al., 2016, the quality of platform in this case website or application is one of the most fundamental factors that is considered by customers to evaluate their online shopping experience.

Various aspects of digital product presentation have been studied in academic studies, including picture size (Kim and Lennon, 2008; Song and Kim, 2012), the number of views (Song and Kim, 2012), verbal product information (Kim and Lennon, 2008), the model's face (Yoo and Kim, 2012), product display modes (Kim, Kim, and Lennon, 2009), screen size (Kim and Sundar, 2016), 3D views (Kim and Forsythe, 2008), video (Kim and Sundar, 2016), site interactivity (Xu and Sundar 2014), image interactivity (Beuckels and Hudders, 2016), image backgrounds (Maier and Dost, 2018; Yoo and Kim, 2014) and virtual fitting room (Beck and Crié, 2018) and their impact on consumer behaviors. However, empirical results on the topic of digital product presentation have been a bit contradictory, and several empirical questions remain open. For instance, despite strong empirical support for picture superiority in advertising research, investigations on verbal and visual information in e-commerce indicated verbal dominance (Childers and Houston, 1984; Mitchell and Olson, 1981; Rossiter and Percy, 1978). Additionally, a study by Song and Kim (2012) indicated that, despite the fact that four large product photographs (different viewpoints of the same object) were more successful at reducing mental intangibility than one large photo, e-shoppers received more information from a single large product photo. Additional research on digital product presentation is necessary in light of these conflicting findings, particularly in light of the growing significance of digital sites as the initial point of contact of today's consumers (Think with Google.com, 2016).

Furthermore, with its limitation of evaluating a product through visuals only during online shopping, product information plays an essential role in driving consumer purchase decisions (Kim & Lennon, 2000; Mitchell & Boustani, 1994). Consumers demand adequate information to make a decision (Fiore, Jin, & Kim, 2005). There has been very little research about how a business can create the right product information that can influence consumer decision-making.

Therefore, the focus of this study is to examine how the mixed combination of two basic factors in product presentation, visual (image) and verbal (text), can influence consumer behavioral intention toward the beauty product category. This research employed a 2 (visual: large vs. small) $\times$ 2 (verbal: concrete vs. abstract) between-subjects factorial design which will explain more in the methodology chapter. The study will choose the beauty category as the object study because of two reasons, in pure e-commerce, the beauty category has the highest penetration compared to other categories and the revenues are projected to reach $7.5 billion in 2021 and will be expected to grow at 6.5% compound annual growth rate through 2025 (Statista, 2021).

II. LITERATURE REVIEW

The Stimulus-Organism-Response (S-O-R) paradigm by Mehrabian and Russell (1974) and Dual Coding Theory by Paivio (1971) provide theoretical frameworks to explain the relationships among digital pro- duct presentation (visual and verbal), types of information processing (imagery and discursive), and behavioral intent.

A. *Stimulus-Organism-Response model*

Several online marketing studies have employed the Stimulus-Organism-Response (S-O-R) theory (Mehrabian and Russell, 1974) to clarify the connections between the quality of a product or service and the consumer's actions and attitudes (Chan, Cheung, & Lee, 2017; Chen and Yao, 2018).

According to the S-O-R hypothesis, external inputs from service settings (stimulus) start and stir up inside feelings (Organism), which then cause subsequent behaviors (Response). Bagozzi (1986) argues that these stimuli are external to the consumer when mapping online consumer interactive reactions under the S-O-R paradigm in consumer behavior and e-marketing research. In this study of beauty category context, the S-O-R paradigm is being applied. It is proposed that digital product presentation in visual and verbal forms (S) elicits various types of information processing (O) in response to visual and verbal stimuli, which in turn induces behavioral intent (R) as an avoidance/approach response. According to a different study, the SOR framework, which consists of three sections, is a developed model of the traditional stimulus-organism-response (SOR) method (Chan et al., 2017). (1) a stimulus: a factor that prompts the consumer, (2) an organism: the consumer's internal evaluation, and (3) a response: the result of the customer's response to factors that prompt online impulsive buying and their internal evaluations (Chen and Yao, 2018; Zhang, Pang, and Wan, 2018b; Zhu et al., 2020). When consumers connect with drivers, mental processes known as cognitive reactions take place (Chan et al., 2017). Positive cognitive reactions, including pleasure, serve as motivators, whereas negative cognitive responses serve as deterrents and prevent customers from making purchases (Amarnath and Jaidev, 2020; C. Lin and Liu, 2019). (Cui and Lai, 2013; Vieira, 2013). Customers' emotional responses when interacting with an environment are known as affective responses. When consumers are aware of positive emotional responses like desire and stimulation, they respond to online impulse purchases (Bigne et al., 2020; Goi et al., 2018; Tang et al., 2019)

B. Dual Coding Theory

According to the dual coding theory, people's cognitive processes involve two distinct but related systems: a verbal system focused on language (spoken and written) and a nonverbal system that processes visual pictures (Paivio 1986; 1991). According to the hypothesis, visual cues are encoded through the non-verbal system, whereas text in a message is encoded through the verbal system. Since the two systems are interconnected, each system can stimulate one another (Paivio, 2013). As a result, when both verbal and visual information is provided, rather than just visual or just verbal information, customers can have a more thorough grasp of a product or issue. The representational, referential, and associative levels of encoding processing are further explained by the dual coding theory. A visual input is coded using an imaginal system, whereas a verbal stimulus is processed using a verbal system, making representational processing the most fundamental level of processing. Referential processing, the subsequent stage of processing, links the verbal and imaginal systems. When an image is made for a verbal stimulus or when a visual stimulus is given a name, something happens. When incoming visual and verbal cues are linked to other verbal and imaginal codes that have been stored in memory, the most complicated associative processing takes place. The picture superiority effect is supported by the dual coding theory.

C. Digital Product Representation

In order to present products for online sales, more visualization technology, such as zoom, enlarged views, and video, has been developed (Kim et al., 2018). Nevertheless, the core components of digital product presentation— product images and descriptions—remained unchanged (verbal)..

The results of the study demonstrate that presentations using periphery visual cues in ecommerce might be more convincing and attract attention. Formats for visual presentations support verbal descriptions and eliminate uncertainty regarding product performance. Videos that are lively and moving grab viewers' attention by vividly providing inputs for several processing pathways that improve cognition. Getting people to pay attention is difficult in electronic WOM and more generally in e-commerce environments; visual cues might be helpful. Moving pictures and visual signals may draw attention, but depending on the situation, they can also divert it or divide it. Rich presentation formats may therefore be ineffective.

More verbal product information and a larger visual representation of the product had a greater impact in eliciting favorable affective and cognitive attitudes than less product information and a smaller visual representation, according to Kim and Lennon's (2008) research. Kim and Sundar (2016) said large screen size and video mode were effective in eliciting greater affective and behavioral trust and purchase intentions through eliciting heuristic information processing. Stronger imagery processing was elicited by a concrete visual display of a relevant consumption

background than by a solid background, which in turn resulted in more positive emotional responses and behavioral intent (Song and Kim, 2012).

The current study focuses on visual and verbal cues and their distinct effects on information processing methods, extending the findings from earlier digital presentation studies to concreteness and product presentation. Size-variant product photos are operationalized as visual stimuli (large vs.small). Product descriptions in the text that vary in their level of concreteness are operationalized as verbal cues (concrete vs. abstract).

D. Information Processing Style

Discursive processing (such as verbal retrieval, cognitive response, and verbal encoding) and imagery processing are two independent categories of information processing. Discursive processing is described as "passing from premises to conclusions; proceeding by reasoning or argument," whereas imagery processing is described as a process by which "sensory information is represented in working memory" and is "very like picturing" (Fodor, 1981, p. 76) or creating mental images of a stimulus (Aylwin, 1990).

Although much of this tradition's research has concentrated on how consumers react to advertising copy (e.g., Olson et al., 1982), it has been discovered that images and pictures in advertisements can also trigger discursive processing because of their capacity to infer verbal information (Mitchell & Olson, 1981; Rossiter & Percy, 1980). Thus, both text (such as ad copy) and visual stimuli can start a discursive process (e.g., pictures and images). Imagery processing, which incorporates a nonverbal representation of perceptions and sensory events in memory, contrasts discursive processing (Baddeley, 1986). When imaging is effective, less negative cognitive responding, the experience's reality, and the resulting emotional responses all contribute to persuasion (Green & Brock, 2000). This method of information processing constitutes a fundamentally distinct process from a discursive process, where logical thought is essential for persuasion and is therefore unrelated to cognitive elaboration1. (Green & Brock, 2000; Schlosser, 2003; Escalas, 2004)

E. Behavioral Intention

Consumers' behavioral intentions in relation to virtual settings, such as a virtual community, have been investigated as a key factor of loyalty to the virtual environment (Lin, 2006). This is due to the behavioral intention construct causing users' actual behaviors, such as active involvement and constant consumption of its digital information in daily life, to contribute to the virtual world (Kim, 2021). As a result, consumers' higher degrees of commitment to a virtual world tend to be communicated through positive behavioral intentions, such a readiness to pay more and good word of mouth (Kim, 2021). This study operationalizes behavioral intent as the most referenced digital behavioral intent: operationalized as the intention to visit and make purchases from a website without going to another retailer. Although behavioral intent and actual behavior are not the same thing, actual behavior is well predicted by behavioral intent (Jamieson and Bass, 1989).

F. Hypothesis Development

Visual and Verbal Stimuli

The digital product presentation environment must include both verbal and visual cues because both are intended to cause customers to absorb information internally. Processing of imagery is automatically produced by visual stimuli. Kim and Lennon (2008) discovered that in the context of beauty, larger images were more successful at evoking favorable emotive and cognitive responses than smaller images. Large product photos were also shown by Song and Kim (2012) to be more helpful in boosting the mental tangibility of handbag products in e-commerce. Researchers also hypothesized that when people interpret visual stimuli by naming or categorizing them in words, this could similarly trigger discursive thinking (Rossiter and Percy, 1978). Because large images draw more attention to an image and filter out competing stimuli, Percy and Rossiter (1983) hypothesized that large images promote greater discursive processing elaboration. Based on the review of literature and theoretical frameworks, the following hypotheses are proposed:

H1a. In the context of beauty products, consumers experience greater imagery processing when exposed to large visual stimuli, in comparison to small visual stimuli.

H1b. In the context of beauty products, consumers experience greater discursive processing when exposed to large visual stimuli, in comparison to small visual stimuli.

Imagery Processing and Discursive Processing

Kim and Lennon's (2008) study found that reactions from online shoppers were significantly influenced by the amount of spoken information. More knowledge about clothes products increased positive affective and cognitive reactions and increased purchase intent for the apparel products that were on display. In that study, affective (imagery) and cognitive (discursive) attitudes were examined, and different types of information processing were postulated as a function of types of stimuli. However, their findings imply that spoken product information may have stimulated both types of information processing. However, there was no effect of verbal information when focusing on verbal descriptions of backdrop pictures rather than product descriptions (Yoo and Kim, 2014).

In the current study, verbal stimuli vary in their level of concreteness by including or excluding concrete style descriptions to examine which types of information processing are triggered as a function of verbal stimuli. Based on the review of literature and theoretical frameworks discussed, the following hypotheses are proposed.

H2a. In the context of beauty products, consumers experience greater imagery processing when exposed to concrete verbal descriptions, in comparison to abstract verbal descriptions

H2b. In the context of beauty products, consumers experience greater discursive processing when exposed to concrete verbal descriptions, in comparison to concrete verbal descriptions

Behavior Intention

Research from the past generally suggests that visual processing has more of an impact on behavioral change or behavioral intent than discursive processing. It is generally known how imagery processing affects how people behave (Taylor and Pham, 1996). The higher impact of imagery processing over discursive processing is explained by the sensory and emotional responses that occur from imagery processing (Taylor and Pham, 1996). Cautela and McCullough (1978) showed that visual processing affected behavioral intent more strongly in clinical settings than did discursive processing. Based on the review of literature and theoretical frameworks discussed, the following hypotheses are proposed.

H3a. In the context of beauty products, imagery processing is positively correlated with behavioral intent.

H3b. In the context of beauty products, discursive processing is positively correlated with behavioral intent
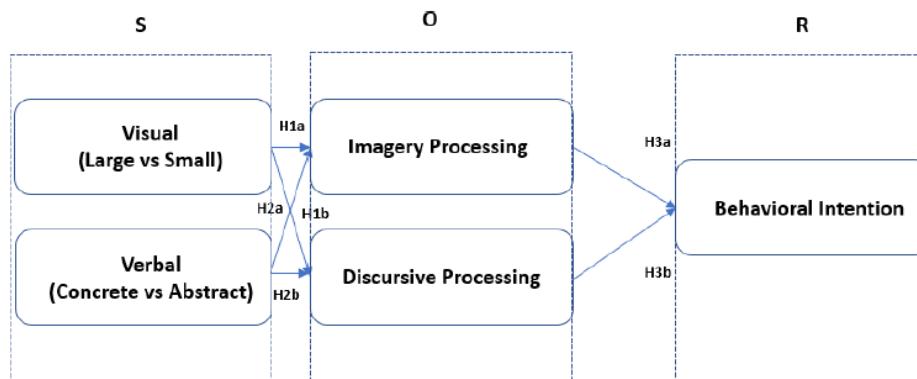
III. RESEARCH METHODOLOGY

This research employed a 2 (visual: large vs. small) × 2 (verbal: concrete vs. abstract) between-subjects factorial design and took out the need for cognition for moderation since the relevancy to beauty products in Indonesian consumers hasn't really seen that far. This study will go for experimental research design to have a controlled environment before taking it to the market. The author will have a detailed observation on the subject to predict action taking the chosen phenomena with the purpose that this study will be beneficial for brands to take marketing decisions in the future.

A. Stimulus Development

Visual Stimuli - Pilot test was first conducted to check visual stimuli using pictures of various types of bottles. These bottles were evaluated by their fitness to shampoo bottle. Ten different types of bottles were initially selected included different types of size, cap, pump which usually found on the market. To avoid extraneous factors, only blank bottles which previously made by Adobe Photoshop without branding were selected. All bottles were evaluated using Likert Scale from 1-5 (highly incompatible – highly compatible) as bottle shampoo. Consistency in background, color angles, and size were made to control other variables that might be distract the result of evaluation. Along with the quality of pictures were achieved as well through a careful sampling process and touch-up using Photoshop. For this experiment, the result of mock up bottle that was chosen need to go through manipulation check, to evaluate the perceived size of bottle (small and large) to vary visual information. This research using the rule of thumb to maximize the variance. Large bottle will have 700x700 pixel as that is the highest resolution that can be found in e- retailer, while small bottle will have 300x300 pixel as that is the smallest resolution that can be found in e- retailer.

Verbal Stimuli – According to Eckman, Damhorst and Kadolph (1990), there are two criteria refer to product attributes which are intrinsic and extrinsic attributes. Intrinsic refer to product attributed that cannot be changed or manipulated without changing physical characteristic while extrinsic refers to product attribute that are not component parts of physical products but are created by retailer such brand name and description. Both intrinsic and extrinsic are used for this experiment although according to prior research, intrinsic attributes are more important to consumers that the extrinsic ones. In this study, the pilot test was first conducted to see what elements are important to consumers when they are buying a shampoo. Three answers are categorized which resulted in: attractive packaging, perceived benefit and ingredients. These elements will be included in the main experiments in order to increase the purchase intention of consumers. Then, on mockup page, intrinsic verbal that are included in all stimuli are (1) size (2) construction detail (3) design features (4) care instruction (5) color while the extrinsic one are (6) price and (7) product description which will be main element to evaluate using manipulation check towards perceived of concreteness. Perceived of concreteness is comparing abstract style of description and concrete style of description. Abstract in English Oxford dictionary is translated as existing in thought or as an idea but not having a physical or concrete existence – unmeasurable while concrete is translated as existing in a material or physical form; not abstract – measurable. For a long time, cognitive scientists have claimed that words can also encourage the processing of imagery. Concrete words, for instance, cause the brain to process images (Paivio et al., 1968; Richardson, 1980). According to Paivio et al. (1968), judgments of the value of imagery were positively correlated with the concreteness of words. The level of concreteness of the verbal stimuli used in the current study is varied by including or deleting concrete style descriptors in order to evaluate the forms of information processing that are sparked by verbal stimuli.

B. Instrument Development

This study has several instrument that need to be measured accordingly which are imagery which are imagery processing, discursive processing and behavioral intention. Two different forms of information processing were examined in this study. The 4-item mental imagery scale developed by Schlosser (2003) was used for imagery processing (Cronbach's alpha = 0.82). In order to measure discursive information processing, two items from Kim and Lennon (2008) were used (Cronbach's alpha = 0.96). Kim and Lennon's (2011) 4-item behavioral intent scale was used to measure behavioral intent (Cronbach's alpha = 0.96). All these items used a 5-point scale (1= not at all, 5= a lot).

C. Procedure

Participants were recruited from a social media invitation. They were invited to visit a mock beauty website

using the URL included in the recruitment message. When participants logged onto the mock website, they were randomly assigned to one of four experimental conditions. Because this study focused on product presentation in beauty e-retailing, the mock website simulated beauty product pages. On the mock website, participants viewed page displaying one shampoo item at a time. Following a typical product page layout in beauty e- retailing, a product image was shown on the left-hand side, and product descriptions in the text were shown on the right-hand side. After browsing shampoo items and selecting items to purchase, participants were asked to complete the survey questionnaire. Participants were instructed to assume that they were given a gift certificate to shop from the site.

IV. RESULT/FINDING

A. Sample Description

A total of 200 men and women participated in the online experiment. The mean age of theparticipants was 22.3 (SD = 6.0), with a range of 18–56. About 90% of participants were aged between 18 and 24 live in Jabodetabek. About two thirds of the participants considered themselvesfrequent or very frequent digital shoppers.

B. Manipulation Check

During the pre-test, a manipulation check for two items: perceived size of picture for visual stimuli and perceived concreteness of product information for verbal stimuli. Participants were shown two different sizes of pictures: 300x 300 pixel and 700x700 pixel. 300x300 pixel is the minimum size of picture available in e-commerce and 700x700 is the maximum size of picture available in e-commerce. As anticipated, ANOVA showed that the actual size of picture had a significant effect on perceived picture size, $F(1, 31) = 158.09$, $P < 0.0001$ Participants in the large picture condition (M = 4.87, SD = 0.34) perceived product photos to be larger than those in the small picture condition (M= 3.45, SD = 0.56). Then, the participants were also needed to evaluate the concreteness of three concrete and abstract sentences which compare three sentences of concrete benefit perceived and three sentences of emotional benefit perceived. They were given a sentence to give a context related to hair care. ANOVA further revealed that the amount of concrete product descriptions had a significant effect on the perceived concreteness of product information, $F(1, 31) = 158.09$, $P < 0.0001$. Participants in the concrete verbal condition (M=4.22, SD=0.84) perceived product information to be more concrete than those in the abstract verbal condition (M = 4.03, SD = 0.96).

C. Preliminary Analysis And Evaluation Of Measures

A pre test was conducted before main experiment to 30 young adults range between 18-35years old using google survey form to check on reabilities. Reliabilities were assessed using Cronbach's alpha. All dependent measures had adequate reliabilities; imagery processing (α=0.75 acceptable), discursive processing (α=0.74 acceptable) and behavioral intent (α=0.85 good). Basedon established reliabilities, composite scores were developed for hypotheses testing

D. Hypothesis Testing

For imagery processing, based on the descriptive table above, it is known that the highest average is in the large visual imagery variable and the concrete verbal which is 21.68 with a standard deviation of 2.743. While the lowest average is in the small visual and verbal abstract that is equal to 18.42 with a standard deviation of 3.962. For discursive processing, based on the descriptive table above, it is known that the highest average is in the large visual and concrete verbal discurve variables, namely 22.11 with a standard deviation of 2.581. While the lowest average is in the small visual and verbal abstract that is equal to 18.69 with a standard deviation of 4.318. For behavioral intention, based on the descriptive table above, it is known that the highest average is in the large visual and verbal behavioral variables, which are 16.86 with a standard deviation of 2.866. While the lowest average is in the small visual and verbal abstract that is equal to 14.71 with a standard deviation of 3.637.

	Visual	Verbal	Mean	Std Deviation	N
	Large	Concrete	21,68	2,743	44

Imagery Processing		Abstract	21,14	2,979	49
	Small	Concrete	20,04	3,110	50
		Abstract	18,42	3,962	52
	Visual	Verbal	Mean	Std Deviation	N
Discursive Processing	Large	Concrete	22,11	2,581	44
		Abstract	19,96	4,359	49
	Small	Concrete	20,96	2,892	50
		Abstract	18,69	4,318	52
	Visual	Verbal	Mean	Std Deviation	N
Behavioral Intention	Large	Concrete	16,86	2,866	44
		Abstract	16,08	3,148	49
	Small	Concrete	15,82	2,561	50
		Abstract	14,71	3,637	52

The ANOVA test results obtained a calculated F value of 21.794 and a significance of 0.000 <0.05 so it can be concluded that there is an effect of the presence of visuals consisting of (large and small) on Imagery. The calculated F value is 5.325 and the significance is 0.022 < 0.05,so it can be concluded that there is an influence of the presence of verbal consisting of (concrete and abstract) on Imagery.
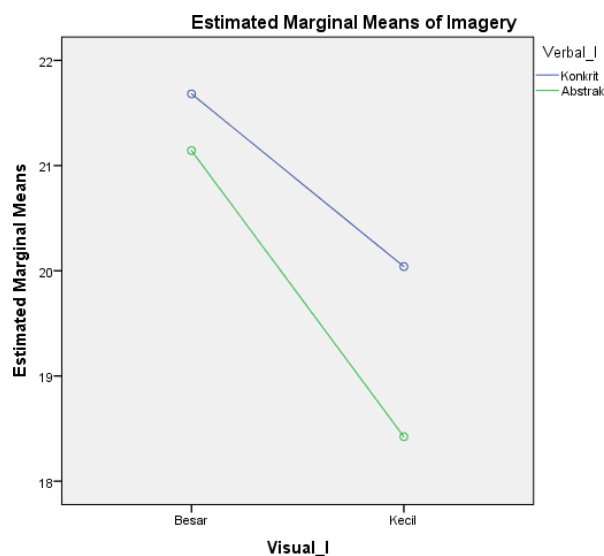
The results of the ANOVA test obtained a calculated F value of 5.308 and a significance of 0.022 <0.05 so it can be concluded that there is an effect of the presence of visuals consisting of (largeand small) on Discurve. The calculated F value is 17.718 and the significance is 0.000 <0.05, so it can be concluded that there is an effect of the presence of verbal consisting of (concrete andabstract) on Discurve.

Estimated Marginal Means of Discursive
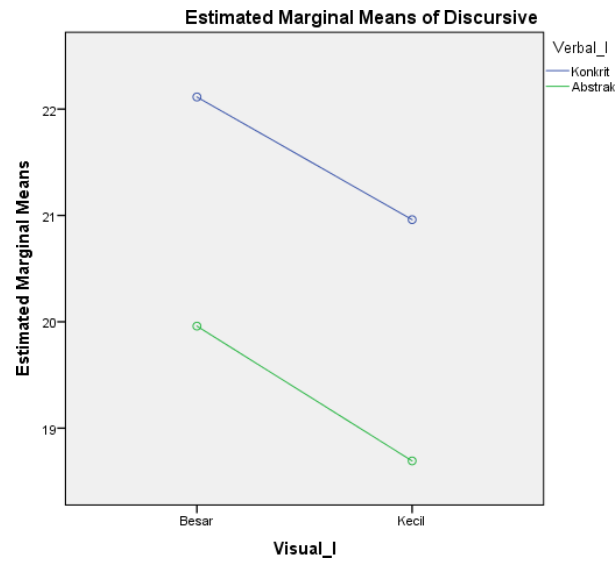
The results of the ANOVA test obtained a calculated F value of 7.403 and a significance of 0.07<0.05, so it can be concluded that there is an effect of the presence of visuals consisting of(large and small) on behavior. The calculated F value is 4.541 and the significance is 0.034 < 0.05, so it can be concluded that there is an influence of the presence of verbal consisting of (concrete and abstract) on behavioral.

Estimated Marginal Means of Behavioral
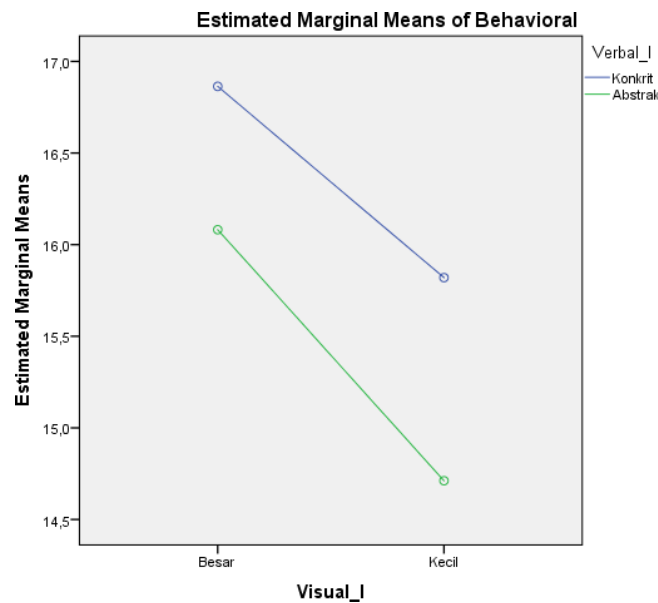
Multiple regression analysis was conducted to assess relationships among imagery processing,discursive processing, and behavioral intent.

Dependent Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Imagery	,311	,071	,340	4,405	,000
Discursive	,299	,064	,364	4,706	,000

a. On the imagery variable with a significance level of 95% (α = 0.05). The significance number (P Value) is 0.000 < 0.05. On the basis of this comparison, then H0 is rejected or means that the imagery variable has a significant influence on the behavioral variable (Y).

b. On the Discursive variable with a significance level of 95% (α = 0.05). The significance number (P Value) is 0.000 < 0.05. On the basis of this comparison, H0 is rejected or means that the Discursive variable has a significant influence on the behavioral variable (Y).

E. Hypothesis Result

According to data analysis above, the hypothesis results are obtained as below:

Hyphothesis	Conclusion	Description
• H1a. In the context of beauty products, consumers experience greater imagery processing when exposed to large visual stimuli, in comparison to small visual stimuli.	Accepted	Same result as previous research (Kim Minjeong, 2019)
• H1b. In the context of beauty products, consumers experience greater discursive processing when exposed to large visual stimuli, in comparison to small visual stimuli.	Accepted	Same result as previous research (Kim Minjeong, 2019)
H2a. In the context of beauty products, consumers experience greater imagery processing when exposed to concrete verbal descriptions, in comparison to abstract verbal descriptions	Accepted	Same result as previous research (Kim Minjeong, 2019)
• H2b. In the context of beauty products, consumers experience greater discursive processing when exposed to concrete verbal descriptions, in comparison to concrete verbal descriptions	Accepted	Same result as previous research (Kim Minjeong, 2019)
• H3a. In the context of beauty products, imagery processing is positively associated with behavioral intent.	Accepted	Same result as previous research (Kim Minjeong, 2019)
• H3b. In the context of beauty products, discursive processing is positively associated with behavioral intent.	Accepted	Different result as previous research (Kim Minjeong, 2019)

The paper could conclude that in all dependent variables, visual with large picture and verbal with concrete product description have greater effect on both dependent variables such imagery processing and discursive processing. In addition to that, both imagery processing and discursive processing are also positively associated with behavioral intention.

V.   DISCUSSION

The findings of this study provide empirical support for the S-O-R model in the context of digital commerce. Digital product presentation which visualize in image and product description a stimuli influence how potential consumer respond to the digital environment (Kim et al., 2009; Richard and Chebat, 2016). In Indonesia beauty product category, it is also supported S-O-R model where this study found that size of visual image and concreteness of product description (S) influence the level of imagery processing and discursive processing elicited (O). According to the descriptive analysis on the previous chapter, large visual imagery with the most concrete product description has greater imagery processing and discursive processing as compared to small visual and verbal abstract respectively. While between imagery processing and discursive processing (O), both has significantly related to behavioral intention (R).

The result of this experiment emphasizes the importance of having high quality of visual and concrete description of product on the e-retailer page since both have significant effect to imagery processing, discursive processing and behavioral intention. This study offers empirical support for the claims made by Holbrook and Moore (1981) and Rossiter and Percy (1978) regarding the dynamic relationships between visual and linguistic inputs and information processing. Visual stimuli elicited both discourse and imagery processing, indicating that there may have been some labeling or naming of visuals (Rossiter and Percy, 1978). Furthermore, different levels of concreteness in linguistic stimuli elicited processing of both imagery and discourse. According to researchers, concrete words stimulate the processing of pictures (Biehal and Chakravarti, 1982; Bower, 1972). According to Bipedal and Chakravarti (1982), thorough product descriptions can aid in envisioning a product and activate imagery processing. Both visual and verbal stimuli elicit not only imagery processing but also discursive processing. As a result, it is possible that the verbal and visual stimuli used in this research elicited the referential or associative processing suggested by the Dual Coding theory.

Dual coding theory explains human behavior and experience in terms of dynamic associative processes that operate on a rich network of modality-specific verbal and nonverbal representations (Clark & Paivio, 1991). According to the dual coding theory, language and mental images are encoded in verbal code and nonverbal code, respectively (Sadoski, 2005). Information can be processed through both the verbal and nonverbal channels. For this experiment, images and product description complement each other since the image gives us the clear benefit of its product while the product description convinces with more concrete result. According to dual coding theory, words are typically coded verbally rather than visually, but images are more likely to be both visually and vocally coded. According to these presumptions, learners would have twice as many chances to learn something if the information needed to be processed was coded vocally and visually since it is physically presented as a whole.

Large image helps consumers to know about the product information better than small ones as consumers tend to zoom into the image presentation. Especially with beauty product itself, they tend to read what kind of ingredients are included and make sure that it fits with their hair, skin or body type. As consumers don't have product on their hand, product presentation that have better visualization for consumers to image can help them to decide their purchase decision. According to previous study as well, the most well-known predictor of visuals is a picture (Paivio, 1971; Shepard, 1967). The imagery created by visual information has been compared to discursive information processing by verbal information as the reason for visual information's supremacy (Childers & Houston, 1984; Lutz & Lutz, 1977; Paivio, 1971). Concrete linguistic inputs can also activate imagery processing in addition to images (Paivio & Csapo, 1973; Paivio & Foth, 1970; Richardson, 1980). It was discovered that the value of images was highly correlated with the level of concreteness of words (Pavio, Yuille,& Madigan, 1968).

While for concreteness of the product itself, it resulted higher in discursive processing. The assumption is in pilot test, as we know, that perceived benefit is the top element for purchase decision in beauty product category. The potential consumers would like to know in advance what kind of benefit they could get when they buy and later try the product. With the concrete product description, giving the detail functional effect after trying the product, could enhance the visualization of consumers and feel convinced with the promises. It is better than putting the abstract message where emotional message is put upfront, due to that shampoo is basic product

category where consumers tend to put importance of functional to fix their problem than emotional which are most likely used in product where self-actualization is more needed.

The findings further explained that although both visual and verbal information had a significant effect on imagery processing, verbal information has a weaker impact compared to visual information. While for discursive processing itself, the verbal information has a more dominant effect compared to visual information. Regarding behavioral intentions, visual information had a more significant effect than verbal information.

This finding also aligned with numerous previous studies. Paivio introduced the picture superiority effect for the first time (1971). In particular, this theory contended that because pictures have more symbolic connotations than words, they help people remember things longer than descriptions do. The dual coding theory (Paivio, 1986) and sensory semantic theory can be used to expound on this theory in more detail online (Nelson et al., 1977). That image is effective in dealing with the lowest amount of time to send information to people for them to understand is supported by both dual coding theory and sensory semantic theory (Nelson et al., 1977). As the time spent to decide what to purchase online is tend to shorter compared to offline shopping due to many available options for consumers in one website. How the business convinced through image is needed as the first step to influence purchase behavior.

Moreover, the favorable association between mental images and behavioral intent is also supported by earlier research (Elder and Krishna, 2012; Kim, 2019; Roggeveen et al., 2015; Yim and Yoo, 2020). Because vivid mental picture was more similar to the actual experience than cognitive elaboration, it increased behavioral intentions (MacInnis and Price, 1987). In a similar vein, Kim (2019) discovered that processing visuals positively influences behavioral intent when shopping online. Additionally, Schlosser (2003) offered empirical support for a strong correlation between mental imagery and behavioral purpose.

Another thing that can explain why visual works better than verbal for this beauty category because according to the reasons to purchase, attractive packaging in one of the top elements that can influence consumer decision. How packaging looks and the information included in packaging is first stopped to take a look, while product description can play a role as supplementary information. The verbal superiority effect was effectively eliminated in the current study because visual and verbal information may have conveyed redundant product information, particularly concerning ingredients and perceived benefit. The results of the current study provide fresh perspectives on how consumer decision- making is influenced by digital product display in the context of beauty product e-retailing. This study shows how the growing digital environment's visual and verbal cues affect how people interpret this information, ultimately affecting their approach/avoidance behavior.

Managerial Implication

The findings of this study offer digital commerce companies useful information to take into account as they continue to develop and produce efficient digital product presentations that meet the expectations of online consumers. Larger graphics and more descriptive text were proven to be more successful, as was previously believed. This study made the conclusion that one of the underlying factors influencing customers' behavioral intent is the type of information processing. The processing of imagery prompted by verbal and visual stimuli in the context of cosmetics was positively correlated with behavior. Both verbal and visual inputs might trigger discursive thinking, which equally affected behavioral intent. The size of visual stimuli and the concreteness of verbal stimuli both contributed to the processing of imagery.

There is ongoing demand on digital companies, particularly e-retailers, to adopt new visualization technology to improve their product presentation. The results of this study do not suggest that online shops in the beauty sector should spend less on visualization technologies, but rather that they should pay attention to the specificity of the linguistic descriptions they provide on their websites and optimize them to speed up image processing. Beauty product e-retailers can easily use the effective and inexpensive digital marketing technique of optimizing vocal product descriptions.

To enhance more product visualization, online retailers may adopt a higher level of dynamic visual, such as a 3D virtual model. As the need to visualize the benefit of product become essential to convinced potential consumers. It believed that high quality and communicative visual can improve consumer perceptions of the product or e-retailer page, which may in turn affect enjoyment from and involvement with the online shopping process. It can lead to positive approach responses towards the product.

The 3D virtual model feature's experiential elements may entice more customers to peruse products at the online store, ultimately boosting online sales. In order to improve perception of an indirect (virtual) product

experience online, Li et al. (2003) found that 3D product presentations outperformed 2D pictorial presentations. By giving customers better tools for studying product characteristics (such as zooming in and displaying various perspectives of a single item on a virtual model), retailers may encourage customers to stay on their website longer and make more purchases there.

Users are more likely to be satisfied with a website if they have a good attitude (both toward the website and/or the product being offered). Online retail managers should therefore be aware of the key components that result in consumer happiness when applying fresh stimuli. The level of contentment may vary from one nation to the next. In order to provide fresh and inventive designs for the 3D product presentation and boost user satisfaction with the websites, managers should regularly perform customer satisfaction surveys.

VI. LIMITATION AND FUTURE RESEARCH

Given the nature of experimental research, this study lacks external validity, and thus generalization to other contexts needs caution. This research used Tokopedia as mock up website, can give effect of personal bias and previous knowledge. Future study is suggested to examine deeper between internal factors such demographic (age, gender, or education) and its relationship to each dependent variables. Moreover, future research also can research how the stimuli and information processing can be resulted in different attitude such affection, cognition, and conation. It is seen as behavioral intention can be too early to show up as a result with few stimuli. Future research also can dig deeper on other digital platforms, such as creating own mockup websites to decrease personal bias or explore other category, to increase our knowledge of consumer experiences in the digital space. Additionally, a comparison of men and women could advance this area of study. The results of the current study are anticipated to be expanded by similar m-commerce studies. Future studies must assess the different forms of information processing elicited by various stimuli. Such details will help shed light on the mechanism by which various stimuli affect customer opinions.

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The Impact Of Covid19 On Firm Investment: Evidence From Indonesia

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Abstract
This paper investigates the impact of COVID-19 on corporate investments. COVID-19 has had a significant impact on business and investment activities. This study uses data from Indonesia for pre-covid 19 period (2017 to 2019) to classification high flexibility of companies and (2020 to 2021) during covid 19. Number observation are 298, and total observation are 596. Using panel data and regression analysis. We find that companies that have high cash flexibility are able to withstand and resist adverse external shocks caused by COVID-19. These results indicate that the company's high cash flexibility is an important thing that must be owned by the company.

Keywords— Cash flexibility; Investment.

I. INTRODUCTION

Corona virus (covid-19) is a viral outbreak that was first declared a global pandemic on March 27, 2020 (World Health Organization, 2021). Covid19 was first in wuhan (china) which has infected more than one million people and more than 60,000 deaths globally in almost 100 days, until August 22, 2021 it was reported to have infected 211 million with a total death of 4.4 million. This epidemic is clearly having a significant impact. Some countries choose a lock-down or very strict policy, even economic activity is very limited, causing new problems for companies economically. The negative COVID-19 gave rise to several policies one of which, as a very significant impact on business, without much choice, individuals have no room to react only to be "reaction takers.", thus, we are guided in our interpretation of stock price behavior by theory. investors underreaction and overreaction (Daniels & Mead, 1998; Hong & Stein, 2005; Hong, Torous, & Valkanov, 2007).

Talking about the business sector, investors are predicted to suffer a lot of losses as a result of this crisis. This pandemic is said to be an external shock for the company. Cash flow risks posed by adverse external shocks were also found to have a greater impact on cash flows. (Kaplan & Zingales, 1995; Opler, Pinkowitz, Stulz, & Williamson, 1997) revealed that when companies face financing constraints, cash flow risk has a significant positive effect on cash holdings. Agency and trade-off theory claims that firms will be more likely to hold cash during a pandemic for preventive motivation or to take advantage of profitable investment opportunities (Keynes, 1936). However, companies with less cash flexibility will have difficulty repaying their loan principal and interest, will face large external financing constraints, and will face barriers to refinancing, which will result in less spending on technology, employees, and equipment. capital (Campello, Graham, & Harvey, 2010; Campello, Giambona, Graham, & Harvey, 2011). Therefore, companies with low leverage and high cash holdings have much better anti-risk capabilities when facing sudden shocks because they can take advantage of cash investment opportunities and maintain or increase firm value (Ge Jiashu, 2008). Due to the pandemic, causing a sharp decline in capital assets, the value of companies suffering from financial crises and bankruptcies fell. However, while the crisis also provides good opportunities for growth for companies that have cash flexibility, companies that do not have cash flexibility miss out on investment opportunities (Zingales, 1998).

Companies that have higher cash flexibility are more able to take on various investment opportunities than companies with low cash flexibility. companies can maintain future stability by having a low leverage ratio and high cash holdings are expected to be able to invest more consistently and take investment opportunities. Arslan et.al (2014) stated that firm could reach financial flexibility by maintaining quite large cash reserves. This study is replication of research conducted by Jiang Jie et.al (2021) in China. Compared to previous studies, this study was conducted in Indonesia. Where there were many policies that have been made during covid19 that effect on economy, especially investment activites And cosidering that capital flow volatility in developing countries such as indonesia could be a significant disturbance to corporate external financing, with financial flexibility had greater chances to acquire investment opportunities during financial crises that affected developing countries. and this study want to know iclination of financial flexible firms to apply cash holding policies. Therefore, based on the previous study, researcher want to know the effect of cash flexibility during the pandemic in Indonesia.

II. LITERATURE REWIEW

Financial flexibility is a company's capacity to manage internal finances by taking actions that will have an effect both in the long term and as an optimal allocation of financial resource reserves and effective financial risk management, such as buffering capacity (Buzacott, 1982). The availability of excess cash, or cash flexibility during a pandemic, is considered to function as a buffer mechanism for companies facing uncertainty. Holding cash can reduce the negative impact of policy uncertainty on the economic activity of companies (Duong, Nguyen, Nguyen, & Rhee, 2020). When there is policy uncertainty, firms tend to hold more cash to reduce the negative impact on capital investment and innovation. When financing becomes difficult, internal cash flow then becomes the main source of corporate funds and can effectively reduce investment shortfalls due to financing difficulties and/or restrictions (Kaplan & Zingales, 1995).

Previous research in developed countries has shown consistent results that financially flexible companies have higher capital expenditures compared to financially inflexible companies (De Jong et.al 2012; Fernando et al., 2014; Marchica & Mura, 2010). Research in developing countries also shows similar results, although companies in these countries are generally very vulnerable to external turbulence, and their stock markets are characterized by high capital volatility (Bekaert & Harvey, 2003; Joyce & Nabar, 2009). Yung et. Al (2015) stated that exogenous shocks can demage corporate viability, profitability, and cash flow, they can also create opportunities for firms with investment ability.

Zeng et al. (2011) explained that companies with high cash flexibility and regularity in storing cash before the crisis, they have more cash reserves, and it is said that it is better to use it for things like a crisis that occurs, compared to being used directly for investment purposes. Qianxi (2016) examined a firm's cash excess and cash flexibility reserves, and found that the negative impact of financing constraints on investment activities weakened when the firm had a large excess of cash holdings. Yung, Li, and Jian (2015) analyzed firms in 33 developing countries and found that firms' cash flexibility increased investment capability, reduced investment sensitivity to cash flows, reduced equity payments, and increased cash holdings, and during the 2008 financial crisis, cash flexibility increased firm value, with flexible firms suffering less from adverse external shocks and having smaller reductions in investment and equity spending. Moreover, Arslan-Ayaydin et al. (2014) found that firms with financial flexibility had greater chances to acquire investment opportunities during financial crises that affected developing countries. Financial flexibility also allows firms to avoid financial difficulties when facing negative obstacles, allowing financially flexible firms in developing countries to increase their investment abilities since financial flexibility makes it possible for them to invest more consistently and to chase suddenly appearing opportunities. Furthermore, the investment ability of financially flexible firms does not depend solely on internal financing because their unused debt capacity makes it easier to gain external financing to fund their projects.

Based on previous research, it was stated that the availability of flexible cash was able to help companies, one of which was during a crisis. Further research will be conducted in Indonesia to see how the influence of companies that have high cash availability will be.

H1: High-cash-flexibility reduces the adverse effect on corporate investment activities during a crisis.

III. RESEARCH METHODOLOGY

A. Data

This study uses financial data of companies listed in Indonesia obtained from Thomson Reuters. Using panel data and regression analysis.This research sample from 2017 – 2019 as pre-Covid19, was carried out to calculate the company's cash flexibility by dividing it into two classifications, namely high cash availability, and low cash availability. Then, data for 2020-2021 was taken to see how conditions were during a pandemic.

Cash flexibility is the company's way of securing its cash funds to be allocated through an appropriate financial policy (DeAngelo & DeAngelo, 2007; Ma, 2010). In the theory of financing priorities (Myers and Majluf, 1984) the presence of a large amount of cash is able to secure the company from issuing shares when undervalued. The measurement of cash availability is based on Zeng et al. (2011) revealed that cash flexibility is at most 30% of all companies classified as financially flexible. In this study it was determined that cash flexibility was 3 years before Covid19 spread in Indonesia (2017-2019). Based on these criteria, 269 firms in the sample are classified as high cash flexibility firms. The investment measurement based on Jiang Jie et.al (2020) is by dividing the current capital expenditure of the firm by the total assets of the previous period. The control variables are Debt, Roa, Roe, Size, Net cash flow. The models in this study are:

$Invest$: $\alpha + \beta 1\text{Post}_{it} + \beta 2\text{Debt}_{it} + \beta 3\ \text{Roa}_{it} + \beta 4\text{Roe}_{it} + \beta 2\text{Size}_{it} + \beta 3\ \text{NCF}_{it} + \epsilon \text{it}$

VII. RESULT / FINDING

Table 1 Hypothesis Testing

Variable	Coef	P>z
Post	0,0025657	0,093*
Debt	0,012178	0,3975
Roa	0,172868	0,062*
Roe	0,010773	0,37755
Size	0,002087	0,000***
NCF	2,501115	0,2425
_cons		

Based on table 1, shows the results of the basic estimation for the impact of COVID-19 on company investment spending. The post coefficient was found to be significantly positive at the 10% level, indicating that investment spending in Indonesian listed companies with high cash flexibility reduces the adverse effect on the investment activities of companies during the crisis. This result is consistent with Hypothesis 1.

IV. DISCUSSION

These results suggest that at the same time, existing research also finds that both opportunity and crisis coexist. If firms can access sufficient funds when valuable investment opportunities arise, they can increase the value of their firms, which suggests that cash flexibility is critical for firm development (DeAngelo & DeAngelo, 2007; Zeng et al., 2011). Therefore, studies have confirmed that financial flexibility through excess cash and a low debt ratio is beneficial when external funds are not available or borrowing costs are high (Ma, 2010). In short, companies with high cash flexibility can use more cash reserves to provide funds for their investment activities during a crisis. Existing research on cash flexibility mainly focuses on the quantitative dimensions and cash resources that companies may need to acquire or use in the future (Zeng & Wei, 2013).

V. CONCLUSION AND RECOMMENDATION

This paper investigates the impact of COVID-19 on corporate investments. COVID-19 has had a significant impact on business and investment activities. This study uses data from Indonesia for pre-covid 19 period (2017 to 2019) to classification high flexibility of companies and (2020 to 2021) during covid 19. Number observation are 298, and total observation are 596. We find that companies that have high cash flexibility are able to withstand and resist adverse external shocks caused by COVID-19. These results indicate that the company's high cash flexibility is an important thing that must be owned by the company. The results show that the impact of COVID-19 on corporate investment spending. The post coefficient was found to be significantly positive at the 10% level, indicating that investment spending in Indonesian listed companies with high cash flexibility reduces the adverse effect on the investment activities of companies during the crisis. The limitations of this study cannot be generalized to the world scope because this research was only conducted in Indonesia. Future research can add a research period to see the situation when it is endemic, and post-covid19.

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Factors Influencing Executive Compensation in Indonesia

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Abstract

Compensation is used to motivate management to improve firm performance. There is a debate that the compensation received by executives is not by the resulting firm performance, so this becomes a conflict, especially for the parties involved. Therefore, the purpose of this paper is to examine the effect of firm size (SIZE), leverage (DER), and profitability (ROE), whether simultaneously and/or partially toward executive compensation in mining firms listed on the Indonesian Stock Exchange. Data was collected from annual reports from 2016 to 2020. The sample collection used a purposive sampling technique with a total of 145 firms' data. However, 26 outlier data were found, so the total research sample was 119 samples. The research method used is panel data regression analysis. This study's findings are that firm size and leverage have a significant positive effect on management compensation, while profitability does not affect management compensation. However, simultaneously show that firm size, leverage, and profitability significantly affect executive compensation. This study's conclusions provide some support and consideration for the board of directors in evaluating the proportion of compensation to motivate managers in industries.

Keywords— Agency Theory; Executive Compensation; Firm Size; Leverage, Profitability

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I. INTRODUCTION

In achieving the right alignment, incentives usually feature a combination of salary, bonuses, and equity-based compensation such as stocks and options. The compensation component is usually based on several performance measures—individual achievement, net income, and share price. This is a reflected measure of the future results of the manager's efforts in the current period (Scott, 2015). There is a recent study by Al-azhary et al., (2022) evidence from Indonesia that states that corporate profitability and debt affect executive compensation. In addition, according to Khursheed & Sheikh (2022), evidence in Pakistan stated that firm size, profitability, leverage, growth opportunities, and age are some of the key firm-specific factors that influence (i.e., plus/minus) CEO compensation differently in different industries. However, according to the firm's annual report data for the last 5 years (2016-2020) the highest average remuneration or executive compensation for mining firms occurred in 2019, reaching a value of IDR 28 billion, while in the same year, the average profitability and leverage of mining firms it was the lowest value in other years. Then, in 2018 when the average profitability and leverage reached a fairly good value compared to previous years, the remuneration value received by the CEO was also quite high, reaching Rp25 billion. This becomes a big question, what is the determinants of executive compensation? Does firm performance affect executive compensation? We examine this with broader year data (2016-2020) and specifically on mining firms because mining firms make a big contribution to state revenue in Indonesia.

Scott (2015) stated that an executive compensation plan is an agency contract between the firm and the manager that attempts to align the interests of the firm's owners and manager by focusing the manager's compensation on one or more measures of the manager's performance in running the firm. According to agency theory, the contract between the owner and the manager of the firm creates a relationship due to one or more (owners) employing a party or agent (in this case, the manager) so that there is a delegation of decision-making authority from the owner of the firm to the manager. The relationship between the manager and the owner of the firm has a consequence in the form of an agency problem where the agent will maximize his interests to prosper himself both economically and mentally, while the owner will have an interest in his welfare by adding to the value of the firm. Executive compensation can be a means that can help control agency problems by trying to get both parties to benefit and gain their respective interests without compromising the interests of the other.

Based on prior studies, the determinants of executive compensation are mixed. First, Fernando & Thevaranjan (2017) finds that the impact of auditor specialization has waned in the post-SOX period. There are two possible explanations for this result. The first explanation is that post-SOX, quality differences among auditors have diminished to the point where cross-sectional differences in audit quality do not affect accounting-related research variables as much as they did previously, and the second possibility is that there are still differences in auditor

quality, but that specialization is no longer a reliable proxy for testing national-level audit quality differences. Indeed, audit quality research appears to have shifted from national-level to office- and partner-level variations. Then, Focke et al., (2017) find that the negative effect of prestigious firm compensation concentrate on well-regulated firms, only strong directors can pay the CEO less, and weaker directors take advantage of the benefits of working in firms that are directed at the CEO. Also, Jong & Ho (2018) have further found that domestic and foreign institutional investors could negatively impact executive remuneration when the firm CEOs have no affiliation with the controlling shareholders. Khursheed & Sheikh (2022) stated that firm size has positive relation to executive compensation, because complex and large firms need managers that are qualified and high-quality, also the executive compensation can motivate the CEO to expand the business. Bigger firms are more able to pay bigger executive compensation (Long et al., 2022). Meanwhile, Ghasemi et al., (2020), Khursheed & Sheikh (2022), Rahman & Mustafa (2018) discovered that firm size is related positively to firm compensation. Bouteska & Mefteh-Wali (2021) found that leverage has a negative significant to executive compensation. Firms with high debt will leave the firm with fewer resources, which may not be enough to offer a profitable package to CEO (Khursheed & Sheikh, 2022).

This research uses a sample of Indonesian mining firms listed on the Indonesian Stock Exchange from 2016 to 2020. This study aimed to obtain empirical evidence of the effect of firm size, leverage, and profitability on executive compensation. First, we examine the executive compensation of mining firms in Indonesia and analyze the effect of firm size, leverage, and profitability on executive compensation. Then, we hypothesize that the firm size and profitability have a positive significant effect on executive compensation, meanwhile leverage has a significant negative effect on the executive compensation. We tested 118 samples from 29 mining firms listed on the Indonesian Stock Exchange with the year of observation during 2018-2020.

Our results obtained through data panel regression indicate that firm size and profitability significantly positively affect the executive compensation, while leverage has no effect on the executive compensation. This study makes several contributions. The first is knowledge. For details, this is the first paper to examine the determinants of the executive compensation in Indonesia, specifically for mining firms. Second, it will not only fill a gap in the literature, but will also help the board of directors and regulatory authorities in developing policies that determine the CEO pay slice in accordance with qualifications and performance.

The rest of the paper proceeds as follows. Section II presents the literature review. Section III describes the research methodology. Section IV presents the result/finding of the study. Section V presents a discussion (interpreting the results of data processing). Section VI presents the conclusion and recommendations, a brief summary of the study's results, and a discussion).

II. LITERATURE REVIEW

A. Agency Theory

Jensen and Meckling (1976) presented agency theory as a way to explain the link between CEO pay and firm success. The principal-agent relationship may be seen in a variety of firms in today's economy. It's a contractual agreement that covers any transaction that involves asymmetric knowledge. First, the cost of supervision by the principal, which is the cost of the principal stimulating the agent in order to get the latter to work for the benefit of the former; second, the cost of guaranteeing the agent, which is the cost of the agent ensuring that he or she does not engage in behavior that harms the principal, as well as the cost of compensation if that behavior is adopted; and third, the cost of compensation if that behavior is adopted.

In most businesses, the owners leave the firm's management to professional managers. The owner is the principal, and the manager is the agent in such a relationship. According to agency theory, the most important game between them is information asymmetry. Managers have a lot of information about the firm because of their direct managerial power and professional skill, but stockholders have a lot less. The information asymmetry makes it difficult for shareholders to determine if management is acting in their best interests. According to the rational economic man hypothesis, managers are self-interested, which is also adopted from the agency theory, and they may cut down the firm's (shareholders) interests to pursue personal gain. The agency's costs would rise as a result of this (Jensen & Meckling, 1976).

B. Firm Size

Firm size is a scale that describes how big or small a firm. Firm size is seen from total assets, sales, and market capitalization (Sudarmadji & Sularto in Hery, 2017). Firm size can affect the firm's funding structure because larger firms will use larger funds compared to smaller firms (Astuti et al., 2017). Based on Murhadi (2011), firm size significantly affects executive compensation. This is in line with the results of Rahman and Mustafa's research (2018) that firm size positively affects executive compensation. By using the total assets of the firm to show a picture of the size of the firm. If the assets of a firm are large, then the firm can be classified as a large firm. That way, large firms will increase incentives for earnings management. So that it can attract the attention of investors because of better earnings management practices than small firms. We propose the following hypothesis:

H_1 :Firm size has a significant positive effect on executive compensation.

C. Leverage

Financial management is required to manage solvency ratios properly so as to be able to balance high returns with the level of risk faced. The size of this ratio is very dependent on the firm's loans, in addition to its assets (equity). The higher the solvency ratio, the higher the risk of the firm, and vice versa. According to Ghasemi and Razak (2020), leverage has a negative effect on executive compensation. The greater the debt level of a firm, the lower the compensation given to executives. Based on the above thoughts, the second hypothesis in this study is:

H_2 :Leverage has a significant negative effect on executive compensation.

D. Profitability

Profitability is the firm's ability to generate profits in a certain period. The firm's goal, in general, is to get the maximum profit that can be achieved in the short and long term. Firms that have a high level of profitability will have greater internal funds. The greater the funds that can be returned shows the amount of net profit obtained from the firm's equity. Equity is the capital owned by the firm, the greater the funds that can be returned from equity into profit, meaning the greater the profit obtained from its own capital. According to Khursheed and Sheik (2022), profitability significantly affects executive compensation. High ROE will cause the position of the owner of the firm's capital to be stronger. Firm performance as proxied using ROE can also affect executive compensation, meaning that compensation given to executives can come from the profits generated by the firm. We thus propose the following hypothesis:

H_3 : Profitability has a significant positive effect on total executive compensation.

III. RESEARCH METHODOLOGY

A. Sample Selection

We collected detailed CEO compensation data from the IDX (Indonesia Stock Exchange) database for the period 2016-2020. The Executive Compensation database contains data on CEO & commissioner compensation (ranked annually by salary and bonus) at each firm. Examples of related research using the ExecuComp database include Long et al. (2022) and Bick & Flugum (2022). Since the executive compensation is the key variable of this study, we first download all firm data from the IDX (Indonesia Stock Exchange) database. Since the CEO characteristics and director & commissioner information are required, and they have been relatively complete since 2016, we set the starting sample period as 2016. We examined only the mining sector, which amounted to 47 firms. This research used purposive sampling. the criteria for the sample under study are based on:

Table 1. Sample Selection Process

Mining firm listed on the IDX for the 2016-2020 period	47
Less :	
Delisted Mining firm during the 2016 – 2020 period	(3)
New Mining firms have IPOs 2016-2020 period	(6)
Mining firm whose financial reports are not complete for the 2016-2020 period	(2)
Mining sector firms aren't issuing executive compensation in the 2016-2020 annual financial statements of mining sector firms	(7)
The sample used in this study	29
Sample during the 2016 – 2020 period	145
Less :	
Outlier data	(27)

Table 2. Variables

Name	Symbol	Definition
Compensation	$COMP_{it}$	Natural log of the total executive compensation
Firm Size	TA_{it}	Natural log of total assets
Profitability	ROE_{it}	Comparison of net profit after tax and the firm's total equity
Leverage	DER_{it}	Total liabilities to total equity

B. Empirical Models

As the main focus is on payment performance, we measure the sensitivity of payment performance. This means that compensation changes must be made based on changes in firm performance. For example, a high return on equity (ROE) does not always mean that the compensation received by top management is significant. A large firm size does not always mean that the compensation received is significant, and the solvency ratio is not always large, so the compensation received is small. The analysis in this study is panel data analysis. The equation for the analysis of the panel data regression model in this study is as follows:

$$COMP_{it} = \alpha + \beta_1 TA_{it} + \beta_2 ROE_{it} + \beta_3 DER_{it} + e$$

Where the dependent variable is executive compensation is the natural logarithm. Compensation is the total compensation of the CEO & commissioner (salary, bonus, limited stock grant, long-term incentive plan, payment, all other remuneration, and option value) received by the CEO of the firm in the year t.

The first test variable is Firm Size which is proxy by the natural logarithm of the firm's Total Assets, Bhuyan et al., (2020) suppose the results of total assets are in accordance with H_1. The positive coefficient indicates the alignment between executive compensation and larger firm size. The second test variable is the Profitability Ratio, proxied by Return to Equity (ROE), which is a comparison of net profit after tax and the firm's total equity. The use of ROE in measuring profitability in this study because ROE can describe the firm's ability to provide financial compensation to shareholders through an equity firm. Suppose the results of ROE are in accordance with H_2. A positive coefficient indicates the alignment between executive compensation and higher profitability ratios. The third test variable is leverage which is proxied by the Debt to Equity Ratio (DER), which is a measure of how much the firm's assets are covered by the debt. In other words, the leverage ratio is a metric used to measure the amount of debt a firm must bear to replenish an asset. Suppose the result of DER is in accordance with H_3. The negative coefficient shows that leverage is inversely proportional to the compensation received by executives.

Table 3. Measurement of Variables

Name	Symbol	Definition
Compensation	COMP it	Natural log of total the total executive compensation
Firm Size	TAit	Natural log of total assets
Profitability	ROEit	Comparison of net profit after tax and the firm's total equity
Leverage	DERit	Total liabilities to total equity

Table 4. Summary Statistics

	Compensation	Firm Size	DER	ROE
Mean	23.87701	30.12816	0.912471	-0.301180
Median	23.83057	30.10604	0.695500	0.042100
Maximum	26.62790	33.36413	11.32540	8.370000
Minimum	19.98930	24.95236	-6.670000	-19.67000
Std.Dev	1.185479	1.831606	1.737027	2.114576

IV. RESULT / FINDING

A. Classic Assumption Test

The model used in this study is a fixed effect model (FEM) that uses the ordinary least square (OLS) approach. The classic assumption tests that need to be done in the OLS approach are the heteroscedasticity test and the multicollinearity test (Basuki et al., 2016).

1. Multicollinearity Test

The multicollinearity test was carried out with the aim of testing the correlation between independent variables in the regression model. According to Basuki & Yuliadi (2016:63), Multicollinearity detection can be seen through the value of the correlation coefficient between the independent variables. This study uses the results of the multicollinearity test using Eviews 12 software.

Table 5. Multicollinearity Test

Variable	Firm Size	DER	ROE
Firm Size	1	-0.199495443	0.024902691
DER	-0.199495443	1	-0.001448708
ROE	0.024902691	-0.001448708	1

Based on Table 5, the correlation value between the variables of the firm size represented by total assets (X1), leverage represented by DER (X2), and Profitability represented by ROE (X3), is less than 0.9. This means that there is no relationship between independent variables or there is no multicollinearity in this study.

2. Heteroscedasticity Test

The purpose of the test heteroscedasticity is to test the variance inequality of the residual one observation to other observations in the regression model. Then, this inequality symptom is called heteroscedasticity (Basuki & Yuliadi, 2016:63). The results of the heteroscedasticity test using Eviews 12 software as below.

Table 6. Heteroscedasticity Test

F- Statistic	1.650336	Prob. F (9,108)	
			0.1101
Obs*R-squared	14.26629	Prob. Chi-Square (9)	
			0.1132
Scaled explained SS	14.68594	Prob. Chi-Square (9	0.0999

Based on Table 6, the Prob.Chi-square value of Obs*R-squared is 0.1132. This means that in this regression model, there is no heteroscedasticity because it is greater than 0.05.

3. Panel Data Regression Equation with Random Effect Model

Table 7. Panel Data Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.692417	7.978234	0.337470	0.7366
Firm Size	0.695950	0.264826	2.627947	0.0102
DER	0.236310	0.043027	5.492069	0.0000
ROE	-0.004288	0.025688	-0.166941	0.8678

Based on Table 7, the test results from the fixed effect model can be formulated in the panel data regression equation as below :

$$Y = 2.692417 + 0.695950\ \text{Size} + 0.236310\ \text{DER} - 0.004288\ \text{ROE} + \text{e}$$

The panel data regression equation of this study can explain partially and simultaneously. Partially can be seen in Table 7. First, the constant value is 2.692417, indicate that if the independent variable in the regression (firm size, profitability, and leverage) is 0, then the dependent variable on regression (executive compensation) is 2.692417. Second, the coefficient of firm size in this study is 0.695950, which indicates that for every one unit increase with the assumption that the other variables are zero, then the Y variable in this study (executive compensation) will also increase by 0.695950. Third, the regression coefficient of leverage in this study is 0.236310, indicating that every occurrence of an increase of one unit with the assumption that the variable is 0, then on the contrary in the Y variable in this study, namely executive compensation will decrease by 0.236310. Last, the profitability regression coefficient in this study is -0.004288, indicating that each the occurrence of an

increase of one unit with the assumption that the variable is 0, then the Y variable in this study, namely executive compensation will also increase by -0.004288. And Simultaneous Significance Test (Statistical Test F) can be seen in Table 5. It shows a probability value (F-statistic) of 0.000000, this value is smaller than the significance level of 0.05 (5%). Based on the conditions to take hypothesis decision, it can be concluded that the independent variables in this study, namely firm size, profitability, and leverage, simultaneously affect the dependent variable, namely executive compensation.

Hypothesis Test

Table 8. Coefficient of Determination Test

R-squared	0.918562	Mean dependent var	23.87701
Adjusted R-squared	0.889206	S.D. dependent var	1.185479
S.E. of regression	0.394595	Akaike info criterion	1.204123
Sum squared resid	13.39066	Schwarz criterion	1.955495
Log-likelihood	-39.04326	Hannan-Quinn criter.	1.509202
F-statistic	31.29082	Durbin-Watson stat	1.349114
Prob(F-statistic)	0.000000		

Based on table 8, the results of the Adjusted R-squared show a number of 0.889206 or 88%, it can be concluded that the independent variables in this study are firm size, profitability, and leverage can explain the dependent variable of 88%, while the remaining is 11% can be explained by other variables not included in this research.

V. DISCUSSION

This article uses the panel data regression method for robustness testing, shown in the Appendix. First, firm size has a significant positive effect on executive compensation, supported by research conducted by Mehran (1995), which explains that firm size has a positive effect in his research. This is because the larger the size of the firm, the greater the executive compensation. Total assets are used as firm size variables, because firms with large total assets tend to be more stable and able to maximize their performance by generating significant returns to attract investors. Firm size can also be used to see the growth of a firm, by increasing sales and assets owned by the firm. Management has done a great job, and corporate governance is correct. This can be a factor in management's assessment as the basis for choosing an executive compensation package

Furthermore, profitability, as proxied by return on equity (ROE), has unsignificant positive effect on executive compensation. This is supported by Suherman et al., (2016), who explain that profitability has unsignificant positive effect in their research. This is because the firm can get the maximum profit that can be achieved in the short and long term. Firms that have a high level of profitability will have greater internal funds, the greater the funds that can be returned. High ROE will cause the position of the owner of capital to be stronger so that it can affect executive compensation, so the compensation given to executives can come from the profits generated by the firm.

The last variable, leverage as a proxy for debt to equity ratio (DER) has a significant negative effect on executive compensation. This is supported by research by Malik & Shim, (2019) who explain that leverage influences their research. This is because firms are fine at managing existing debt solvency ratios so they can balance it well with the level of challenges faced. The size of this ratio is very valuable from the credit owned by the firm, in addition to the assets offered (equity).

VI. CONCLUSION AND RECOMMENDATION

Our study provides the first systematic evidence of how firm size, leverage, and profitability relate to executive compensation in the mining sector in Indonesia. Overall, our results show that firm size, leverage, and profitability simultaneously affect executive compensation. This finding is strong because it uses panel regression test data able to provide more data so that it will produce greater degrees of freedom and panel data provides more informative data, more variation, less collinearity between variables, and better efficiency

This finding partially shows that firm size and leverage can positively affect executive compensation. Meanwhile, profitability has no effect on executive compensation. There is no effect on profitability because the firm does not have a high level of profitability, so the internal funds are smaller. The smaller the funds obtained by the firm, the smaller the rate of return will be a low ROE will cause the firm's capital owner position to weaken. Thus, in this study profitability has no effect. This shows that a lower level of corporate debt increases the amount of executive compensation. Hence, the firm does not have pressure on debt interest can provide higher compensation to executives. This is in line with the research that has been done by Agarwal (2021).

The limitation on this research that the executive compensation consist of basic salary, allowances and bonuses reported in the annual report. Furthermore, we have problems in finding international journals that have the same variable influence as this study because excutive compensation journals are very rare to find. We suggest, in further research, enlarging the scope of firms. We expect that it can make a difference in selecting variables, selecting research objects, and research years other than mining firms in 2016-2020 which are expected to obtain better results for future study. Further research is expected to add other factors that appear to affect executive compensation, such as firm performance as measured by firm value, price changes, or stock returns. Other variables that can be added include firm-specific characteristics that can be seen from the number of business segments of each firms.

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Green Marketing Segmentation Across Emerging Economies

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Abstract

This is a review paper aiming to study the green marketing practice in emerging economies by investigating segmentation patterns based on the prior literature survey. This paper is synthesizing the prior study to find the pattern and gap between green segmentation and the variables. Emerging nations have been a center of manufacturing and consumption with high populations and potential economic growth. Marketing acts as a doubled-edge sword, either can accelerate consumption and lifestyle aggressively or able to stimulate sustainable consumption with so named Green Marketing. Green segmentation is crucial as a tactical strategy in green marketing. Marketing mix needs particular segmentation and therefore to determine, variables are significantly investigated. However, the variables pattern in developing countries has not been synthesized.: Psychographic and behavioral variables have been extensively used; however, the mediating role of price and enterprise profitability has not been studied yet to find the gap between environmental awareness and purchase intention. Literature review sources are article journals in the marketing field with sampling and populations in emerging nations. The results show various perspectives of segmentation variables and results. Behavioral and psychographics variables-based research has a deeper and wider topic due to current consumer behavior. The mediating role of price and enterprise profitability in developing economies is recommended for further research to gain better insights into green marketing practices, particularly in developing nations.

Keywords—Emerging Economies; Green marketing; Green Segmentation

I. INTRODUCTION

Environment degradation as the consequence of technological, and industrial expansion and growing demographic is inevitable. Nature is being exploited for raw material explorations, and the environment ironically burdens the waste and pollution from goods production and consumption. Earth faces the threats of climate change, ozone layer depletion, environmental damage, air land water pollution, high-scale consumption of raw material, and increased product dumped (Costanza et al, 2014; Nekmahmud et al 2020). Particularly in emerging countries that are identified by IMF based on attributes such as progress in reaching middle-income levels, market access, and greater global financial relevance (Duttagupta et al, 2021). Furthermore, the reason that four-fifths of the world's population is in developing economies (UNCTAD, 2017), the contribution to the application of green practices is undoubtedly crucial.

According to Amoako et al., (2020), as the profit growth of multinational corporations is by some means stagnant in developed countries, they are shifting to emerging economies (Sheth et al 2016). The emerging nations in the manufacturer's perspective offer abundant natural resources, and lower wages, whereas a demographically, dense population is to be targeted as potential customers. However, many studies underlined the lack of information about ecological attitudes and behaviors in emerging countries (McEntee and Brust, 2011; Nguyen et al., 2016; Pham et al., 2018).

Green marketing also referred to as sustainable marketing considered to resolve the problems. The necessity is as crucial as to support business and the environment, especially for emerging countries that mentioned previously hold four-fifth world's population and future potential that MNC shift to emerging economies. In this respect, literature notes that green marketing will enhance brand equity, and company performance (Van Yperen, 2006; Bonini and Oppenheim, 2008;), however according to Dean & Pacheco (2014), for numerous entities, the practice of environmental marketing has delivered unsatisfactory outcomes. For example, Sari & Firmanzah (2011) notes that the market share of environmentally friendly products in Indonesia as one emerging country is still low, and its growth is still noticeably slow. Nguyen-Viet (2022) discovered the finding that a green marketing mix positively influences green consumer-based brand equity creation and thus becomes a strategy for captivating the market. However, attention to the importance of green marketing strategies has been fairly limited, and this happens, mainly in developing nations. Consequently, the green marketing strategies in developing countries are not fully recognized (Agustini et al.,2019)

This paper has the objective to support marketers, researchers, and policymakers to establish green marketing with essential tools; by summarizing and synthesis the previous research on segmentation, particularly on the descriptor variables, and suggesting marketing mix based on the segmentation findings based on prior literature.

Especially, the emerging market should have unique green segmentation due to demographic, psychographic, and behavioral market characteristics. Additionally, variables in segmentation are correspondingly analyzed. Hence, this paper is investigating and synthesizing the literature on segmentation across countries in emerging economies to improve business performances and accordingly save nature.

II. Literature Review

A. Green Marketing in Emerging Countries Context

The literature stated that the Green Marketing issue appeared in 1970s. However officially drawn as vital issue since The American Marketing Association (AMA) published a proceeding titled "Ecological Marketing". Kotler and Keller (2008) describe green marketing as marketing of products that are environmentally safe or responsible for the environment.

Nekmahmud et al., (2020) highlighted that distinguished researcher have been confirming the benefits of green marketing, for example, promoting awareness of ecological and social issues, and the most remarkable is creating sustainable growth, simultaneously earning profit for the companies. Although some issues such as greenwashing should be regulated to avoid misuse of green terms toward the benefits of raising the brand equity and cost reduction purpose camouflaged in the green promotion. Green Marketing is believed to help countries to realize the indicator Sustainable Development Goals (SDG).

Emerging countries might have various definitions based on the organization associated with the given criteria. For instance, IMF identified emerging countries based on characteristics such as sustained market access, progress in reaching middle-income levels, and greater global economic relevance (Duttagupta et al, 2021). Hoskisson et al (2000) defined an emerging economy as a low-income country, experiencing rapid economic growth because of government policies are eager to liberate the economy. Meanwhile, MSCI Market Classification Framework (2014) grouped into the following three criteria: size, economic development, and liquidity as well as accessibility to market, created three categories; frontier, emerging, and developed market. Emerging market has substantial openness to foreign ownership and ease of capital flows. The reason that four-fifths of the world's population is in developing economies (UNCTAD, 2017), therefore the application of green practices is vital.

Duttagupta&Pazarbasioglu (2021) in Quarterly Publication of IMF classified advanced, emerging market and developing economies among nations. IMF identifies the following countries in the emerging market group: Russia, Argentina, Brazil, Malaysia, China, Colombia, Egypt, Thailand, India, Indonesia, Iran, Chile, Mexico, the Philippines, Poland, Saudi Arabia, South Africa, Hungary, Turkey, and the United Arab Emirates. Those countries account for 34 percent of the world's GDP and 46 percent in purchasing-power-parity terms. Emerging countries are in transition to an advanced economy which potentially rapidly growing due to socio-demographic conditions. This paper will analyze market segmentation results among mentioned countries in various contexts, including; Iran, Turkey, and India.

Oluwasola (2014) stated that in developing countries, the effect of pollution and environmental problems is more serious. Unlike the developed nations, developing countries have less technology, and fewer aware citizens to combat environmental destruction. The necessity and research of greener practices including green segmentation are crucial to be applied in a country other than developed nations, including emerging states.

B. Descriptor Variables in Segmentation

The history of segmentation started in 1964 by sociologist Daniel Yankelovich who proposed a segmentation analysis method to help marketing directors evaluate viable strengths and weaknesses, to plan the product feature, decide their selling strategy and advertising, and set accurate marketing objectives. Additionally, cited from Harvard Business Review, Yankelovich (1964) stated that each brand is better to sell only a to the certain market segment, not to the whole market. The firms are not feasibly to target every person. Aiming for the whole word is impractical, as Kotler et al. (2009) pointed out because consumers fundamentally have different tastes, preferences, and buying patterns. Consequently, a strategic approach to delivering the message and promotion material effectively is required. The Green marketing segmentation is determined, followed by green targeting and green positioning.

Segmentation is the method of clustering a group of customers with similar characteristics, behaviors and other variables. A good segmentation will identify potential customers and distinguish them from other members of the segment who do not have similar needs (Dahlstrom and Crosno, 2018). When creating a segment, the consumer is first segmented based on the segmentation variable. Each of the segments must then be described in detail using descriptor variables (Dolnicar et al., 2018).

Kotler et al., (2005) revealed four types of variables to investigate the segmentation, namely demographic, socioeconomic, psychographic, and behavioral. While Laroche et al., (2001) designated five types; demographic, knowledge, values, attitudes, and behavior. Yankelovich in early 1964 has mentioned that conventional demographic methods such as; age, sex, geography, and income level are not expected to provide as considerable direction for marketing approach, non-demographical factors such as values, lifestyle preferences are believed to influence the purchase behavior more than the demographic factors. To be concise, green marketing research has not provided consistent results in particular consumer descriptor variable in determining the segmentation pattern. In the early 1980s and 1990s, marketers were using sociodemographic segmentation criteria such as age, gender, income education level, etc. Nevertheless, studies showed mixed results and have failed to provide clear insights to grasp the underlying factors as demographic measures are not as precise as psychographics (Straughan and Roberts, 1999) and might only help to recognize who purchases the green goods (Paladino, 2005).

Yi (2008) elucidated there are many segmentation approaches, and it might be required more than one to achieve distinguishing segments, however common variables are following:

Demographic variables: divide the market into segments based on variables such as age, gender, income, education, religion, ethnicity, and generation. Diamantopouset (2003) explained that demographics have been widely used as the main variables for segmentation. Daniel Yankelovich (1964) as the pioneer of market segmentation stated that non-demographical factors such as values, lifestyle preferences believed to influence the purchase behavior more than the demographic factors.
Anderson & Cunningham (1972) discovered demographics is to distinguish between socially conscious and unconscious customers. Prior literature stated the importance of demographics in the segmentation of green consumers, but the findings are far from conclusive.

Psychographic variables: divide a market into different segments based on social class, lifestyle, or personality characteristics; Verma (2014) suggested that psychographic factor like attitude plays a key role in driving consumer choice of sustainable product option.

Behavioral variables: divide a market into segments based on consumer knowledge, attitude, uses, or responses to a product (Kotler & Armstrong, 2014, pp. 193–198; Kotler and Keller, 2009). Environmental attitudes, as one of the behavioral variable has been highlighted as the most significant variable in predicting behavior and behavioral intentions (Kotchen et al : 2000).

Table 1. is summarizing the variables literature in a table derived from the descriptive narration from Verma(2017) and Bideh(2020) . Categorization is sorted on item under Demographic, Psychographics and Behavioral categories

Table 1. Segmentation Variables

Demographic Variables			
Variables	Positive relation	Negative relation	No relations/insignificant
Age	Ritchie et al. (1981)	Aaker and Bagozzi (1982)	
	Verma (2017)	Widegren, (1998)	
	Diamantopoulos et al (2003)	Verhage, 1998	
	Anderson&Cunningham (1972)		
	D'Souza et al (2007)		
	Dychtwald and Gable (1990)		

Income	Kinnear et al.(1974)	Roberts (1996) Samdahl and Robertson(1990)	Abrahamse and Steg, (2011)
	Sardianou (2009)		Sardianou (2007)
		Gatersleben et al. (2002)	
			Clark et al., (2003)
		Verhage,(1980)	
Gender	Zelezny et al, (2000)		(Laroche et al., 2001)
	Clark et al.(2003)		
	Samdahl&Robertson (1989)		

Psychographic Variables

Variables	Positive relation	Negative	No relations/insignificant
Environmental Concern	Stern et al. (1993)		
	Mohai and Twight (1987)		
	Antil, 1(984); Roberts, (1996); Roberts and Bacon (1997); Van Liere andDunlap(1981)		
	Kim andChoi (2005)		
	Barr (2003)		
	Straughan and Roberts, (1999); Mostafa (2007)		
Perceived consumer effectiveness (PCE).	Antonetti and Maklan (2014)		
	Kabadayı et al.(2015)		
	Roberts (1996) Straughan and Roberts (1999)		
Liberalism	Roberts (1996)		Straughanand Roberts (1999)
	Gundappa (1987)		
	Van Liere and Dunlap, (1981)		
	Anderson andCunningham (1972)		
Environmental Knowledge/ ecoliteray**	(Jansson et al., 2010)		
	Do Paco et al (2010)		
	Tilikidou (2007)		
	Fraj (2007)		
Personal Value	Jansson et al (2010)		
Religiosity	Rice (2006)		
	Bideh (2020)		
Perceived consumer effectiveness (PCE)	Verma (2017)		

Behavioral Variables

Variables	Positive relation	Negative	No relations/insignificant
Variables based on individualism/ collectivism	Jansson et al., (2010)		

Habits	Jansson et al., 2010
	Thogersen (2008)
	Cordano et al (2010)
	Nordlund (2003)
Environmental attitude	Kotchen(2003)
	Halpenny (2010)
	Mostafa (2009)

Source: Verma(2017) , Bideh(2020)

**Bideh(2020) classified as behavioral variables

Three Segmentation in Emerging countries put in the table. The segmentation context, research sample dan population is diverse
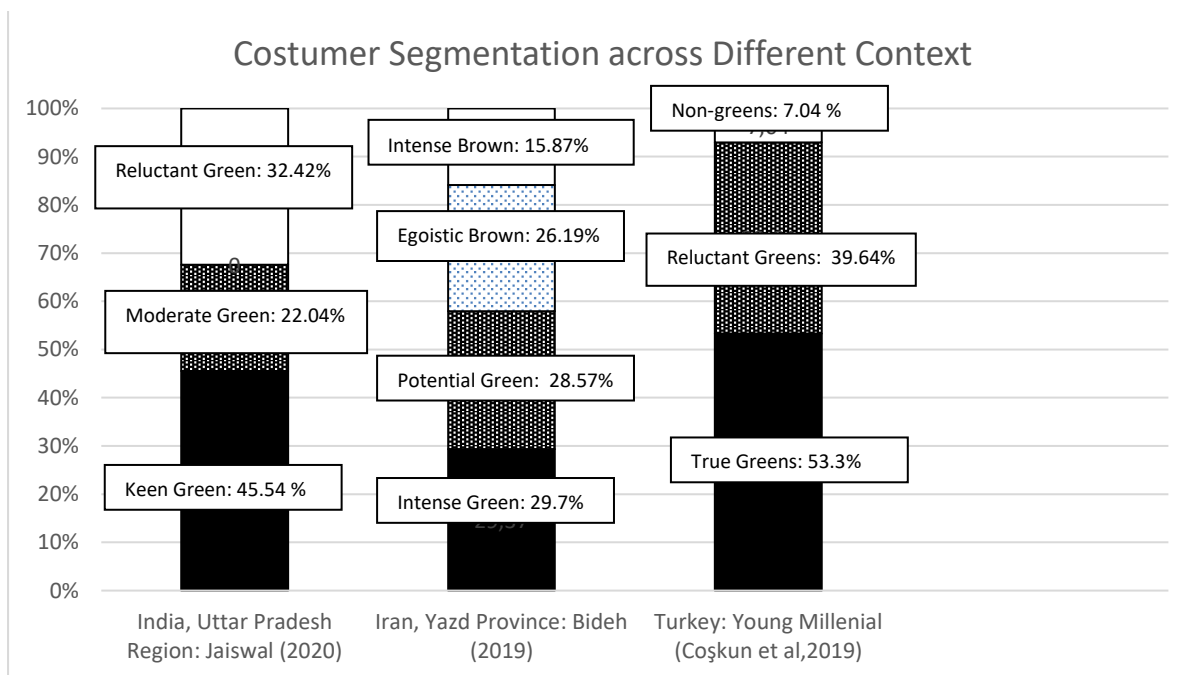
Fig 1. Green Segmentation across Emerging Nations

Based on Coskun et al. (2019), below are the segmentation steps:

a. Identify the segmentation variables aligned with the objectives of the research (Hair et al.2010)
b. Decide the number of segments based on the cluster resulted from variables similarity
c. After the number of segments is decided, label those segments based on the scores on the variables
d. After finding the segments, implement the descriptor variables to describe the segments in detail.

After labeling each segment, segmentation is determined and descriptor character or variables is defined, marketers can plan for a further efficient marketing mix, hence it can boost performance and accordingly profitability as the accurate customer profiling is determined (Mostafa, 2009)

Marketing Mix is a strategy that initiates marketing plans to achieve sustainable marketing outcomes to create value and manageable marketing variable that able to stimulate customers consciously (Amoako et al, 2020). Additionally, it is elucidated that in a green marketing context, when a firm failed to carry out the green mission, the segmentation concept should be carried out to evaluate which segmentations the market belongs to. It will lead to optimum evaluation that the customer green level may develop based on the segmentation level. Otherwise, businesses without clear segmentation information in emerging markets will capitulate. Segmentation can give a

clear vision on customer clusters and significantly, the characteristics is able to be described. Marketing mix may include price, product, and promotion, hence to determine the marketing mix, depends on the segmentation outcome (Bideh:2020)

III. RESEARCH METHODOLOGY

To investigate the green marketing segmentation and marketing mix, Vom Brocke et al., (2009) stated that literature reviews play an important role as knowledge continues a cumulative endeavour. Review of literatur on the topic of research and review journals is conducted and specifically identitied the segmentation in emerging countries. Relevant article correspondingly has been studied and synthized in the paper. Comparation and analysing each segment variables and marketing mix illustration related to discovered segmentation is conducted as precious tools to deploy the strategies in other emerging countries. We collect segementation paper and marketing mix in emerging countries, to synthesize the contents of many conceptual and empirical papers. Paré, Trudel, Jaana, & Kitsiou (2015), stated that literature reviews are critical (a) to identify what has been investigated on a subject; (b) to determine the extent to which a specific research area reveals any interpretable patterns; (c) to collect empirical findings related to a certain research question to support evidence-based practice; (d) to generate new theories and conceptual frameworks; and (e) to identify topics or inquiries that need more research. On that basis, we are occupied all of the mentioned scope to thoroughly find the pattern of segmentation variables and related marketing strategies. We are synthesizing:

    a.   Segmentation variables
    b.   Segmentation steps
    c.   Marketing mix related to the segmentation

IV. RESULT / FINDING

Narula & Desore (2015) set the scope of the green marketing pyramid as including; Reverse Logistics, Green Advertisement & Promotion, Green Logistics and Distribution, Green Manufacturing, and Green Product Development. In other words, green marketing actually covers almost business activities. Additionally, it is addressed that marketing can change consumer behavior and lifestyle, worldwide supply chains, and regulatory scope. Like a doubled-edge sword, marketing strategies are also sometimes blamed for increased product cost, unnecessary packaging causing waste production and increased transportation expenses responding to delivery need, everything related to environmental demolition. In short, marketing potentially can change the market, in this context of pursuing green marketing.

Based on the evaluated and presented segmentation variables; there can be so wide-ranging variables related to demographics, psychographic or behavioral issues. There is no certain rule about specific characteristics. Yenkolevich (1964) argued that the key to segmentation investigation is that the marketer should never consider in advance that there is only one method of segmentation works best. Marketers should be to gathering all possible segmentation and choose the most relevant one. Instead, based on given variables, some variables have almost a position in having positive relationships with segmentation. Thus, our findings:

    a.   In common, segmentation variables include demographic, psychographic, and behavioral. Three variables inherited various detailed characters. Each of the variables should be considered based on the predicted market characteristics, one context should be various from the others.
    b.   Based on the customer profiling resulting from segmentation, from respectively three countries in emerging countries, the number of greeners has existed significant number. The right marketing strategy should be able to target the greener segment.
    c.   The research regarding willingness to pay or price has not been addressed intensively in previous research. It may be the reason why environmental attitude is not correlatively linear to purchase behavior (Coskun et al,2019)

V. DISCUSSION

Segmentation variables in an emerging country such as the demographic, psychographic, and behavioral variables have been extensively investigated. However, as the emerging country has unique characteristic, and one of them is the purchasing power that might be different, we suggest that price sensitivity, willingness to pay and profitability regarding the price constrain should be further investigated. Laroche et al (2001) has investigated the willingness to pay and segment relation that found that the segment who are willing to pay more for environmentally friendly products were more likely to be women, married and with at least one child living at home. However, this issue is not intense compared to other psychographic and behavioral variables. Moreover,

there is still a gap between environmental awareness and purchase intention. What's behind the gap. Even in England, consumers showed their higher EC and assure to choose to environment-friendly products, however actual purchase behavior was in contrast to British stores (Pearce, 1990)

With the term price and willingness to pay (Martins, 2021), organizations and marketers can affect consumers and society by using sustainable marketing strategies in product development. Marketers, indeed have the capacity to promote sustainable consumption habits and design the products that have a minimum negative effect to the nature and segment the market to address the required needs of the identified cluster with well-designed marketing strategies. simultaneously realizing the company's objectives at the same time (Dahlstrom and Crosno, 2018). Narula & Desore (2016) notes the consumers' willingness to pay for green attributes related to conventional attributes need to be worked out. Even in Lithuania and Ireland, Cekanavicius et al (2014) stated that the survey has also indicated that in those countries reluctance to enter the "green" path is generally caused by the uncertainties that such green movement might be too pricy.

Green Purchase intention and profitability should be addressed to balance how consumers afford to buy and accordingly how the company should earn the revenue. Therefore, the segmentation research focuses on how purchase intention research toward green products in green marketing should be enhanced. For the sake of the environment, the organization is advised to bring the environmental issues for their cost reduction. Green products should not be associated with a high price for the low-income segment in emerging countries. This is for nature preservation purposes.

VI. Conclusion and Recommendation

The importance of green marketing in emerging countries is crucial. Both quantitively and qualitatively, potential and important in realizing a sustainable environment. Considering that the environmental destruction has been severe these years. To realize the green marketing strategy, segmentation is critically needed to have effective and right strategies, targeting the right segment as the discovered characters. According to Ziaei-Bideh& Namakshenas-Jahromi (2020) consumers' green awareness varies and the levels of their willingness to purchase green products are not identical. Therefore, to market the green products effectively, it is essential to implement targeted marketing strategies compared to mass marketing. The basic marketing mix of Segmentation, Targeting and Positioning will help firms to adopt effective marketing strategies. The initial step of implementing targeted marketing strategy is market segmentation and determination of the certain characteristics of each segment. Profitability, and performance of market segmentation depend on the accuracy of consumer profiling in each segment. The imprecise prediction of market segment will result in inefficient marketing strategies, resulting in wasting the marketing budget. The variables in prior research have been presented to help marketers, researchers and policymaker to be able to understand various segmentation descriptor variables.

Martins (2021) reveal that environmental knowledge, environmental concern, green price, green advertising and green product of green marketing distinctively have significant positive effect on perceived Small Medium Enterprise profitability as well as green purchase behavior.

Our recommendation suggests that the price, willingness to pay should be investigated more in emerging economies context. According to Dangelico et al. (2017), understanding the main characteristics of green products, identifying factors affecting their price and consumers' willingness to pay more for them and promotional tools would be very useful for companies aiming at developing and marketing green products.

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Analysis of The Influence of Foreign Investment, Domestic Investment, Agglomeration and Labor on Economic Growth In The Province of West Java In 2018-2020

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Abstract

Economic growth is the holder of an important role in the economy, this is because economic growth is one of the indicators in determining the success of a country's economic development to achieve optimal economic growth within a certain time. This study aims to determine the magnitude of the influence of the variables of Foreign Investment, Domestic Investment, Agglomeration and Labor on Economic Growth of West Java Province in 2018-2020. The data used in this study is secondary data that is quantitative in the form of panel data obtained from the Central Statistics Agency (BPS), the Industry and Trade Office (DISPERINDAG), the Investment and One Stop Service Office. West Java province. The analytical method used is panel data regression analysis (a combination of time series and cross section), with cross section covering 27 districts/cities in West Java Province and time series starting from 2018-2020. Based on the results of this study, it was stated that the model chosen was the Fixed Effect Model (FEM). The results of the effect validity test show that partially the Domestic Investment, Agglomeration and Labor variables have a significant effect on economic growth. Meanwhile, the foreign investment variable has no effect on economic growth in West Java Province.

Keywords: Economic Growth, FI, DI, Labor, Agglomeration

I. INTRODUCTION

Economic development is basically an effort carried out in order to realize a better and more sustainable state of a region as well as making efforts to stimulate equitable development to improve the welfare of a region. Observing the growth rate achieved from year to year is a possibility in evaluating the achievements and success of a region in controlling short-term economic activity and for developing long-term economic growth. Comparisons can also be made between and how successful a country is in controlling and developing its economy compared to other regions (Sukirno, 2013).

Basically every economic development is expected to encourage economic growth by increasing national income by or per capita income. With economic development, economic growth will be experienced, namely the process of increasing the production of goods and services in community economic activities. Therefore, it can indicate the success of economic growth (Pure, 2016). Sustainable economic growth is the main goal in the process of economic development and is one of the unrealized goals for some countries. Development planning as an appropriate and effective means of encouraging economic development. Planning that is carried out as a whole can produce institutional and organizational mechanisms in broad national planning, so that it can overcome the main obstacles and challenges of development and ensure a high and sustainable level of economic growth (Todaro & Smith, 2014).

West Java Province is one of the provinces in Indonesia which has a fairly rapid economic activity. West Java Province consists of 27 regencies/cities with various natural, economic and socio-cultural resources which are challenges and obstacles in achieving equitable economic development in regencies/cities of West Java Province. The increase in the economy in West Java Province can be seen by several factors including foreign investment (FI), domestic investment (DI), agglomeration and the number of workers. Investment, both foreign and domestic, is a form of sacrificing wealth in the present to gain future profits with a certain level of risk. In general, in economic theory, investment means the purchase of production goods from capital (Karya and Syamsyuddin, 2016). The economy of a country depends on investment to solve several economic problems, crises and challenges. This is due to the fact that investing in certain sectors of the economy can quickly change the various economic challenges we face as a country. Investments, both domestic and foreign, come with many benefits such as job creation, increased income per capita, reduced poverty levels, increased living standards, increased Gross Domestic Product, and others (Ilegbinosa, et al., 2015). Investments can be made by the private sector either by foreign investment or by domestic investment. Investments in the regions also play a role in the economic development of a region as a supply of capital that participates in sustaining the course of the economy. Table 1.1 shows the growth rate of Gross Regional Domestic Product at constant prices in West Java Province.

Table 1.1 Growth Rate of GRDP at 2010 Constant Prices in West Java Province in 2018-2020 (Percent)

Year	Growth
2018	5,65
2019	5,02
2020	-2,52

Sumber:BPS Jawa Barat, diolah

Based on Table 1-1, it describes the development of the economic growth rate of the districts and cities of West Java Province in 2018 to 2020 which experienced a very drastic decline. Where in 2020 the rate of economic growth experienced a decline due to the covid-19 pandemic that attacked the whole world, one of the affected countries was Indonesia. One of the economic indicators is said to be good if economic growth increases from the previous year. The increase in economic growth occurs because of an increase in activity in the area, on the contrary if growth decreases, economic activity will decrease. In general, economic growth shows that economic activity will generate additional people's income in a certain period which will later be able to lead to improvements in increasing production in a certain year (Karya and Syamsuddin, 2016).

Besides that, to increase economic growth in the region, agglomeration or centralization patterns are needed, which means that there are clusters of various industries into a certain place so that there is new economic growth in that place (Pambudi and Miyasto, 2013). As well as labor, including factors that affect economic growth as one of the factors of production that will affect the level of national income both in terms of quantity or amount.

Based on the background described above, this research will focus on analyzing the influence of foreign investment, domestic investment, agglomeration and the number of workers on the economic growth of districts and cities in West Java Province in 2018-2020.

II. LITERATURE REVIEW

Economic growth is one of the important indicators to assess an economy, especially to analyze the results of economic development that has been carried out by a country or region. According to Sukirno (2013) economic growth is the development of activities in the economy which causes the goods and services produced by the community to increase and the prosperity of the community to increase. Economic growth can also be interpreted as a process of increasing the production capacity of an economy which is manifested in the form of an increase in national income. The ability of a country to produce goods and services will increase, this increased ability is caused by the growth of production factors both in quantity and quality.

According to Jhingan (2004) in Agma (2015) Foreign Investment is important to help accelerate its economic growth because the role of foreign capital is to assist in the industrialization and renewal of technology used in these developing countries. Domestic investment as well as foreign investment which, if right on purpose, will provide benefits in improving the country's economy. There are direct investments such as the purchase of assets or the formation of new businesses as well as indirect investments such as investments in the money market and capital market. The significance of investment formation is that people do not use all of their income for consumption but some of it is saved for investment formation. With the formation of investment has been seen as one of the main factors of economic development. For example, investment in the form of capital not only increases production or economic growth but also provides employment opportunities for the community. Thus there is a positive relationship between investment and economic growth in a country. (Prasetyo, 2009)

Domestic investment is an investment that has an important place in a country's economy because it is very important in achieving economic development (Bakari, 2017). According to Putra (2018), Domestic Investment (PMDN) has an important role for the country's economic growth. The most important position of Domestic Investment is national income because it can take advantage of the wealth owned by the state.

The unequal distribution of resources creates disparities in the rate of economic growth between regions. This inequality is only concentrated in certain regional economic activities. In this case, agglomeration is an externality resulting from the geographical proximity of economic activities. With the agglomeration economy, it can have a positive influence on the rate of economic growth, as a result, areas that are included in the agglomeration generally have higher growth than areas that are not agglomeration.

Population growth and labor force growth are traditionally regarded as one of the positive factors that spur economic growth. A larger number of workers means an increase in the number of productive workers, while a large population growth means an increase in the size of its domestic market. However, it is still questionable whether the rapid rate of population growth will actually have a positive or negative impact on economic growth. (Todaro, 2013).

Rif'ah, Zakaria & Hasbi (2019), the analytical model used in this study is descriptive statistics with multiple linear regression analysis. Based on this research, it is known that the inflation variable has a positive but not significant effect, domestic investment also has a negative and insignificant effect, and foreign investment has a positive and insignificant effect on economic growth in Makassar.

Eko Prasetyo (2011), the analytical model used in this study is Ordinary Least Square. This study states that domestic investment has a positive and significant effect, foreign investment has a positive and insignificant effect, labor has a positive and significant effect, and exports have a positive and significant effect on economic growth in Central Java.

Ardyan & Mulyo (2012), the analytical model used in this study is to use multiple linear regression with the method of least squares or Ordinary Least Squere. Based on the regression results, it shows that agglomeration and labor have a positive effect, while the population has a negative effect on the economic growth of Kendal Regency.

Nugroho (2017), using a multiple regression analysis model, shows that the wage variable has a positive and significant relationship, the number of unemployed is positively and significantly related to economic growth, while foreign capital companies have a negative and significant effect, domestic capital companies have a positive and significant relationship and the variable Employment opportunities have a negative and insignificant effect on the unemployment rate.

During the period 1996-2010, in Eastern Europe, Africa, Asia, and Australia, using panel data regression analysis, the Government Expenditure variable was found to have an effect on Economic Growth and its significance. The relationship pattern used to relate these variables to Economic Growth is linear. (D'Agostino et al., 2016).

Putu & Nyoman (2020), The results of this study indicate that the variable number of workers has a positive and significant effect on economic growth, and the Domestic Investment Variable has no significant effect on economic growth.

III. RESEARCH METHODOLOGY

The type of data used in this research method is secondary data that is quantitative in the form of panel data, combining *cross section* and *time series data in 27 districts/cities of West Java Province.* According to Kuncoro (2003) the quantitative method is a method that starts from numerical data that will be processed into information. So that the quantitative method is a method in the form of numbers and statistical analysis and then processed into information. The variable used is Economic Growth as the dependent variable, while the independent variables are Foreign Investment, Domestic Investment, Agglomeration and Manpower in West Java Province in 2018-2020. To determine the effect of these variables, Panel Data Regression Analysis can be used with the econometric model as follows:

$$GROWTH_{it} = \beta_0 + \beta_1 FI_{it} + \beta_2 DI_{it} + \beta_3 AGLO_{it} + \beta_4 Labor_{it} + \varepsilon_t$$

di mana:

$GROWTH$	: Growth
FI	: Foreign Investment
DI	: Domestic Investment
$AGLO$	: Agglomeration
$Labor$	: Labor
i	: Data *cross section*
t	: Data *time series*
β_0	: Constant
$\beta_1\beta_2\beta_3\beta_4$	: Independent variable regression coefficient

ε   : *Error term*

IV. RESULT / FINDING

The estimation results of the econometric model above are carried out using the Pooled Least Square (PLS) or Common Effect Model (CEM), Random Effect Model (REM), and Fixed Effect Model (FEM) approaches. And to determine the right estimation model, several tests are needed, such as the Chow test, Hausman test, and the Lagrange Multiplier test.

Chow Test and Hausman Test will be used to select the best estimated model *Pooled Least Square* (PLS), *Fixed Effect Model* (FEM) and *Random Effect Model* (REM). If it turns out that in the Chow test, *Pooled Least Square* (PLS) is chosen and the Hausman test is *Random Effect Model* (REM), then an additional test must be carried out, namely the *Langrange Multiplier* (LM) test to choose the best estimated model between *Pooled Least Square* (PLS) and *Random Effect Model* (REM).

Table 1. Estimation Results of Panel Data Regression Econometric Model – Cross Section

Variabel	Koefisien Regresi		
	PLS	FEM	REM
C	-2993,798	42793,96	32399,19
FI	0,001993	2,72E-05	6,29E-05
DI	0,007146	0,000490	0,000536
AGLO	314,8063	-17198,87	-15048,17
Labor	0,047759	0,035938	0,045957
R^2	0,769053	0,999548	0,416444
Adjusted R^2	0,756898	0,999277	0,385730
Statistik F	63,26995	3688,571	13,55899
Prob. Statistik F	0,000000	0,000000	0,000000

Uji Pemilihan Model

(1) Chow

Cross-section F(26,50) = 981,441631; Prob. F(26,50) = 0,0000

(2) Hausman

Cross section Random $\chi^2(4)$ = 50,383842; Prob. $\chi^2(4)$ = 0,0000

Sumber: BPS, diolah.

A. The Chow

Test The Chow test is used to select the *Pooled Least Square* (PLS) or *Fixed Effect Model* (FEM) estimated model. chow test: the estimated model is *Pooled Least Square* (PLS), and his: the estimated model is *Fixed Effect Model* (FEM). accepted if the *p-value (p-value),* probability or empirical statistical significance ; rejected if the *p-value (p-value),* probability or statistical empirical significance .

From Table 4.1, it can be seen that the *p-vaRhe lue (p-value),* probability or empirical statistical significance is 0.0000 (<0.01), so it is rejected. In conclusion, the estimated model is the *Fixed Effect Model* (FEM).

B. The Hausman

Hausman test is used to select the estimated *Fixed Effect Model* (FEM) or *Random Effect Model* (REM). Hausman test: the estimated model is the *Random Effect Model* (REM), and the estimated model is the *Fixed Effect Model* (FEM). accepted if the *p-value (p-value)*, probability or empirical statistical significance ; rejected if the *p-value (p-value)*, probability or statistical empirical significance .

Table 2.
Hausman test results

Test Summary	Chi-Sq.Statistic	Chi-Sq.d.f.	Prob
Cross-section random	50,3838	4	0,0000

Sumber: Lampiran 1

From Table 4.2, it can be seen that the p-value (p-value), probability or empirical statistical significance is 0.0000 (<0.01), so it is rejected. In conclusion, the estimated model is the Fixed Effect Model (FEM).

From the Chow test and the Hausman test in advance, the Fixed Effect Model (FEM) was chosen as the best estimated model. The complete estimation results of the Fixed Effect Model (FEM) are presented in Table 4.3. and Table 4.4.

Table 3.
Estimation Fixed Effect Model (FEM)

$$\widehat{GROWTH}_{it} = 42793,96 + 2,72E05\ FI_{it} + 0,000490\ DI_{it} - 17198,87 AGLO_{it}$$

$$(0,6349) \qquad (0,0034)^* \qquad (0,0061)^*$$

$$+ 0,035938\ Labor_{it}$$

$$(0,0000)^*$$

$$R^2 = 0,9954;\ DW = 3,5731;\ F = 3688,571;\ Prob.\ F = 0,0000$$

Source: Appendix 1. Information: *Significant at = 0.01; **Significant at = 0.05; *** Significant at = 0.10; The number in brackets is the probability value of the t statistic.

C. Test of Goodness of the Model
Existence Test of the FEM Estimated Model

The model exists when at least one independent variable affects the dependent variable (not all regression coefficients are zero). The existence of the model is the F test. Since there are five independent variables in the econometric model, the formulation of the hypothesis is: (regression coefficients are all zero or the model does not exist); (at least one regression coefficient is not equal to zero or the model exists). will be accepted if the p-value (p-value), probability or statistical empirical significance ; will be rejected if the p-value (p-value), probability or empirical statistical significance .

From Table 4.3. it can be seen that the p-value (p-value), probability or empirical statistical significance is 0.0000 (< 0.01); so it is rejected, the conclusion is that the Fixed Effect Model (FEM) estimated model exists.

Interpretation of the Coefficient of Determination

Coefficient of determinant (R^2) shows that the predictive power of the estimated model from table 4.3 shows the R^2 value 0.99548, meaning that 99.5% of the variation in the variable Economic Growth can be explained by variations in the variables of Foreign Investment, Investment Domestic Capital, Agglomeration, and Number of Workers. The remaining explained by variations in variables or other factors that cannot be included in the estimated model.

Table 5.
Area Effect

	Region	Effect	Coefficient
1	Bogor	47343.07	90137.03
2	Sukabumi	-20860.70	21933,26
3	Cianjur	-20203.11	22590,85
4	Bandung	5682.132	48476,092
5	Garut	-18804.74	23989,22
6	Tasikmalaya	-26649.05	16144,91
7	Ciamis Regency	-28677.28	14116,68
8	Kuningan	-32010.95	10783,01
9	Cirebon	-5406.790	37387,17
10	Majalengka	-29277.53	13516,43
11	Sumedang	-24966.68	17827,28
12	Indramayu	16572.54	59366,50
13	Subang	-19468.25	23325,71
14	Purwakarta	-1603.132	41190,828
15	Karawang	89094.27	131888,23
16	Bekasi Regency	146062.4	188856,36
17	West Bandung Regency	-18178.41	24615,55
18	Pangandaran Regency	-42299.70	494,26
19	Bogor	-21679.02	21114,94
20	Sukabumi	-34619.26	8174,70
21	Bandung	145923.1	188717,06
22	Cirebon	-27607.14	15186,82
23	Bekasi	21191.13	63985,09
24	Depok	-7829.622	34964,338
25	Cimahi	-24170.87	18623,09
26	Tasikmalaya	-27225.54	15568,42
27	Banjar City	-40330.84	2463,12

Source: BPS, processed

The constant value of each regency/city in West Java Province can be seen in Table 4.4. The highest constant value is owned by Bekasi Regency, which is 188,856.36. This means that related to the variables of Domestic Investment (PMDN), Agglomeration (AGLO), Number of Workers (TK) to Gross Regional Domestic Product, Bekasi Regency tends to have a higher Gross Regional Domestic Product compared to other Regencies/Cities in West Java Province. After Bekasi Regency, there are four regencies/cities with the largest constants, namely Bandung City, Karawang Regency, Bogor Regency, and Indramayu Regency.

The lowest constant value is Pangandaran Regency, which is 494.26. Associated with the influence of Domestic Investment (PMDN), Agglomeration (AGLO), Number of Labor (TK) on Gross Regional Domestic Product, Pangandaran Regency tends to have a lower Gross Regional Domestic Product compared to other Regencies/Cities in West Java Province. Before Pangandaran Regency, there were four regencies/cities with the lowest constants, namely Banjar City, Sukabumi City, Kuningan Regency, and Majalengka Regency.

V. DISCUSSION

Foreign investment has no significant effect on the economic growth of districts/cities in West Java Province in 2018-2020. This means that the realization of foreign investment will have an impact on increasing economic growth but the influence of the two is not direct. This can be caused by fluctuating investment conditions in Indonesia as well as barriers to entry for foreign investors as well as unsupportive infrastructure causing a lack of foreign investors to invest their capital. The results of this study are in line with the research of Rif'ah, Zakaria & Hasbi (2019) research, "Analysis of the Effect of Inflation, Domestic Investment, Foreign Investment on Economic Growth in Makassar City", Based on this research it is known that foreign investment has a positive and insignificant effect on economic growth in Makassar.

Domestic Investment has a regression coefficient of 0.000490, with a linear-linear relationship pattern that has a positive and significant impact on Regency/City Economic Growth in West Java Province in 2018-2020. This

means that the realization of domestic investment will have an impact on increasing economic growth and have a real effect, where if domestic investment in West Java Province experiences an increase in the level of economic growth, GDP also increases. The results of this study are in accordance with research conducted by Rosalendro (2017) "Analysis of Factors Affecting Economic Growth in Banten Province" where this study states that domestic investment (PMDN) has a positive and significant effect on economic growth in Banten Province.

Agglomeration has a regression coefficient of 17198.87, with a linear-linear relationship pattern that has a negative and significant impact on the Economic Growth of Regency/City in West Java Province. This is not in line with the hypothesis and theory in the research. Where in theory agglomeration arises because one of them there are differences in resources, both natural and human. Regions that have been able to determine regional potential can experience agglomeration with positive impacts. Generally, agglomerated areas develop faster due to interactions between adjacent areas so that economic activity also develops. In this case, the provincial agglomeration areas in West Java are located in Bekasi City, Bandung City and surrounding areas because of the economic activities that support economic growth in the Regency/City of West Java Province. The results of this study are in line with research conducted by Anastasia (2020) "The Effect of Agglomeration, Human Development Index, and Investment on Economic Growth in East Java Province in 2010-2019" This study states that agglomeration has a negative and significant effect on economic growth in Java Province. East.

The number of workers who have a regression coefficient of 0.035938, with a linear-linear relationship pattern, has a positive and significant effect on the Economic Growth of Regency / City in West Java Province. This means that the higher the number of workers, the economic growth will also increase. This is because when the number of workers absorbed is increasing, the output of goods and services produced will also increase so as to increase economic growth in West Java Province. The results of this study are in line with the research conducted by Putu and Nyoman (2020) "The Influence of the Number of Labor and Domestic Investment on Economic Growth and Poverty Levels" This study states that the number of workers has a positive and significant effect on economic growth in the Regency / City of the Province of Bali.

VI. Conclusion And Recommendation

Based on the results of panel data regression analysis on the effect of foreign investment, domestic investment, agglomeration, and the number of workers on the economic growth of districts/cities in West Java Province in 2018-2020, it can be concluded as follows:

a. The results of the model selection test from the best estimator prove that the *Fixed Effect Model* (FEM) is the chosen model.

b. Based on the goodness of the model on the Fixed Effect Model (FEM) model, it shows that the value of the determinant coefficient (R^2) is 0.9954, meaning that the variation of the Gross Regional Domestic Product variable which can be explained by the variation of the variable Foreign Investment, Domestic Investment, Agglomeration, and Number of Workers. of 99.54%. The remaining is explained by variations in variables or other factors that cannot be included in the model.

c. Based on the effect validity test (t test) shows that partially the Domestic Investment, Agglomeration, and Number of Labor variables have a significant effect on Economic Growth. While the foreign investment variable has no effect on economic growth.

d. Based on the existence of the model test (F test) shows that the estimated Fixed Effect Model (FEM)

Based on the results of the research that has been done, the suggestions obtained are given by writing are as follows:

a. 1.The government is expected to play a role as a facilitator to pay more attention to and improve the quality of infrastructure in regencies and cities in West Java Province to encourage foreign and domestic investors to invest their capital in order to increase economic growth in West Java Province.

b. 2.Regions in West Java Province need to pay attention to areas that are not agglomerated by increasing the potential of the area. In addition, there is also a need for more discussion and action to turn negative impacts into positive impacts for regions that have not been agglomerated.

c. 3. For researchers, it is hoped that this research can be used as a reference related to economic growth, and further researchers can use other variables or other areas to provide insight and information about economic growth. This study focuses more on analyzing the influence of foreign investment, domestic investment, agglomeration and number of workers on economic growth in West Java.

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Effect of e-Service Quality and Perceived Risk on Customer e-Loyalty : Mobile Apps Familiarity Moderation

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Abstract

Along with the development of the Covid-19 pandemic, the need for information about health is increasing. Territorial restrictions make face-to-face consultations difficult. Telemedicine is the answer to the limitations of existing services and information. The gap in the ratio of doctors, andthe covid-19 pandemic has changed the Consultation Pattern which has a direct or indirect effect on the attitudes of service users. The purpose of this study was to examine the elements that influence loyalty to telemedicine services for mobile app users by using a purposive sampling approach through primary data, namely an online survey to analyze 444 respondents who use telemedicine and test six hypotheses on e-Service Quality, Customer e-service Satisfaction, Perceived Risk, and Customer e-Loyalty, moderated by Mobile Apps. The Structural Equation Model-Partial Least Square (SEM-PLS) data processing method was used as an analysis tool.The findings of this study prove that there is a relationship between ESQ and CES variables that affect CEL with 4 accepted hypotheses while PR does not affect CEL with 4 rejected hypotheses. Where Financial Risk is an accepted hypothesis due to cost effectiveness, besides that MAF Moderation, namely ESQ against CES and ESQ against CEL, has been proven to be rejected with weakening moderation results. While MAF Moderation moderates the positive influence between Customer e-Satisfaction (CES) on Customer e-Loyalty (CEL), which was found in this study that satisfaction is a factor that supports loyalty where the successful pattern of digital transformation depends on the effectiveness and quality of digital products and user satisfaction towards service.

Keywords—Covid-19, Mobile Applications, Telemedicine, Loyalty, SEM

I. INTRODUCTION

As of 2019, the world economy has been paralyzed by the 2019 coronavirus disease, which first surfaced in China and killed hundreds of thousands of people (Ministry of Finance, 2021). Urbanization, migration, and the development of modern transportation all contributed to the rapid global spread of this virus, making it simple and easy to disseminate (Jin et al., 2020). Through Government Regulation (PP) Number 21, President Jokowi establishes guidelines for Large-Scale Social Restrictions. Presidential Decree Number 11 of 2020 concerning the Determination of the Covid-19 Public Health Emergency was also released in the year 2020 regarding Large-Scale Social Restrictions (PSBB) in the Context of Accelerating the Handling of Covid-19. Indonesia has the second-lowest number of doctors per 1,000 people in Southeast Asia, with a doctor-to-population ratio of 0.4. (WHO).According to data from Badan Pusat Statistik (BPS) in 2019, the distribution of doctors in Indonesia is not evenly distributed. The data states that more than half of the number of doctors in Indonesia are concentrated on the island of Java (BPS, 2019). The pandemic brought about a period of change in the healthcare sector's service delivery as a result of people' higher expectations for service, technological advancements, improved online and digital access to health information, and a comprehensive strategy for addressing health and wellbeing issues. The lack of physical space compelspeople to alter their behavior patterns in favor of online services, including telemedicine, a new style ofhealthcare. (Permenkes, 2020). Telemedicine in mobile apps is a safe and effective technique to evaluate suspected instances and aids in guiding patient diagnosis and treatment, reducing the danger of disease transmission, along with the deployment of digital health technologies. (Tandon, et al., 2021). According to HKDC (2021) data, popular platforms include Halodoc (Indonesia), MyDoc (Singapore and Vietnam), Doctoroncall (Malaysia), Medgate (Philippines), and Raksa (Thailand). Francis (2010) and Akbar et al. (2017) By taking into account frameworks like WEBQUAL and E-SERVQUAL to evaluate different aspects of service quality that may be applied to digital by managing experiences digital customers, the existence of the application must give relevance and a fulfilling digital customer experience for customers. (Dave Chaffey dan Fiona Ellis-Chadwick, 2019 : Chapter 7) Technology integration with high-quality e-services is anticipated to improve customer happiness and lead to loyalty (Polites et al., 2012; Rodgers, Negash, & Suk, 2005). In today's competitive market, loyalty refers to a promise to continue purchasing goods or services from the same vendor without switching (Oliver 2014). The effectiveness, quality, and user happiness of digital products, as well as the success of the digital transition, all depend on loyalty (Mustafa et

al. 2020).

II. Literature Review

A. Online Service Marketing

In order to sell and deliver services, service providers no longer only use conventional techniques. Service providers can discover new ways to manage their operations that can help their profitability and growth thanks to the quick development of internet-based technologies (Akkura et al., 2015; Campbell and Frei, 2010; Etzion and Pang, 2014; Wymbs, 2000). Aspects for integrating information processes, computing, and communication technology are referred to as the development of information and communication technology, according to Wang (2013) (Kebbede, 2018) This is consistent with the capability of information and communication technology in the health sector, whichhas an impact on improving aspects of clinical action, developing the delivery of health services, and improving communication between health workers so that they are able to provide a decision-making process through the exchange of information more efficiently. Time and space can be transcended by information and communication technology (Rowe, 2014). It's crucial for most businesses to consider frameworks like WEBQUAL and E-SERVQUAL to evaluate various elements of service quality that can be applied when optimizing interactions through websites and mobile applications in the form of desktop and mobile where the presence of such interactions must be effective by providing relevance and satisfaction to its users.

Previous research analyzed how e-service quality generates effective responses from customer satisfaction and loyalty; and website familiarity reinforces the strength of this association (Kaya et al, 2019). In previous studies, the importance of measuring and controlling the quality of e-service quality from the growth of e-tailing has become phenomenal. The quality of electronic services is associated with web services over the Internet which is defined in terms of how websites enable customers to shop, purchase, and deliver products and services efficiently and effectively (Zeithaml, Parasuraman, and Malhotra 2002). The quality of electronic services in previous studies includes the presgentation or in this case a description of the appropriate products and services, the bidding process, sales by e-tailers, and e-tailing customer support and service, as well as service delivery (Rowley 2006). The service quality mentioned consists of 4 dimensions, Web design, Security, Fulfillment and Customer Service. (Wolfinbarger and Gilly, 2003)
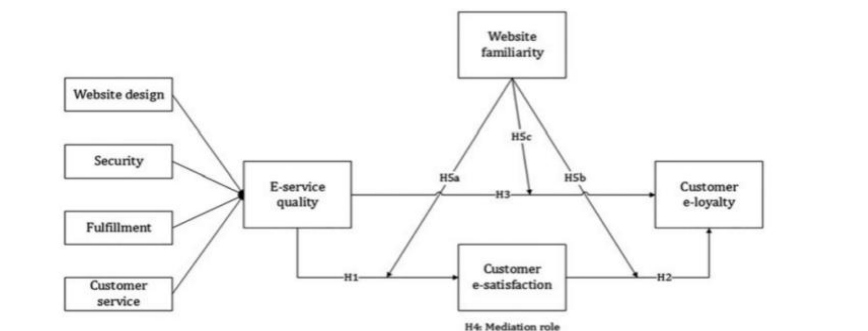
Fig 1. Research Framework Kaya et.al (2019)

The Industrial Revolution 4.0, which is the development of the technology industry in the world, focuses on digital technologies. Industry 4.0 and Internet of Things (IoT) is a concept that aims to expand internet connectivity between objects around us and activities/work automatically through very fast data exchange. The entire system is connected in cyber and physical networks by utilizing cloud computing. The sophistication of IoT technology currently available enables electronic devices to always be connected to the internet and will automatically run commands according to the program the user wants (Kemenkeu, 2021). In addition, research facts prove that in 2019, more than 5 billion people around the world will use mobile devices, and it is estimated that around half will use smartphones (Silver, 2019). By enabling automation of equipment with combined systems that can work together with each other, Technology helps solve problems and track processes, while increasing productivity in a business, therefore the rapid increase in smartphone penetration and high-speed network work services has enabled business enterprises to provide information to consumers more quickly and efficiently than ever before, also enabling consumers to use a variety of service information beyond the constraints of space and time (Cho et al., 2019; Dinh et al., 2013; S.W. Lee et al., 2019; Liu et al., 2019;Liu et al., 2017). Therefore, this research changes the first dimension in e-service quality into mobile applications or more familiar with mobile apps. The change in the first dimension of website design to mobile apps design in e-service quality is supported by Javier Cuello & José Vittone (2013) in Designing Mobile Apps, which states that mobile apps and websites provide the same screen information, a significant difference. is where applications must be downloaded and installed beforeuse whereas websites can be accessed directly via an internet browser. But due to the different sizes of mobile screens, many websites cannot be visualized properly on those devices. A mobile website that adapts specifically to mobile devices is called a responsive website with content and information as needed. Thus, entire columns, blocks of text, and graphics from a website can adapt to a given space differently—or even disappear—according to whether they are accessed from a phone, tablet, or desktop computer.
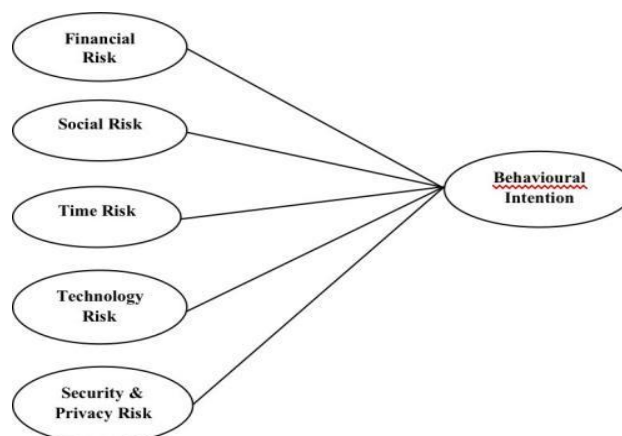
Fig 2. Research Framework for Bakshi & Tandon (2022)

Meanwhile, in the second study, namely Bakshi & Tandon (2021), they analyzed various aspects of Perceived Risk which in the existing literature explain and validate the impact on intentions to adopt Telemedicine. (Bali et al., 2016). Perceived Risk is defined as the possibility of loss arising related to how the service is provided, Perceived Risk also acts as a barrier to behavior in purchasing (Peter & Ryan, 1976). Featherman and Pavlou (2003) define Perceived Risk as the potential loss in pursuing the desired outcome from the use of electronic services. Someone will make a reasonable decision where the decision is based on beliefs that will produce attitudes that will also lead to behavioral intentions even to actual behavior (McKnight et al., 2002). Risk factors influence in shaping customer loyalty (Canan Eryiğit & Yanrong Fan, 2021). The research model that the researcher compiled consists of five constructs: e-service quality, customer e-satisfaction, customer e-loyalty, perceived risk and mobile apps familiarity as moderating. Based on a literature review on e-service quality (ESQ), customer e- satisfaction (CES), customer e-loyalty (CEL), perceived risk (PR) and Mobile Apps familiarity (MAF),the effect of loyalty can be formed from several direct factors. or indirectly, e-service quality in forming e-loyalty either directly or through mediation of

customer e-satisfaction and perceived risk has a direct effect on Customer E-Loyalty (CEL). In addition, Mobile Apps Familiarity moderates the relationship of ESQ to CES, CES to CEL, ESQ to CEL, therefore a research concept framework can bedrawn up which is described as follows:
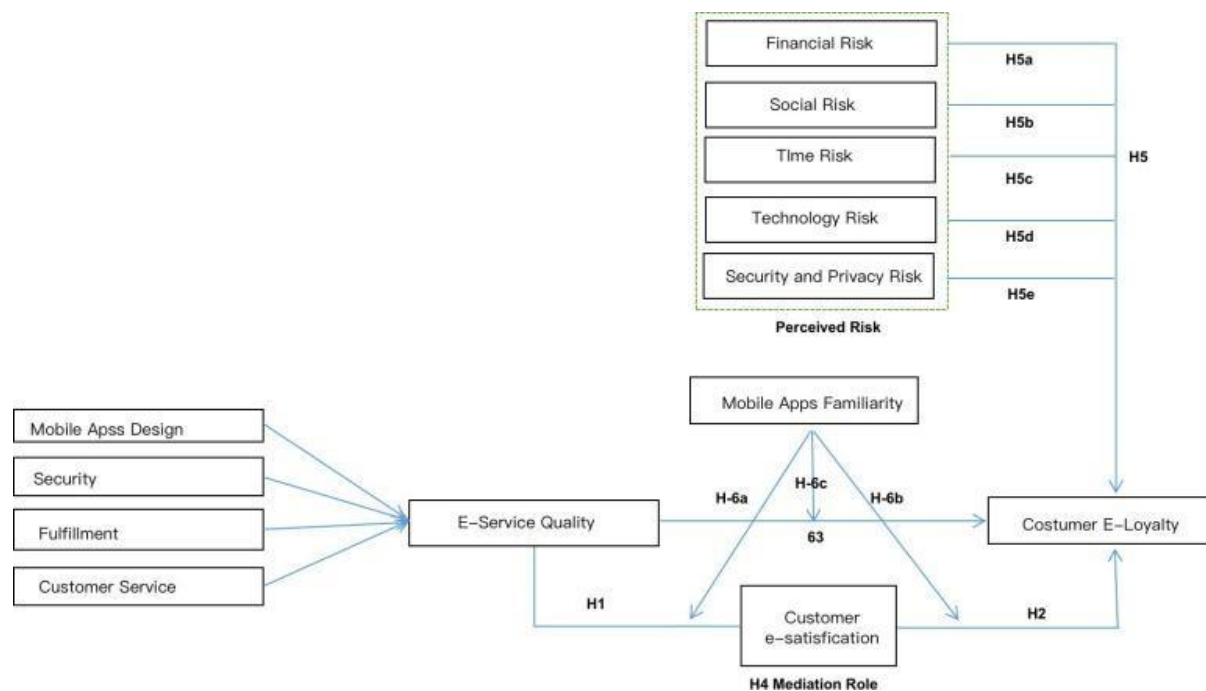
Fig 3. Research Concept Framework (Source: Adaptation Model Kaya et al. 2019, Bakshi, Tandon 2019, processed by researchers)

In accordance with the conceptual framework above, the variables of this study consist of the e-service quality variable, the Customer e-Satisfaction variable as a mediating variable. Meanwhile, Customer e- Loyalty is the variable that becomes the output in the assessment being assessed. In addition, Customer e-Loyalty is also analyzed through a direct relationship with the Perceived Risk Variable. Perceived Risk is an important variable to analyze because Fear such as a sense of uncertainty, health anxiety, risks for loved ones, has raised two important issues, namely: excessive levels of worry and high likelihood of being exposed to the COVID-19 virus. when sensing and facing danger (ALHUMAID et al, 2021). So that fear is analyzed through the Perceived Risk Variable. In addition, Mobile Apps Familiarity acts as a moderator in the relationship between Service Quality, Customer e-Satisfaction and Customer e-Loyalty.

Effect of E-Service Quality on Customer E-Satisfaction and Customer e-Loyalty

Positive perceptions of websites and their content increase online satisfaction levels (eg, Polites et al., 2012; Rodgers, Negash, & Suk, 2005). Customer satisfaction is a person's feelings of pleasure or disappointment that arise after comparing their perceptions or impressions of performance. If the impression is below expectations, it will result in dissatisfied customers. However, if the performance exceeds expectations, the customer is very satisfied and happy (Kotler, 2009). If the performance of theproduct or service produced by the company is the same as what the consumer imagines, the consumer will be very satisfied. Then if the performance provided by the company to consumers exceedsexpectations, the level of consumer satisfaction will be higher (Kotler and Keller, 2017). In this hypothesis, the researcher aims to determine the variable relationship between e-service quality which has a positive influence on customer e-satisfaction which has a meaning or understanding of how the quality of a service relates to the satisfaction of Telemedicine Service users, therefore the following hypothesis is concluded:

H1 : E- Service Quality (ESQ) has a positive effect on customer e-satisfaction (CES)

Customer e-satisfaction (CES) has a positive effect on customer e-loyalty (CEL).

Customer satisfaction is an important aspect and is the key to running a successful business (Krivobokova, 2009). Customer satisfaction often refers to specific transaction satisfaction or overall satisfaction (Jones and Suh, 2000). Customer satisfaction relates to whether happy or disappointed which is the result of comparing the service or product consumed in accordance with customerexpectations. If the performance of the product or service produced by the company is the same as what the consumer imagines, the consumer will be very satisfied. Then if the performance provided by the company to consumers exceeds expectations, the level of consumer satisfaction will be higher (Kotler and Keller, 2017). The dimensions of consumer satisfaction consist of: Conformance of Expectations: The level of conformity between consumer expectations and product performance perceived by consumers; Repurchase: consumer's willingness to repurchase related products/services; Willingness to Recommend: the willingness of consumers to recommend products that they have felt tofriends/relatives/family (Hawkins and Lonney cited in (Tjiptono, 2015) (Puti Queenszya De Fritz, 2020). In this hypothesis the researcher will look at the relationship between the variables Customer e- satisfaction (CES) which has a positive effect on customer e-loyalty (CEL) the use of Telemedicine Services, therefore the following hypothesis is concluded:

H2 : Customer e-satisfaction (CES) has a positive effect on customer e-loyalty (CEL).

E-Service Quality (ESQ) has a positive effect on Customer E-loyalty (CEL)

E-Service Quality is defined as a system that is different from traditional service quality systems, where e-service quality emphasizes the ease of obtaining information from electronic-based service providers, and consumers also have a contribution to service delivery responsibilities (Bressolles et al., 2014).). E-service quality covers all aspects of interaction between customers and companies, and is used to facilitate shopping activities to service delivery of products or services through the website effectively and efficiently (Come et al., 2016; Parasuraman et al., 2005). The advantage of using services in an electronic business, will lead to return visit behavior and repurchase behavior which thenforms an electronic loyalty (Srinivasan et al., 2002; Yoo et al., 2015). Customers will develop a desire to visit the website and make purchases through the same site, and even encourage other consumers to make purchases from the site (Kaya et al., 2019). E-loyalty will be seen in the customer's emotional attachment to repeat purchasing activities. e-loyalty, they will usually recommend other consumers to visit certain sites or applications. This can contribute to the binding of purchasing decisions. (Jeon and Jeong, 2017). E-customer loyalty can be defined as the tendency of customers to continue to use a particular site, frequent visits, and high interest in the long term (Srinivasan et al., 2002; Amin, 2016). Maintaining a long-term customer relationship is more valuable than a one-time exchange of products or services. In recent decades the notion of brand loyalty is known as e-loyalty or online loyalty (Valvi and Fragkos, 2012). Loyalty plays an important role in evaluating service outcomes from consumers, including satisfaction (Morgan and Hunt, 1994). Therefore, the following hypothesis is concluded:

H3: E-Service Quality (ESQ) has a positive effect on Customer E-loyalty (CEL).

Customer e-satisfaction (CES) as a mediation of the relationship between E-Service Quality (ESQ) and Customer e-Satisfaction (CES)

Service quality significantly affects personal value, where perceived value is the main factor of consumer satisfaction that affects consumer behavior (Wu, 2014). In this hypothesis, the researcher found a relationship between Customer e-satisfaction (CES) variables as a mediating relationship between E-Service Quality (ESQ) and Customer e-Satisfaction (CES) in using Telemedicine Services. Satisfaction implies evaluation of product acquisition and/or consumption experience. Thus, customer satisfaction is an evaluation based on their personal experience with respect to their needs and expectations (Oliver, 2010). In the context of online shopping, the concept of e-satisfaction emerged as an important behavioral outcome (Bansal et al., 2004). Therefore, the following hypothesis is concluded:

H4: Customer e-satisfaction (CES) partially mediates the relationship between E-Service Quality (ESQ) and Customer e-Satisfaction (CES).

Effect of Perceived Risk on Customer e-Loyalty

Featherman and Pavlou (2003) define PR as the potential disadvantage of pursuing desired outcomes from the use of electronic services. The selection of the type of risk aspect was based on previous

research by Featherman and Pavlou (2003) as well as interviews with doctors who practice telemedicine. Various types of risks (social, technological, time, security and privacy risks) have been identified and validated as barriers in the adoption of any technology that affect individual behavior (Bakshi et al., 2019). As well as the effects of Covid-19 which raises the fear of incomplete health information, where the existence of fears such as a sense of uncertainty, health anxiety, risks to loved ones, has raised two important issues, namely: the level of excessive worry and the possibility of being exposed to the virus. High COVID-19 Fear is a stimulus when feeling and facing danger (ALHUMAIDet al, 2021). Therefore, it is concluded that the 5-point hypothesis is attached.

H5a: Perceived Financial Risk (FR) has a negative effect on Customer e-Loyalty (CEL). H5b: Perceived Social Risk (SR) has a negative effect on Customer e-Loyalty (CEL).

H5c: Perceived Time Risk (TR) has a negative effect on Customer e-Loyalty (CEL).

H5d: Perceived Technology Risk (TER) has a negative effect on Customer e-Loyalty (CEL).

H5e: Perceived Security and Privacy Risk (SPR) has a negative effect on Customer e-Loyalty (CEL). .

Moderation Effect of Mobile Apps Familiarity on e-Service Quality, Customer e-Satisfaction and Customer e-Loyalty

The more a person is aware of a brand, the higher the likelihood that the brand will be chosen (Ilyas., et al., 2020; Moisescu, 2009; Shahid et al., 2017). Dabbous & Barakat (2020) states that well- known brands can win the competition where brand awareness will make customers think about making products/services a choice and increase purchase intention more to buy. Previous studies confirmed the effect of brand awareness on purchase intention (Ilyas et al., 2020; Novansa & Ali, 2017;Petahiang et al., 2015; Shahid et al., 2017). However, Wu & Ho (2014) stated that brand awareness cannot directly increase purchase intention. It was further explained that consumers are not interestedin buying a product just because the brand of the product is well known. Consumers also tend to ignore brands even though many products have the same benefits (Jean, 2015). Therefore, the following hypothesis was built where brand awareness was analyzed to see the effect on ESQ, CES and CEL. Hypothesis 6 proposes a moderating effect of the familiarity of Mobile Apps therefore the following hypothesis is concluded :

H6a regarding the relationship between electronic service quality (ESQ) and electronic satisfaction (CES),

H6b regarding electronic satisfaction (CES) and electronic loyalty (CEL), while H6c regarding electronic service quality and electronic loyalty.

III. RESEARCH METHODOLOGY

Data were obtained, using a purposive sampling technique, from respondents upper 18 years old whoseusing telemedicine on mobile app. For the purpose of this study, 5-point Likert type scales were utilized, ranking from 1 = strongly disagree, to 5 = strongly agree. Participants were asked to rate their level of agreement with statements based on their recent Using Telemedicine experience. We specifically used this scale based on the latest meta-analysis of Blut et al. (2015), who found it to be better than other available scales for measuring e-service quality. It consists of four dimensions, website design, fulfillment, security and customer service. The scale for customer e-satisfaction was adopted from Anderson and Srinivasan (2003);.To measure degree of familiarity with a telemedicine, we used five items adopted from Kaya et. al. (2000). Customer e-loyalty was measured with four items adopted from Kaya et, al (2019), and To measure degree of Perceived Risk we used 28 items adopted from Featherman & Pavlou, (2003)

IV. RESULT / FINDING

Of the 444 respondents, females made up 67.8% of the total. A total of 55.9% (248) of respondentshave an age range of 18-28 years, 39.6% (176) of respondents are aged >28-38, 43.5% of 193respondents work as private employees and 36.9% (164) respondents are students, 61.9% (275) of respondents are domiciled in DKI Jakarta, 19.1% (85) of respondents are in West Java. Telemedicinein Mobile Apps that is often used by respondents, namely the first Covid-19 59.7% (265) second 23.3%

(103) Allergy consultation respondents, third 2.3% (10) obstetrics and gynecology consultation respondents fourth rank, 1.8% (8) Respondents fourth 1.6% (7) Respondents for dental and mouth consultation.

H1: The results of hypothesis testing, original sample of 0.3910, t-statistics of 11.4115, p-values of 0.0000 concluded that H1 is accepted, the existence of digital health technology provides easy services, and saves time because activities are carried out online and efficiently as well as helping users quickly and providing satisfaction to users (Jefreey, 2018) and being cost-effective for patients because there is no need to pay for transportation costs and other costs. (Annisa, 2018). Therefore ESQ resulted in a positive relationship on CES.

H2: The results of hypothesis testing, original sample of 0.3654, t-statistics of 4.9367, p-values of 0.0000, concluded that H2 is accepted, Telemedicine in Mobile Apps has a positive influence such as recommending services and using it in the future if experiencing problems in health. The results of the study illustrate that patient satisfaction indicates that the use of telemedicine is feasible as an alternative to replace direct visits. Ashwin et al, 2020). If the performance provided by service providers to consumers exceeds expectations, the level of consumer satisfaction will be higher (Kotler and Keller, 2017)

H3: Hypothesis test results, original sample value of 0.3654, t-statistics of 4.9367 p-values of 0, 0000 concluded that H3 is accepted. The increase in telemedicine users shows that the COVID-19 pandemic affects people's interest in using telemedicine services, it can be seen in 2020 there is a surge in visits to the Telemedicine application by up to 600% with the increase in users, of course telemedicine service providers must continue to improve the quality of their services, so that users feel comfortable and well serviced. (Ministry of Health Research and Development, 2019). Raffan et al (2021) found that patients responded well to virtual care in the context of a pandemic. Patients feel technology improves access to care, and they feel confident knowing their symptoms are being monitored virtually

H4 : Hypothesis test results, original sample value of 0.10211, t-statistics of 3.4319 p-values 0.006 can be concluded that H4 is accepted. Hentati, F. et al. (2021) stated that telemedicine has been proven to be effective in meeting patient needs and satisfaction both in terms of time efficiency, cost- effectiveness, and providing a sense of security for patients and doctors for virtual appointments, especially since COVID-19 can be concluded from the results of this hypothesis test that CES mediation affects the relationship between ESQ and CES.

H5a: hypothesis test results, original sample of -0.3045, t-statistics of 3.8201, p-values of 0.0001 It can be concluded that H5a is accepted, Mishra's research (2021) states that the factors that support telemedicine are factors finances and the COVID-19 pandemic factor where policies were imposed on regional restrictions as well as traveling. Based on preliminary literacy studies from several journal articles from Kruse, Atkins, Baker, Gonzales, Paul, Brooks (2018), telemedicine supports minimizing the risk of costs because telemedicine reduces treatment costs. This can be seen from the results of the respondent's profile where the costs incurred when using Telemedicine Services on Mobile Apps are not a problem, which is explained through existing data that as many as 282 respondents spent costs >Rp. 100,000 - Rp. 250,000 for consultation while a total of 291 respondents spent > Rp. 50,000

- Rp. 100,000 for transportation (motorcycle or car) when conducting a doctor's consultation directly to a hospital, clinic or private practice.

H5b : Hypothesis test results, original sample of -0.0992, t-statistics of 1.1543, p-values of 0.248 concluded that H5b is rejected. Helou et al. (2020), stated that a large amount of skepticism and uncertainty regarding Telemedicine remains, particularly regarding the efficiency, safety and adequacy of existing regulations. A recent study has highlighted the importance of beliefs, subjective norms, perceived benefits and habits in promoting the adoption of online health consulting services in China (Gong, Han, Li, Yu, & Reinhardt, 2019)

H5c : original sample of -0.0234, t-statistics of 0.1841, p-values of 0.8540 can be concluded that H5c is rejected. Li (2020) emphasizes interactivity, perceived personalization and privacy issues and emphasizes that these have a significant impact on users' perceptions of services in the form of ease of

use, usability, and trust in medical care services via mobile. The convenience in this case can be seen through the waiting time between purchase and consumption and the experience of delayed delivery decreases repurchase intention. When consumers know the products provided, and users are familiar with applications, websites and other technology systems, then they will tend to search for information that is more efficient and saves time than having to browse again, and they will quickly get the desired order and reduce the risk of online shopping (Change). al., 2016; Van Slyke et al., 2006). It is possible that there are other factors that prevent service users from being loyal, one of which is the error of HR, after the user has finished using Telemedicine or consulting a doctor. Third parties such as pharmacies, drug delivery drivers are also application errors where errors in providing drug delivery locations to service users, also for new users. The information provided by the mobile apps is also the same as in urban areas but it is not possible for some regions to get the appropriate right of access to the hospital. Therefore, this is an obstacle for the community and users who live and live in remote and difficult areas. to get drugs and services (Erictopol, 2015).

H5d: hypothesis test results, original sample of -0.0994, t-statistics of 0.9317, p-values of 0.3517 it can be concluded that H5d is rejected, Technology from mobile apps helps users and doctors to interact on mobile apps so that it will minimize the risk of misunderstanding, because a poor understanding of technology and its application in providing health care can be a major obstacle in the use of telemedicine (Bali, 2018). However, in some cases in Telemedicine, it cannot be beaten evenly. Research according to Singh (2018) states that mobile apps services are used only for preventive actions or preventive measures and not to carry out an intense healing and overall

H5e : results from hypothesis testing, the original sample is 0.3586, t-statistics of 3.9512, p-values of 0.0001 it can be concluded that H5e is rejected, the results of the hypothesis test show the original sample value of 0.3586, meaning that the direction of this test is not in accordance with the proposed hypothesis with the value of t- statistics is equal to 3.9512, p-values of 0.0001 can be concluded that H5e is rejected. Studies by Luciano, Mahmood, and Mansouri Rad (2020) confirm that telemedicine adoption is influenced by policies, culture and security and privacy. Casalo et al. (2007) define securityas technical assurance that legal and ethical practices are met (Chiu et al., 2017). Even though the Mobile Apps service is deemed unsafe, users believe that Telemedicine during the pandemic is able to provide services that are quite helpful, even though the risk of Security and Privacy Risk is high. Thisis due to circumstances that require users to comply with Government Regulation of the Republic of Indonesia No. 21 of 2020 which emphasizes Large-Scale Social Restrictions in the Context of Accelerating the Handling of Coronavirus Disease 2019 (COVID-19) where restrictions are imposedon going out of the house, the User prefers the risk of a high SPR rather than choosing to conduct an offline consultation.

H6a: Hypothesis test results, original value of -0.1372, t-statistics of 5.5149, p-values of 0.0000. so it can be concluded that H6a is rejected. When the user uses the Telemedicine Service and fills in complete and clear data information and is known by the Application, it provides an opportunity for the possibility of misuse of the patient's personal data (Wahyuni Bahar, 2019). The absence of privacy protection has been proven to be one of the factors influencing the acceptance and adoption of IoT (Padyab and Ståhlbröst, 2018) Doubts about this are natural because the health aspect is a sensitive matter. According to Vibilarasati (2019), if there are no relevant documents along with medical records and without patient examination, medical personnel will have difficulty making a precise and accurate diagnosis. In addition, patient anxiety increases because of the possibility that medical records, both personal, confidential or sensitive user data can be misused by others outside and within the network (Malik et al., 2020). According to Fournier and Mick (1999), the impact of service quality (ESQ) can be increased or exacerbated through various factors (mood, situational factors) and not necessarily by a high level of familiarity because satisfaction depends on the given context not on familiarity. Therefore,site familiarity (MAF) does not increase the relationship between service quality (ESQ) and satisfaction (CES).

H6b: The results of hypothesis testing, original sample of 0.1829, t-statistics of 2.2668, p-values of 0.0236. It can be concluded that H6b is accepted, it can be said that Mobile Apps Familiarity (MAF) moderates the positive relationship between Customer e-satisfaction (CES) and Customer e-Loyalty (CEL), so the relationship is stronger when Mobile Apps Familiarity is high. This is in line with the

research of Kaya et.al (2019) which states that the relationship between satisfaction and loyaltybecomes stronger with increasing levels of website familiarity. Wilson et al (2016) stated that customers will be effective in a service if customers are relatively satisfied. In line with the research of Casalo, Flavian, and Guinal u (2008) which found that consumer familiarity with a product moderates the relationship between perceived usefulness and the process of forming loyalty, familiarity is also oneof the determinants of users not switching (Ju, 2020).

H6c: The results of hypothesis testing, the original sample is -0.1727, the t-statistics is 2.6532 and the p-value is 0.0081. It is concluded that H6c is rejected. The appearance of a professional website provides a sense of comfort to customers, so customers can be more confident and comfortable in choosing services. Founder & chairman Center for healthcare policy and reform studies (chapters) Indonesia, Luthfi Mardiansyah(2019) stated that mobile apps not only provide convenience for users, the role of health applications is a threat to the development of digital health applications and requires evaluation in its implementation, such as data protection. patient privacy, then the lack of communication from both parties between doctors and patients, then the presence of incompetent and inexperienced doctors and the lack of legality in health applications makes regulatory protection regarding technology in the health sector a polemic (Mardiansyah, 2019).

V. DISCUSSION

A. Relationship of ESQ, CES, and CEL and MAF Moderation

It can be seen that the Telemedicine Service in Mobile Apps answers existing problems regarding the need for health information where this service is not limited by space and time. Direct meetings between health workers and patients that originally took place in the practice room are now turned into virtual meetings via telecommunication devices, and the Telemedicine system shows a very important role during the COVID-19 pandemic. This is evidenced by as many as 59.7% of patients who perform telemedicine are Covid-19 sufferers. Where it explains that Telemedicin concretely helps Covid-19 patients to keep their distance and can do ISOMAN from home. From the results of the study, it is known that the majority of respondents are represented by respondents from DKI Jakarta, as many as 61.9% or a total of 275 respondents, which indicates that the adaptation carried out by the City of Jakarta is quite fast and good because it is the first city in the implementation of the PSBB. also shows that the development of Telemedicine services in Mobile Apps proves that respondents tend to be loyal to using telemedicine with data that is 55.2% or 245 respondents consulted 2-3 times, 32.2% and 143 people did telemedicine 4-5 times. it was accumulated that as many as 87.4% or as many as 388 respondents used Telemedicine Services more than once. Meanwhile, in other cities, such as in Central Java, East Java, Sulawesi, Sumatra, Telemedicine Services in Mobile Apps do not have a significant effect in helping people increase their knowledge about health as evidenced by data where there are 3.40% or 15 users who use Telemedicine Services in Mobile Apps. In addition, with the existence of Telemedicine, it helps in carrying out long-distance treatment where Government Regulation requires space boundaries. Performance expectancy occurs where consumers have expectations for the application by providing consumer benefits in utilizing digital application performance (Venkatesh et al., 2003). Therefore, if Alodokter's health application service can meet expectations and provide convenience and increase confidence that health application services are able to positively influence interest in usage behavior. The results of Mujiyana's research (2019) that trust has a positive and significant effect on repurchase intention. In addition, according to the data that the researchersprocessed, where MAF moderates strongly and increases the positive relationship between CES and CEL, it can be said that only users who feel satisfaction from the service will loyally use Telemedicine services. Mobile Apps Familiarity (MAF) moderates the positive relationship between Customer e- Satisfaction (CES) and Customer e-Loyalty (CEL) so that the relationship is stronger when Mobile Apps Familiarity is high. This proves that user satisfaction with Telemedicine Services and Service User Loyalty has a positive effect due to e-WOM or WOM carried out by users, both given through ratings in mobile apps and comments given in the use of Telemedical Services. So, Mobile Apps are able to moderate strongly because the relationship between satisfaction and loyalty occurs as a result ofthe positive response of previous Telemedicine service users which gives a Loyalty effect, either using it for the second time when you need the Service or in providing recommendations to other people or friends. So it is proven that the relationship is stronger when the MAF is high. In the research of Augusta, et al (2019) it was found that the possibility of respondents buying Etude House products because of the high level of familiarity with the brand and the more familiar the consumer with a brand,the greater the purchase intention due to satisfaction with the product that directs consumer attention to the brand.

B.   Direct Influence Factors Percieved Risk on Customer e-Loyalty

The preservation of security in the application and use of health applications is a risk element that is crucial to talk about, particularly because there are many health applications that permit using patient personal information for financial gain (Kevinpho, 2015) The government does not yet provide regulatory protection for technology in the health sector due to the absence of legality in health applications (Mardiansyah, 2019). The acceptability of telemedicine services is the issue that is most obvious, as stated by SR 2 with the highest outer loading of 0.9, which claims that relatives are unaware of the possibilities of telemedicine services in mobile apps because they are not yet known. How users can perceive big changes in applications due to social impact (Venkatesh et al., 2003).In addition, the public's initial perception and suggestion regarding digital health applications that they are afraid and anxious about the role of doctors on mobile apps is false, as well as public assumptions about available doctors, namely only the role of a student who does not have a letter (STR), or bots. who answered the community's questions in the chat at the time of consultation (Felicia, 2019). This risk needs to be considered by Hospital Management, Clinics and Applications because this triggers Loyalty from Service users. Public health services are influenced by the use of digital technology, the application of health interventions in the development of digital technology is very effective in serving the community (Manganello et al., 2015). As for a study from Rusfian (2020) there is telemedicine which is used for consultation to exchange information about the condition of pregnant women. These barriers are in the form of internal factors of midwives such as access to learning by midwives, access to skills, access to use, and access to motivation (Dalton et al., 2014). On the other hand, conventional visits to doctors are still considered an unpleasant experience, apart from being ineffective in terms of time and cost constraints, which are an obstacle for patients (Annisa, 2018). From the results of this study, in terms of Financial Risk, the costs incurred when using Telemedicine Services on Mobile Apps are not a problem, which is explained through existing data that as many as 282 respondents incur costs for >Rp. 100,000 - Rp. 250,000 and a total of 291 respondents incur expenses for transportation (motorcycle or car) when conducting a doctor's consultation directly to a hospital, clinic or private practice for > Rp. 50,000 - Rp. 100,000 as many as 291 respondents. This explains that the Telemdisin Service when viewed in terms of price is quite helpful in overcoming the problem of user curiosity about health because the total costs incurred are almost equivalent to the costs that users provide when or will conduct face-to-face consultations. So that in all Percieved Risk hypotheses only H5a is accepted.

V.CONCLUSION AND RECOMMENDATION

From this study, it can be explained that the majority of telemedicine users are service users with Covid-19 status where at that time service users need direction and handling through online consulting services. Due to the Covid-19 virus forcing everyone who is exposed to maintain a distance in accordance with government regulations, patients who experience the Covid-19 disease directly use telemedicine applications for early treatment. In addition, as it is known that Go-Jek partnered with HaloDoc, where in this study a number of 75 316 Respondents or 71.2% Telemedical users use Haldoc services, this helps service users to be able to buy medicines prescribed by doctors in the same application channel, making it easier for patients who are sick. The COVID-19 pandemic resulted in a 40-fold increase in the number of telemedicine patient visits (Mouchtouris et.al 2020). This increase occurred due to regional restrictions by the Government of Indonesia where Government Regulation of the Republic of Indonesia No. 21 of 2020 which emphasizes Large-Scale Social Restrictions in the Context of Accelerating the Handling of Coronavirus Disease 2019 (COVID-19),

In addition, this is supported by a statement submitted by the Minister of Health (2021) which reveals that if there are patients who are indicated to be COVID-19 good Those who are asymptomatic and have mild symptoms can self-isolate or quarantine, by providing free services, namely consultation in an application that is integrated with the Ministry of Health so that patients get health services. The use of telemedicine by medical personnel and patients can make services more effective and efficient, both in monitoring, evaluating and educating during this pandemic. Patients can report their symptoms and get advice and direction regarding their illness. (Chang & Boudier-Revéret, 2020; Cottrell & Russell, 2020)

VI.RESEARCH LIMITATIONS

a. Respondents Are Limited To The Scope Of Jakarta And West Java With The Highest Percentage Being Undergraduates And Still Students. The Number Of Samples Of 444 Needs To Be Expanded By Conducting A Minimum Representative Sample Of Each Existing Telemedicine Service To Represent Respondents Equally. This Difference In

b. Standardization Can Cause A Bias In The Evaluation Results Of Respondents Using Telemedicine Services, Besides That Of Course This Can Be An Influence In The Evaluation Of The Adaptation Process Of Telemedicine Services. Standards In Subsequent Studies Such As The Number Of Samples And Regional Distribution Are Important Things To Note.

c. Consumers Who Have Direct Experience Using Telemedicine Services Because The Satisfaction Factor Analyzed Refers To Personal Satisfaction.

d. This Research Is Limited To Applications That Already Exist In Mobile Applications In 2021-March 2022. New Mobile Applications That Are Present After That Month Are Not Included In The Scope Of The Study.

SUGGESTION :

e. The Use Of Qualitative Methods Is Considered To Be Able To Provide Results And Contributions And Can Provide Knowledge Regarding The Actual Perceptions Of Service Users On The Use Of The Service And This Can Be Achieved By Using An Open Ended Questionnaire Or Conducting Interviews With Telemdisin Service Users. This Research Exploration Is Also Expected To Help In Particular To Determine The Characteristics Of Differences In Adaptation In Cities And In Villages As A Whole Within The Scope Of Indonesia

f. Fair Comparison Between The Conditions Of Users Of Telemedicine Services Between Applications.

g. Conduct Further Research To Find Out How Respondents Think About Telemedical Services And The Adaptations That Have Been Obtained Pre And Post Covid-19 Pandemic Before And After The Pandemic.

h. Using Security And Privacy Risk As Moderation In Research

i. Conduct Research Considerations By Evaluating The Dki And Papua Regions With A Representative Sample

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Attachment :

Tabel 4.5 Uji Outer Loading

ESQ	loading	CES	loading	PR	Loading	TER	loading	MAF	loading
MAD1	0.696	CES1	0.597	FR	loading	TER1	0.731	MAF1	0.765
MAD2	0.773	CES2	0.654	FR1	0.766	TER2	0.749	MAF2	0.801
MAD3	0.352	CES3	0.681	FR2	0,377	TER3	0.750	MAF3	0.713
MAD4	0.856	CES4	0.718	FR3	0.961	TER4	0.859	MAF4	0.728
SEQ1	0.872	CES5	0.794	SR	loading	TER5	0.684	MAF5	0.816
SEQ2	0.772	CEL	loading	SR1	0.840	TER6	0.794		
SEQ3	0.800	CEL1	0.727	SR2	0.931	TER7	0.515		
FUL1	0.568	CEL2	0.695	SR3	0.928	TER8	0.907		
FUL2	0.544	CEL3	0.852	SR4	0.443	TER9	0.863		
FUL3	0.753	CEL4	0.795	TR	loading	SPR	loading		
FUL4	0.795			TR1	0.850	SPR1	0.918		
CS1	0.897			TR2	0.854	SPR2	0.888		
CS2	0.663			TR3	0.793	SPR3	0.821		
CS3	0.370			TR4	0.736	SPR4	0.762		

Sumber: Output SmartPLS 3.28 hasil diolah oleh peneliti.
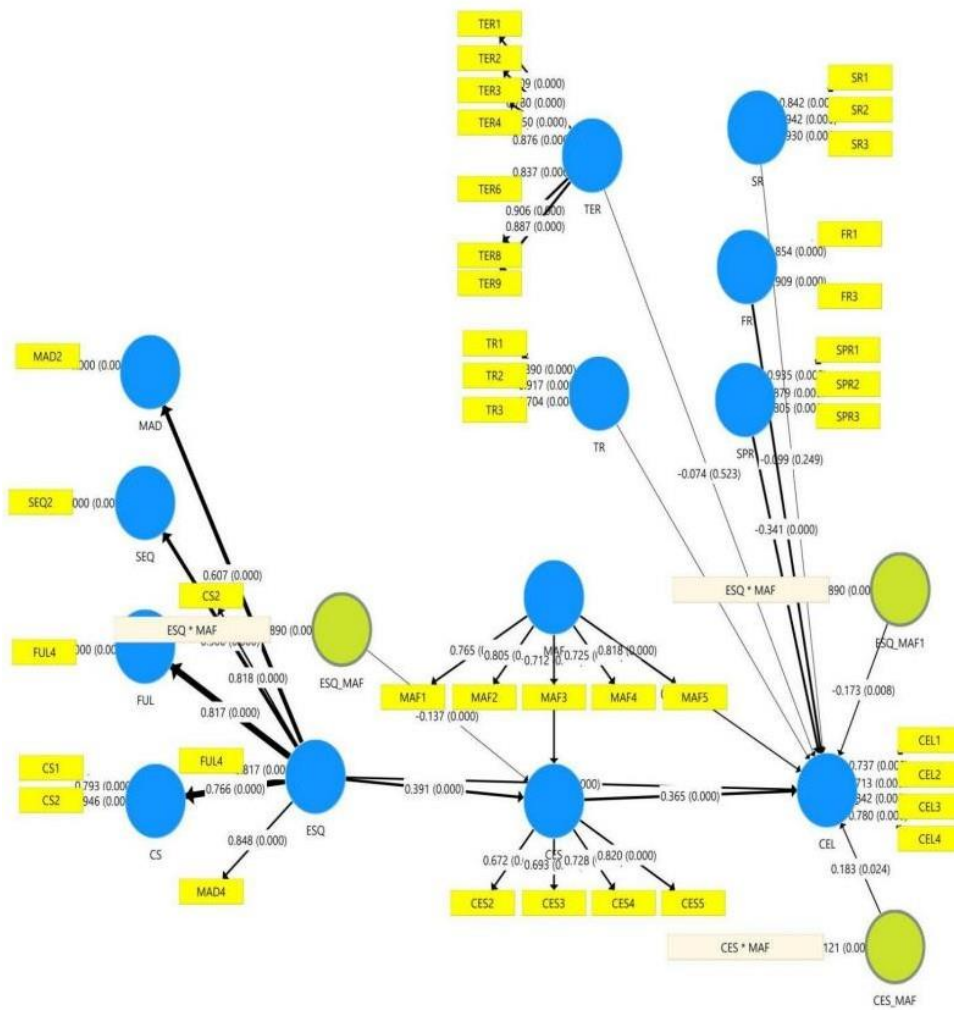
Tabel 4.1 *Path Coefficient*

Pengaruh Langsung	Original Sample(O)	T Statistics (|O/STDEV|)	P Values	Kesimpulan	Hasil Hipotesis
ESQ -> MAD	0,6074	15,5021	0,0000	berpengaruh positif	diterima
ESQ -> FUL	0,8169	47,7288	0,0000	berpengaruh positif	diterima
ESQ -> CS	0,7662	31,1336	0,0000	berpengaruh positif	diterima
ESQ -> SEQ	0,5001	9,9953	0,0000	berpengaruh positif	diterima
ESQ -> CES	0,3910	11,4115	0,0000	berpengaruh positif	diterima
CES -> CEL	0,3654	4,9367	0,0000	berpengaruh positif	diterima
ESQ -> CEL	0,2922	6,5194	0,0000	berpengaruh positif	diterima
FR -> CEL	-0,3406	3,6499	0,0003	berpengaruh negatif	diterima
SPR -> CEL	0,3586	3,9512	0,0001	berpengaruh positif	ditolak
SR -> CEL	-0,0992	1,1543	0,2486	berpengaruh negatif	ditolak
TER -> CEL	-0.0994	0.9317	0.3517	berpengaruh negatif	ditolak
TR_ -> CEL	-0,0234	0,1841	0,8540	Berpengaruh negatif	ditolak
Pengaruh Tak Langsung	**Original Sample(O)**	**T Statistics (|O/STDEV|)**	**P Values**	**Kesimpulan**	**Hasil Hipotesis**
ESQ -> CES ->CEL	0.10211	3.4319	0.006	Berpengaruh tak langsung	diterima
Moderasi	**Original Sample(O)**	**T Statistics (|O/STDEV|)**	**P Values**	**Kesimpulan**	**Hasil Hipotesis**
ESQ_MAF->CES	-0,1372	5,5149	0,0000	Memoderasi memperlemah	ditolak
CES_MAF->CEL	0,1829	2,2668	0,0236	Memoderasi memperkuat	diterima
ESQ_MAF1->CEL	-0,1727	2,6532	0,0081	Memoderasi memperlemah	ditolak

Sumber : SmartPLS olahan Peneliti
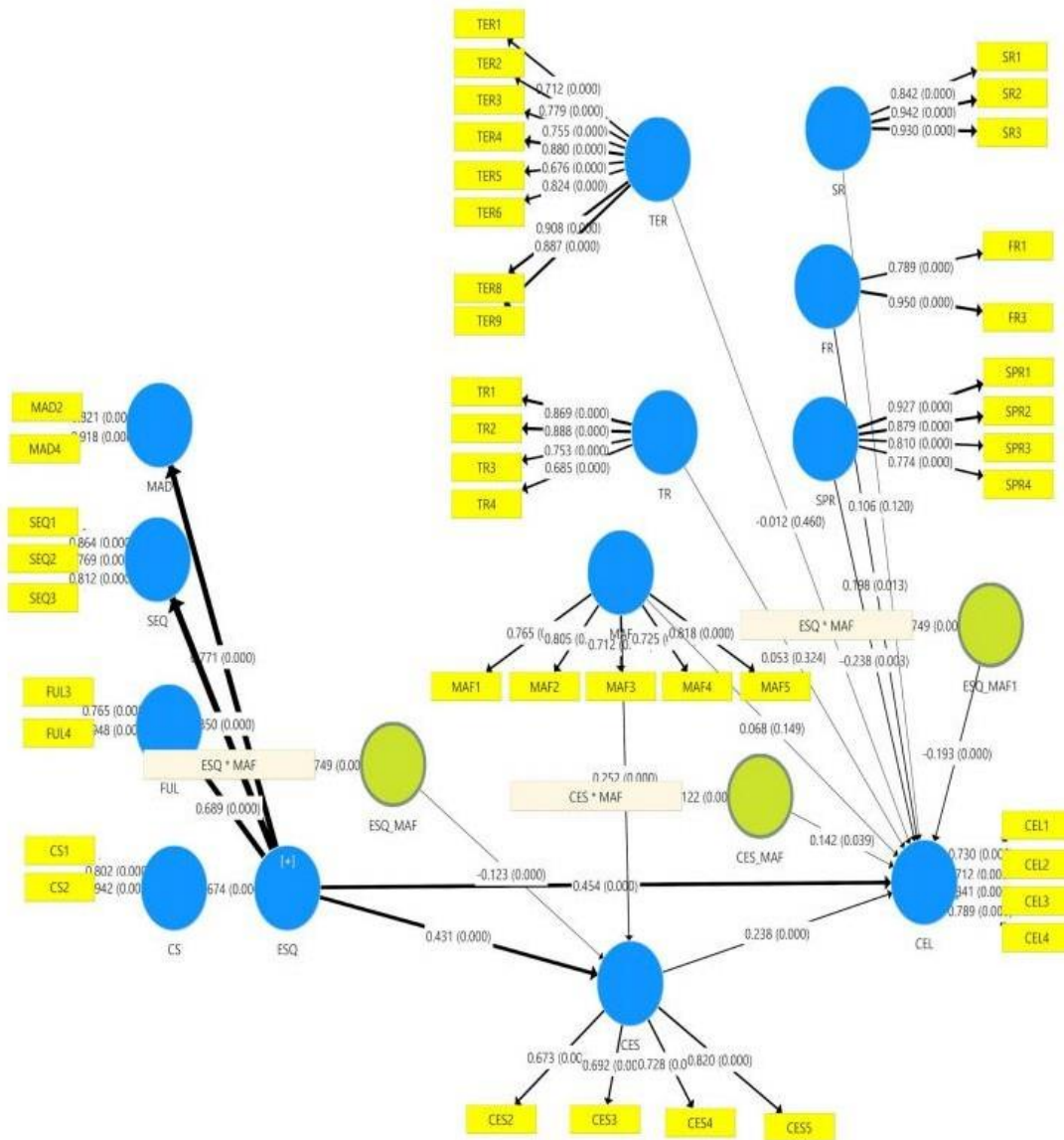
Gambar 4.9 Diagram Jalur Model Penelitian

Sumber : SmartPLS olahan Peneliti

Tabel 4.11 *Goodness of Fit (gof)*

mean AVE	0.674
mean R2	0.405
mean(AVE*R2)	0.273
gof	0.522

$$GoF = \sqrt{\overline{AVE} \times \overline{R^2}}$$ = akar(0.674*0.405)=sqrt(0.273)=0.522

Tabel 4.10 *Stone-Geisser Q-square test (***Predictive Relevance)**

Variabel	R Square	1-R Square
CEL	0.692	0.3080
CES	0.631	0.3690
CS	0.454	0.5460
FUL	0.475	0.5250
MAD	0.595	0.4050
SEQ	0.722	0.2780
(1-r2)..(1-r2)		0.0037
Q2		0.9963

Nilai Q^2 = 1- (1-0.692)...(1-0.722) =1-0.0037=0.9963

$$Q^2 = 0.9963$$

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18

Tabel 4.9 Tabel R Square

	R Square	R Square Adjusted
CEL	0.692	0.685
CES	0.631	0.628
CS	0.454	0.453
FUL	0.475	0.474
MAD	0.595	0.594
SEQ	0.722	0.722

Sumber: Output SmartPLS 3.28 hasil diolah oleh peneliti.

Tabel 4.8 Composite Reliability dan Cronbach Alpha

	Cronbach's Alpha	Composite Reliability
CEL	0.769	0.853
CES	0.711	0.820
CS	0.713	0.866
ESQ	0.810	0.863
FR	0.716	0.864
FUL	0.685	0.850
MAD	0.691	0.862
MAF	0.824	0.876
SEQ	0.747	0.856
SPR	0.882	0.912
SR	0.897	0.932
TER	0.927	0.937
TR_	0.829	0.878

Sumber: Output SmartPLS 3.28 hasil diolah oleh peneliti.

Tabel 4.7 *Average Variance Extracted (AVE)*

	Average Variance Extracted (AVE)
CEL	0.592
CES	0.534
CS	0.765
ESQ	0.513
FR	0.763
FUL	0.742
MAD	0.759
MAF	0.587
SEQ	0.666
SPR	0.721
SR	0.821
TER	0.651
TR_	0.645

Sumber: Output SmartPLS 3.28 hasil diolah oleh peneliti.

Tabel 4.6 Uji Outer Loading

1st ESQ	loading	FUL4	0,948	PR	Loading	TER2	0.779	MAF	loading
MAD4	0.775	CS1	0,802	FR	loading	TER3	0.755	MAF1	0.765
SEQ1	0.639	CS2	0,942	FR1	0.789	TER4	0.880	MAF2	0.805
SEQ2	0.707	CES	loading	FR3	0.950	TER5	0.676	MAF3	0.712
SEQ3	0.722	CES2	0.692	SR	loading	TER6	0,824	MAF4	0.725
FUL1	0.568	CES3	0.728	SR1	0.842	TER8	0.908	MAF5	0.818
FUL4	0.735	CES4	0.728	SR2	0.942	TER9	0,887		
CS2	0.713	CES5	0.820	SR3	0.930	SPR	loading		
2st Order	Loading	CEL	loading	TR	loading	SPR1	0.918		
MAD2	0.821	CEL1	0.730	TR1	0.869	SPR2	0.888		
MAD4	0.918	CEL2	0.713	TR2	0.888	SPR3	0.821		
SEQ1	0.864	CEL3	0.841	TR3	0.753	SPR4	0.762		
SEQ2	0.769	CEL4	0.788	TR4	0.685				
SEQ3	0.812			TER	loading				
FUL3	0.765			TER1	0.712				

Sumber: Output SmartPLS 3.28 hasil diolah oleh peneliti.
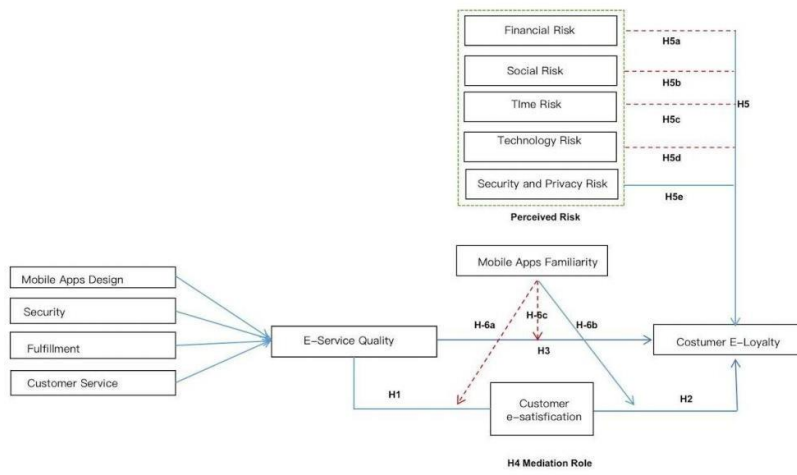
Gambar 4 Model Penelitian Peneliti

Sumber : Diolah oleh Peneliti

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
CES -> CEL	0,3654	4,9367	0,0000
CES_MAF -> CEL	0,1829	2,2668	0,0236
ESQ -> CEL	0,2922	6,5194	0,0000
ESQ -> CES	0,3910	11,4115	0,0000
ESQ -> CS	0,7662	31,1336	0,0000
ESQ -> FUL	0,8169	47,7288	0,0000
ESQ -> MAD	0,6074	15,5021	0,0000
ESQ -> SEQ	0,5001	9,9953	0,0000
ESQ_MAF -> CES	-0,1372	5,5149	0,0000
ESQ_MAF1 -> CEL	-0,1727	2,6532	0,0081
FR -> CEL	-0,3406	3,6499	0,0003
MAF -> CEL	0,1636	2,3650	0,0182
MAF -> CES	0,3066	7,6749	0,0000
SPR -> CEL	0,3586	3,9512	0,0001
SR -> CEL	-0,0992	1,1543	0,2486
TER -> CEL	-0,0745	0,6390	0,5229
TR_ -> CEL	-0,0234	0,1841	0,8540

Mean, STDEV, T-Values, P-Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CEL1 <- CEL	0,7366	0,7334	0,0349	21,0883	0,0000
CEL2 <- CEL	0,7131	0,7090	0,0411	17,3448	0,0000
CEL3 <- CEL	0,8422	0,8413	0,0196	42,9309	0,0000
CEL4 <- CEL	0,7796	0,7798	0,0219	35,6526	0,0000
CES * MAF <- CES_MAF	2,1213	2,0722	0,2709	7,8313	0,0000
CES2 <- CES	0,6716	0,6704	0,0439	15,2966	0,0000
CES3 <- CES	0,6933	0,6917	0,0337	20,5856	0,0000
CES4 <- CES	0,7277	0,7246	0,0421	17,2740	0,0000
CES5 <- CES	0,8204	0,8200	0,0181	45,4365	0,0000
CS1 <- CS	0,7933	0,7891	0,0397	19,9702	0,0000
CS2 <- CS	0,9465	0,9478	0,0064	148,3532	0,0000
CS2 <- ESQ	0,8176	0,8171	0,0238	34,3976	0,0000
ESQ * MAF <- ESQ_MAF	1,8901	1,8490	0,2515	7,5147	0,0000
ESQ * MAF <- ESQ_MAF1	1,8901	1,8490	0,2515	7,5147	0,0000
FR1 <- FR	0,8539	0,8514	0,0289	29,5272	0,0000
FR3 <- FR	0,9094	0,9097	0,0161	56,5458	0,0000
FUL4 <- FUL	1,0000	1,0000	0,0000		

Challenges and Obstacles to Implementing Gender Mainstreaming Policies in Building Gender Equality

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Abstract

Massive technological developments today are often referred to as digital transformation. One of the industries affected by this massive digital transformation is the television industry. One of the digital transformation processes in Indonesian television is marked by the Analog Switch Off (ASO) program, namely the cessation of analog television programs and switching to digital television broadcasts. The existence of digitalization causes major changes that have an impact on the company's internal television stations, some of which are organizational culture, digital technology self-efficacy, agility, resistance to change, and digital innovation. There is still a limited of research and information on how the Organizational Culture has an impact on Innovativeness in the domain of digital technology. Using a quantitative approach, this study involved 220 employees of Indonesian television stations who are actively working at state-owned television stations. The findings in this study indicate that organizational culture has a positive influence on digital innovativeness through digital technology self-efficacy, agility, and resistance to change as mediating variables.: Despite from the organizational culture that is considered slow, the organizational culture in this company actually supports its employees to work in digital technology

I. INTRODUCTION

Current technological developments are often referred to as digital transformation, digital transformation is a consequence of the massive era of disruption or better known as the Industrial Era 4.0, resulting in changes in business models, overhauling the existing ecosystem into a new ecosystem that is more innovative, complex and dynamic. Digital transformation does not only apply in one aspect, but also occurs in several aspects such as technology in business, various industries, government, to small units such as MSMEs (Micro, Small and Medium Enterprises). One of the industries affected by this massive digital transformation is the television industry. One of the digital transformation processes in Indonesian television is marked by the Analog Switch Off (ASO) program, namely the cessation of analog television programs to then switch to digital television broadcasts (Oktari, 2021).

In this case, agility is considered to be related to innovation which is then considered an important factor to maintain competitiveness and in the end it functions for the survival of the company. Through agility, the steps that occur in the organization are developed and also changed through a new, more agile framework. This new, agile framework offers the opportunity to be innovative in itself and mobilize entrepreneurial forces to take advantage of the dynamic market opportunities and new technologies in the enterprise of the future (Carsten, 2014). Another preparation that must be prepared by television stations in Indonesia is that there will be a change in the culture at work. Among other contextual factors, organizational culture is recognized as one of the important factors that can increase or decrease an individual's readiness to change (Haffar, Al-Karaghouli, & Ghoneim, 2014). In terms of individual change readiness, cultures characterized as externally focused and those that emphasize rule or stability have a tendency to resist. Research has shown that organizational culture is the key to successful change implementation, so a better understanding of the culture that supports individual readiness to change is needed (Johansson, Astrom, Kauffeldta, Helldinc & Carlstromd, 2014; Olafsen, Nilsen, Smedsrud & Kamaric, 2020).

Changing work rhythms participate in changing work culture, this can disturb employee comfort which then needs to be watched out for because one of the factors that affect resistance to change in individuals can occur because employees do not receive comprehensive information about these changes (Sembiring, 2009). In several studies, it was found that the contribution of employee resistance to failure in corporate change efforts is very large. This finding confirms that employee resistance becomes a challenge when the company has the initiative to change. Resistance to change is generally found in companies, including in Indonesia (Yulianti, 2020).

Still regarding innovation, according to Bandura (1989) innovation can occur if employees have high self-efficacy. By having high self-efficacy, employees can solve problems that occur creatively (Bandura, 1989). According to research adapted through http://news.unair.ac.id/, the freedom provided by the company can also reduce employee resistance to change, in addition, the freedom to work also provides self-confidence or also known as self-efficacy. With self-confidence, employees can more easily manage the work stress they experience, especially those that occur due to changes. Employees with a high level of self-confidence will always be optimistic that even though there are changes, they can still complete the job well.

From various studies that examine the various determinants of digital innovation that can support digital transformation, these factors then become the basis for research to further examine the role of dimensions such as corporate culture, digital technology self-efficacy, agility, resistance. to change towards digital innovativeness in the state-owned television station, LPP TVRI, and to find out whether organizational culture has an influence on digital

technology self-efficacy, agility, and resistance to change. then to find out whether there is an effect of digital technology self-efficacy and resistance to change on agility. Then whether digital technology self-efficacy, agility, and resistance to change mediate the effect of organizational culture on digital innovativeness

II. LITERATURE REVIEW

A. Organizational Culture

According to Edgar Schein in Wibowo (2010), who argues that organizational culture is the philosophy that underlies organizational policies, the rules of the game to get along, and the feelings or climate brought about by the physical preparation of the organization. Organizational culture according to Stephen Robbins in Wibowo (2010), is a general perception held by members of the organization, a system of shared meaning. Meanwhile, according to Mangkunegara (2009) which states that organizational culture is a set of assumptions or belief systems, values, and norms developed in organizations that are used as behavioral guidelines for members of its members to overcome external and internal adaptation problems.

B. Agility

Agility is classically defined as the ability to change direction quickly (Bloomfield, Ackland, & Elliot, 1994; Clarke, 1959; Mathews, 1973) followed by the ability to change direction quickly and accurately (Barrow & McGee, 1971; Johnson & Nelson, 1969). According to Ismaryati (2008) Agility is a person's ability to be able to change direction quickly and precisely when moving without losing balance. While slightly different from the previous definition, according to Toho Cholik Mutohir and Ali Maksum (2007: 56) Agility is the ability of the body or body part to change the direction of movement suddenly at high speed. For example, being able to run in turns, running back and forth within a certain distance and time, or the ability to dodge quickly in a stable standing position.

C. Resistance to Change

Resistance to change is widely recognized as a major reason for the failure of change initiatives. Resistance to change can be classified at the organizational level, group level and also at the individual level. At the organizational level, resistance to change includes conflicts and strengths, differences in functional orientation, mechanistic structures and organizational culture (Thomas & Hardy, 2012). At the group level, resistance to change includes group norms, cohesive norms, and group thinking and the level of commitment given (Nadim & Singh, 2019). The dimension of resistance to change was originally proposed by Piderit (1998). Dimensions include affective, cognitive and behavioral. Affective describes the expression of each individual's feelings towards a change (eg anger, anxiety and others). Behavior describes the range of actions taken to respond to changes. Next, cognitive reflects the individual's mindset and the decisions made regarding change.

D. Self Efficacy

Self-efficacy or self-efficacy comes from Bandura's Social Cognitive Theory (1986) which explains how a person evaluates himself to execute an action needed to solve a problem in a situation. In this theory, self-efficacy is believed to be the key determinant of the success of a performance.

E. Computer Self-Efficacy

Computer self-efficacy is defined as a person's confidence in his ability to perform tasks successfully related to the use of computers (John, 2013). Meanwhile, according to Indriantoro (2000), a person's computer skills are the ability to use computer applications, operating systems, file and hardware handling, data storage and use of keyboard keys. The ability to use a computer is not a measure of a person's skills, but represents what individuals believe they can do based on their abilities or skills (John, 2013). From the several notions of computer self-efficacy above, it can be concluded that computer self-efficacy is an assessment of an individual's ability or capability in using computers, where the assessment is not only on individual skills but also on decisions that will be taken by individuals related to the use of computers. future use of computers.

F. Digital Technology Self-Efficacy

Digital Technology Self-Efficacy (DTSE) was originally studied as computer user self-efficacy (CUSE), this notion of Digital Technology Self-Efficacy identifies self-efficacy as a contributing factor to success in technological tasks. Cassidy and Eachus (2002) developed computer user self-efficacy to measure an individual's self-efficacy in the context of computer-related tasks.

G. Innovation

Pervaiz K. Ahmed and Charles D. Shepherd (2010) say that innovation is not only limited to objects or goods

produced, but also includes attitudes to life, behavior, or movements towards a process of change in all forms of community life. So, in general, innovation means an idea, product, information technology, institution, behavior, values, and new practices that are not yet widely known, accepted, and used or applied by most of the community members in a particular locality, which can be used or encourage changes in all aspects of people's lives for the realization of improving the quality of each individual and all members of the community concerned.

H. Innovativeness

Innovativeness means the organization is willing to pursue new ideas and concepts in process, product, or service development. Proactive refers to an organization with characteristics that are forward-looking and responsive in the industry environment involved (Green, Covin, & Slevin, 2008). From a macro perspective, innovativeness is the capacity of new innovations to create a paradigm shift in science and technology and/or market structures within an industry. From a micro perspective, innovativeness is the capacity of a new innovation to influence a firm's marketing resources, technological resources, skills, knowledge, capabilities, or strategy (Garcia & Calantone, 2002). Innovativeness implies a willingness to be proactive in letting go of old habits and to try out experimental ideas by seeking new opportunities rather than taking advantage of current strengths (Panayides & Lun, 2009).

III. RESEARCH METHODOLOGY

A. Data collection

Data collection was carried out by distributing structured questionnaires conducted online via Google Form and distributed through internal communication media in the company. for the main test stage, the samples obtained were 230 respondents. To find out the specific sample, the researcher gave a screening question in which only individuals who matched the specified sample criteria became respondents in this study.

B. Analysis method

This research design uses quantitative methods. Saunders, Lewis and Thornhill (2012) stated that quantitative methods are data collection techniques or data analysis procedures that produce or use numerical data. Martin and Bridgmon (2012) convey that quantitative research involves interactions between variables after they are operationalized, enabling researchers to measure study results.

IV. RESULT / FINDING

The findings in this study can answer all research questions posed by researchers
a. Organizational Culture has a positive effect on Digital Technology Self-Efficacy
b. Organizational Culture has a positive effect on Agility
c. Organizational Culture has a positive effect on Resistance to Change
d. Digital Technology Self-Efficacy has a positive effect on Agility
e. Resistance to Change has a negative effect on Agility
f. Digital Technology Self Efficacy mediates the relationship between Organizational Culture and Digital Innovativeness
g. Agility mediates the relationship between Organizational Culture and Digital Innovativeness
h. Resistance to Change memediasi hubungan antara Organizational Culture terhadap Digital Innovativenes

V. DISCUSSION

The findings indicate that organizational culture has a positive influence on digital technology self-efficacy, agility, and resistance to change. Data processing results show that of the three mediating variables, organizational culture has the greatest influence on agility. Then other results state that digital technology self-efficacy and resistance to change have an influence on agility. The digital technology self-efficacy variable has a positive influence on agility. While the variable resistance to change has a negative effect on agility. Further results show that digital technology self-efficacy, agility, and resistance to change mediate the effect of organizational culture on digital innovativeness.

This study shows that organizational culture has an influence on the digital innovativeness of employees, which in this case is LPP TVRI employees. It can be said that organizational culture can increase or decrease the digital innovativeness of LPP TVRI employees. The existence of ASO as a marker of digital transformation in the television sector makes employees in the television sector, in this case LPP TVRI employees, become more innovative

VI. CONCLUSION AND RECOMMENDATION

Conclusion

a. The results showed that organizational culture has a positive influence on digital technology self-efficacy. These results indicate that the higher the culture in the organization, the higher the employee's self-efficacy in digital technology.

b. The results showed that organizational culture has a positive effect on agility. These results indicate that the higher the culture in the organization, the higher the agility in employees.

c. The results showed that organizational culture has a positive effect on resistance to change. These results indicate that the higher the culture owned by the employee, the higher the resistance to change of an employee.

d. The results show that digital self-efficacy has a positive effect on agility. These results indicate that the higher a person's self-efficacy in digital technology, the higher the agility of the employee.

e. The results show that resistance to change has a negative effect on agility. These results indicate that the higher the resistance of the employee, the lower the level of agility of the employee.

f. The results showed that digital technology self-efficacy positively mediated the relationship between organizational culture and digital innovativeness.

g. The results showed that agility positively mediated the relationship between organizational culture and digital innovativeness.

h. The results show that resistance to change mediates the relationship between organizational culture and digital innovativeness negatively.

Recommendation

a. Renewing organizational culture can be an option so that LPP TVRI employees can be more agile in dealing with this digital transformation, and so that LPP TVRI can be said to be on par with other television stations.

b. Making the community of employees as agents of change who encourage/influence the target of change to be able to behave/behave by adopting new innovations/policies related to organizational culture renewal.

c. training programs related to innovation in digital technology so that the basic skills already possessed by employees can be honed even better.

d. it is necessary to hold a workshop on agility to be able to sustain competitive advantage

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Analysis Of Factors Affecting Economic Growth In Lampung Province 1999-2020

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Abstract
Economic growth is an increase in the production of goods or services which is seen by comparing economic conditions from one period to other. This study aims to analyze the factors that influence economic growth in Lampung Province. The analytical method used is Ordinary Least Square (OLS) regression with time-series data starting from 1999-2020. Education had a positive effect on economic growth in Lampung Province. Education is an indicator that can affect the occurrence of economic growth which can increase people's income, where education encourages economic growth and vice versa economic growth facilitates education in a region or village.

Keywords— Economic Growth

I.   INTRODUCTION

Economic growth is the process of changing the economic conditions of a country gradually towards a better time within a certain period of time. Economic growth can be interpreted as an increase in the production capacity of an economy that comes from an increase in national income. Kuznets (Jhingan, 2001) defines economic growth as a long-term increase in the ability of a country to provide many economic goods to its population. This ability grows according to technological advances, institutional adjustments, and the ideology it requires. One measure that is used as the basis for calculating the rate of regional economic growth is the Gross Regional Domestic Product (GRDP).
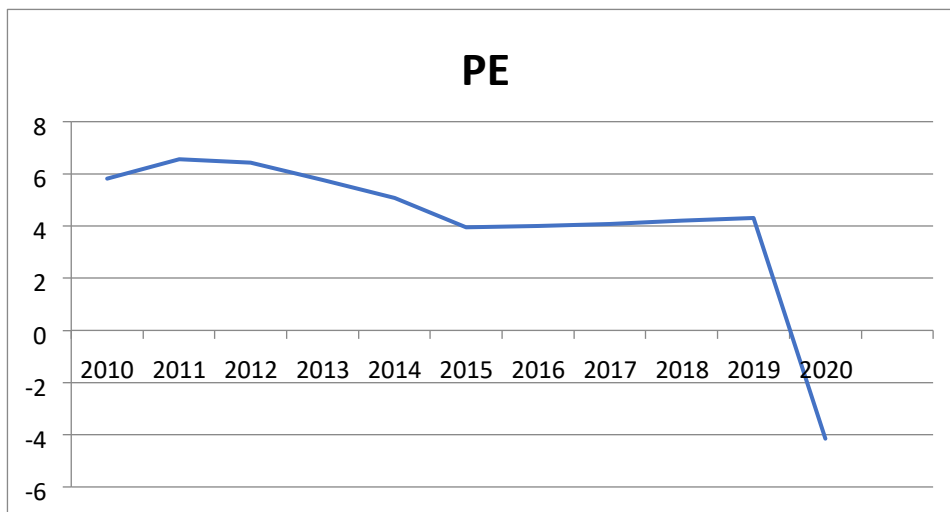
Fig 1. Graph of Economic growth development in Lampung Province (Source: BPS 2019, data processed)

In the picture above, it can be seen that the largest increase in the development of economic growth in 2010 2020 occurred in 2011 by 6.56 percent. This is most of the economic sectors in Lampung Province in 2011 experienced positive growth, expect for the forestry sector, which experienced the highest growth in Lampung Province to 13.13 percent and clean water 9.86 percent. The services sector occupies the third position with a growth rate of 8.24 percent (Lampung Province in figures, 2012)

Meanwhile, the largest decline in economic growth occurred in 2020 by -4.15 percent. The development of economic growth for the years 2010-2020 is volatile, this is because there are several sectors which in their development are also experiencing in creases and decreases. This fluctuating nature can be controlled if GRDP is

more stable. To maintain GRDP stability, the government needs to encourage the agriculture sector to continue to grow because this sector to continue to grow because this sector is resistant to turmoil and absorbs a large number of workes (Lampung Province in Figures, 2020)

Another factor influencing economic growth is labor. Which analyzes the relationship between labor and economic growth in Central Java, the results show that labor affects economic growth. Therefore, it is necessary to pay attention to the development of labor absorption, especially workes aged 15 years and over.Economic growth is also inseparable from education. Education is an indicator that can affect the occurrence of economic growth that can increase people's income, where education encourages economic growth and vice versa economic growth facilitates the education of an area (Supriyanto and Henny, 2020)

II. LITERATURE REVIEW

Sukirno (2006) states that the existance of economic growth needs to be developed for success in economic development. The demand for labor is the amount of labor required by a particular company/institution and is a combination of other available inputs, closely related to the level of wages and salaries (Sutomo, 2015).

A. Short-term Labor Demand

The production function shows the relationship that occurs between various inputs of production factors and the company's output. In the short term, the company in maximizing profits cannot change the amount of capital, so that an increase in output can only be done through an increase in the number of workers (Sutomo, 2015).

B. Short-Run Labor Demand Curve

Illustrates the combined effect of increasing the number of workers with the amount of capital on the level of output. When the ratio of the cost of labor to the cost of capital changes, the optimal combination of labor and capital for each of the highest outputs produced changes as well. For example, if there is an increase in wages, the company will reduce the number of workers and increase the use of capital

C. Long Run Labor Hole Curve

Shows the firm can produce 19 tonnes of goods with various combinations of labor and capital. in the long run the entrepreneur is free to choose the combination of labor and capital in order to maximize profits at the lowest cost. The Relationship Between Economic Growth and Labor Labor is an important factor in the production process compared to other production facilities such as raw materials, land, water and so on. Because it is humans who move all these sources to produce goods and services (Simanjuntak, 2005).

III. RESEARCH METHODOLOGY

Analysis Tools and Models As mentioned earlier, this study will examine the effect of Manpower (TK), Regional Original Income (PAD), Education (EDU) and Net-Exports (NX) on Economic Growth (PE) in Lampung Province using the Ordinary Least Square (OLS) regression analysis tool, which the formulation of the econometric model or the estimator model is:

Pet = β0 + β1 TKt + β2 PADt + β2 EDUt + β4NXt + εt

PE = Economic Growth (%)

TK = Labor (life)

PAD = Regional Original Income (billion rupiah)

EDU = Education (years) NX = Net-Exports (million Rupiah) 0 = Constant 1......... β4 = Independent Variable Regression Coefficient = Element of Error (Error Term) t = Year t log = Natural Logarithmic Operator (ln)

The estimation steps of the above econometric model will include: estimator model parameter estimation, classical assumption test, model goodness test, and influence validity test.

IV. RESULT/FINDING

Based on the estimation results selected in this study is the Fixed Effect Model (FEM). The results of the estimation in this study indicate that the human development index has a significant effect on income inequality in the province of South Kalimantan, the open unemployment rate and Based on table 2 shows that the probability value of F statistic is 0.00093 < 5% (0.05) meaning that (Ho) is rejected and (Ha) is accepted. The results of the F test explain that the human development index, the open unemployment rate and the number of residents simultaneously have a significant simultaneous effect on income inequality which is expressed by the Gini ratio.

V. Discussion

Effect of Human Development Index on Income Inequality. The results of hypothesis testing in this study indicate that the HDI variable is significant to income inequality in South Kalimantan Province in 2017-2020. This is evidenced by a significant value < 5% (0.05) with a probability value of 0.0271 and a coefficient value of -0.027881, meaning that if every person's HDI increases by 1 person, it will reduce income inequality by -0.027881 percent. These results mean that every increase in HDI will be followed by one of the factors that can further widen inequality in the province of South Kalimantan. The test results in the human development index research have a significant effect on income inequality. These results support

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Exploring Indonesian Consumers' Attention Toward Online Food Delivery Service Usage During COVID-19 Pandemic: A Topic Modeling Approach.

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Abstract

The aim of this study is to explore the issues that consumers are focusing on regarding online food delivery services during the COVID-19 pandemic in Indonesia through social media data. With the accelerated digital transformation in the food and culinary industry, discussions about food delivery have emerged on social media. Especially during the COVID-19 pandemic in Indonesia has changed consumer habits from on-site dining to ordering food from home or anywhere. This study applied the topic modeling approach to understand consumers' perspectives on online food delivery services.: Consumers' social media comments and tweets (Instagram and Twitter) related to online food delivery services between 2020 and 2021 were collected using a text mining approach. The data were analyzed using topic modeling with Latent Dirichlet Allocation (LDA) implemented with Python. The results of this study found three major themes from the topics conducted with the LDA model, which are Price-Saving Benefit (Theme 1), Time-Saving Benefit (Theme 2), and Trustworthiness (Theme 3). This study discovered that regarding usage intention of online food delivery services, the perception of price and e-service quality's dimensions overweight the perceived risk regarding the effect of COVID-19 like food quality and safety risk. Insights from this study will be useful for evaluating service quality and further research in the food delivery industry.

Keywords— covid-19 pandemic; e-service quality; latent dirichlet allocation; online food delivery services; topic modeling

I. INTRODUCTION

Food delivery services have risen in popularity in Indonesia, thanks to the rise of the middle class and the large number of city dwellers who prefer convenience when it comes to eating. This phenomenon is shown in the report from Google Temasek (2020), which explained that there was a shift in usage behavior by Southeast Asian users during the COVID-19 pandemic in 2020, which moved online for food delivery platforms. In addition to the two application platforms, there are various types of food delivery services like direct delivery services from restaurants to consumers, food aggregator applications, marketplaces, and food delivery services by contacting companies directly via social media or social messaging. All of these services compete with one another in their marketing methods in order to acquire customers. However, in order to truly make the best judgments, service providers must first identify their target customers and align their service offerings to meet their needs. As a result, customer perspectives and input as users of food-delivery services are required.

There are essential elements that need to be considered in food delivery service transactions, based on consumer viewpoints and studies from numerous prior researchers, like a) consumers are looking for better promos, offers, and discounts; b) consumers prefer good service, efficient delivery, and responsive customer care; c) consumers pay attention to safety and cleanliness and also food quality; e) consumers prefer platforms that are easy to use (Elvandari et al., 2017; Kundu & Chatterjee, 2018; Maimaiti et al., 2018; Sjahroeddin et al., 2018; Suhartanto et al., 2019; Ray & Bala, 2021). Consumers who frequently use food delivery services share their thoughts and experiences on social media networks. Consumers' or other potential users' trust will be affected, and their purchasing patterns may be affected as a result. By taking advantage of this dramatic shift in consumer behavior regarding the increased usage of online food delivery, the field of online marketing may target both new and loyal users (Singh & Verma, 2020). Decisions about marketing strategy, consumer behavior analysis, and boosting brand reputation can all be influenced by social media. Furthermore, social media may assist customers in learning about the quality of certain products and services, after-sales services, and company reputation based on the experiences and opinions of other users, which can enhance trust and interest from users. As a result, online meal delivery service firms must advertise online, promoting their products and services and boosting their brand images on various social media platforms (Vernier et al., 2018).

The fast-growing food delivery industry generally has the same delivery model for all food delivery companies or service providers. However, the difference is that their policies and strategies can vary from one company to another. A resilient online food delivery company is highly competitive and adaptable to various inevitable contingencies. For this reason, companies need to develop appropriate strategies and make business decisions to adapt and deliver services to maintain their sustainability. The internet and technological advancements have made it a common habit for today's society to share stories and daily activities on social media, which can be very useful for any online food delivery service company (Yeo et al., 2017). The more open access for others to interact in the post, the more users that will be involved to share more things. More consumers engaged as users will help e-commerce businesses and online food delivery companies to know more about the products and services of various businesses or competitors and to know better about consumers so that they can make informed and appropriate business decisions. Social media can also help consumers as users to know about the quality of certain products and services, post-sales services, and company reputation based on experiences and opinions shared by other users, which can increase trust and purchase an interest in users. So online food delivery service businesses need to maintain their brand images on various social media platforms (Vernier et al., 2018).

A web data-driven approach or platform can be used to study consumer opinions to help study people's overall perceptions about a service product and how it is received in the market. Moreover, the help from the exponential growth of social media illustrates the daily life of people sharing their experiences about various products and services through reviews or comments, which can be considered as a consumer's opinion or view of a product or service because consumers as users can freely and voluntarily express their thoughts in posts, reviews, or comments. That is why reviews, comments, or posts on social media can also be a source of data for analyzing consumer/user perceptions about online food delivery services. The contribution that online reviews can make to measuring service quality is that textual data provides a wealth of customer service information that can be used to measure the quality offered by service providers, not only from quantitative ratings. Palese & Piccoli (2016) also shows that the distribution of topics in opinion can differ significantly in any kind of review.

Therefore, this study is chosen to examine the consumers' point of view on the changes caused by the COVID-19 pandemic to the use of food delivery services. The method used in this study follows the method used by Ray & Bala (2021), who analyzed text data from reviews and posts on social media using the Latent Dirichlet Allocation (LDA) technique to find topics of discussion that affect consumer interest in food delivery services in India. In this exploratory study, the research question that emerged in engagement with the research data is about how can the opinions of the public and Indonesian consumers regarding the usage of online food delivery services during the COVID-19 pandemic be grouped?. This study uses the same method as Blei et al. (2003) and Ray & Bala (2021) in exploring Indonesia consumers' perspectives, focusing on online food delivery services that are commonly used in Indonesia.

II. LITERATURE REVIEW

A. Online Food Delivery Services

Previous research on online food delivery services in terms of food delivery has tried to define the factors that influence consumer interest and behavior. The thematic analysis reveals that consumers like attractive discounts and offers when using online food delivery services. Other essential themes/sub-themes are the vast choices of food products, previous experience, food packaging, food quality, convenience, health concerns, frugality, and customer service (Ray & Bala, 2021). Also, Suhartanto et al. (2019) noted that food quality influenced consumer loyalty in online food delivery services. Elvandari et al. (2017), in their research, noted that order conformity, politeness, and friendliness of delivery staff affect consumers' interest in using online food delivery services. In addition, the researchers also noted that consumers value the cleanliness of packaged food and the quality of the food received when using a food delivery service. The researchers also note that service providers need to provide delivery staff with skills-related training and periodic service performance evaluations to improve their delivery operations. Pigatto et al. (2017) examined the feasibility of sites/platforms based on content, functionality, and usability to conduct business transactions. The researchers found that in this digital era, social media platforms help increase the visibility of brands and businesses that companies present. and also help service providers to engage with customers better. The researchers also found that content, functionality, and usability are essential when designing platform/sites for online food delivery services.

Hong et al. (2021) stated that there are factors that continue to play a role in determining user intention to use (customer intention to use) and are not changed by the Covid-19 pandemic situation. These factors are perceived usefulness, trust, price saving benefit, time saving benefit, and perceived food safety risk. Yeo et al. (2017)

assessed the relationship between various factors such as convenience motivation, post-use benefits, hedonic motivation, price savings, the time-saving, online purchasing experience, attitudes, and behavioral interest in the intention to use online food delivery services. They found that customer experiences (both before and after) with food delivery services influenced attitudes and behavioral interests. Therefore, in the service industry, service providers need to reduce service gaps and solve existing service problems as early as possible. Kundu & Chatterjee (2018) investigated the impact of digitization on the online food delivery sector. They found that consumer behavior was influenced by factors such as offer, variety, free shipping, and ease of use. The variables used by the researchers were: price, variety, quality, website compatibility, proximity to home, offers/discounts and payment options, and intention to use online food delivery services. Ray et al. (2019) researched customer experience, ease-of-use, and search-of-restaurants are the important factors that affect intention to use this service. Meanwhile, Kaur et al. (2021) examined that trust issues have a significant negative impact on the intention to use food delivery applications, which negatively impacted by the tradition barrier in the form of a lack of trust.

B. Topic Modeling

To understand more deeply about consumer experience through online reviews, a collection of texts is not enough because of its unstructured nature (Xiang et al., 2015). Although there is a rating system on online review sites, the ratings are purely quantitative representations of a collection of qualitative inputs (Lak & Turetken, 2014). User-generated content serves as a good source of information and influences the views of other potential customers (Chatterjee, 2019). Therefore, a process of extracting textual data from various online-based platforms is required by utilizing a web-mining process or text mining from the site (Crooks et al., 2013; Ray & Bala, 2020; Sakaki et al., 2010). Text mining is done to extract meaningful information from user-generated data. This information can be helpful for various managerial decisions. The text mining technique followed to extract the essential themes from the textual data is the topic modeling technique. Topic modeling is preferred because it builds a topic structure from a set of documents by using the principle that a collection of documents representing a corpus belongs to a particular topic (Kunimoto & Saga, 2014).

The process of analyzing textual data online using various techniques can also be referred to as content analysis. The popularity of online textual data content analysis is increasing due to the accessibility of vast volumes of data (Neuendorf, 2017) and since content analysis helps provide new insights from the captured data. Topic modeling using the Latent Dirichlet Allocation (LDA) technique is beneficial in generating estimates of the probability of a document represented by a topic and the probability of a word used to represent a topic (Blei et al., 2003; Blei, 2012; Hagen, 2018). It also helps identify new themes from textual data without possibly biased perspectives (Hopkins & King, 2010; Jelveh et al., 2014). Reviews given by people on social media can be explored to find essential themes or topics influencing consumer intentions.

Topic analysis is used to determine the topic structure of the text, creating a representation that shows what topics are included in the text and how those topics change in the text. Topic analysis consists of two main tasks: topic identification and text segmentation. For example, the research conducted by (Song et al., 2020), in looking at food safety trends in takeaway food, analyzed the words on Weibo posts for four years. Overall, the discussion around the topic of takeaway food safety changes from time to time with the development and progress of the community. The top 10 words associated with each topic were obtained using the LDA technique to extract topics. Then after classification, five topics were obtained; namely, the first topic shows public concerns about the takeaway industry, the second topic concerns students, especially about the discussion and influence of this group on takeaway attendance, the third topic is about supervision and management, which shows public attention to take away industry oversight mechanism, the fourth topic has more objects of concern, such as platforms, journalists, consumers, and many more, and shows the breadth of public participation from different user perspectives, then the fifth topic focuses on regulatory bodies, so this topic reflects the concerned public on the administration and governance of the food safety industry

C. Service Quality and E-Service Quality

Measures for service products are complex to be directly identified compared to goods that have a concrete form. However, there are dimensions or criteria in determining service quality standards, namely: Tangibles (physical evidence); Reliability; Responsiveness; Competence; Access; Understanding Consumers; Courtesy; Communication; Credibility; and Security (Parasuraman et al., 1988). Then there are also electronic services (e-service) where a platform or website functions to facilitate search activities, purchases/transactions, and delivery of products and services to consumers. Therefore, the quality of electronic services (e-service quality) is the ability of a platform or website to be able to facilitate all of this. Regarding the quality of electronic services, the dimensions that need to be considered are efficiency (ease and speed of use), system availability (availability of

systems related to functionality), fulfillment (fulfillment of offer promises), privacy (security and protection of customer information), responsiveness (responsiveness to difficulties/problems), compensation (compensating for customer problems), and contact (availability of assistance). All of them build relationship with customers or potential customers in forming loyalty to the services offered (Zehir & Narcikara, 2016).

III. RESEARCH METHODOLOGY

The research design analysis must be comprehensive and involve appropriate and effective methods to achieve the research objectives (Sekaran et al., 2016). This study involves a research design that uses exploratory and qualitative research methods to find new insights and processes using big data analytics. The period that is the focus of primary data collection starts from March 2, 2020, since the COVID-19 case entered Indonesia based on the WHO reference (2020a), until December 31, 2021, according to the latest date when researchers conducted research and the COVID-19 pandemic is still ongoing in Indonesia.

A. *Sample and Data Collection*

Instagram and Twitter data collection only be carried out with focusing on food and beverages (Ready-to-Eat, Ready-to-Cook, and Ready-to-Drink) in online delivery services during the COVID-19 pandemic in Indonesia. This study uses data obtained from the reviews, opinions, and comments of online users on the Twitter and Instagram platforms. The search filter used in the keywords in this data collection stage is limited to a more specific location only in the territory of Indonesia.

One of the sampling techniques used for collecting data from the Twitter platform is marker-based sampling which collects data based on a shared language, in this case, Indonesian (Rieder, 2012; Pervin et al., 2016). Other than that, search queries or pre-defined keywords also help select the data for the Twitter platform through Twitter API; therefore, a topic-based sampling to group around the shared use of the term "online food delivery services" (Gerlitz & Rieder, 2013). Data collection from Twitter is obtained with the help of Twitter API (Application Program Interface) provided on the official website of Twitter for developers. API Key, API Key Secret, Bearer Token, Access Token, and Access Token Secret are provided to the researcher. Meanwhile, for the Instagram platform, the technique used to gather textual comments from official food aggregators or food delivery companies' posts was by manually determining the relevance of comments from the public or consumers with this study. For every food aggregators' Instagram posts, like posts from @gofoodindonesia, @grabfoodid, @shopeefoodid, and @travelokaeats, are listed within the predetermined time range and consumers' comments from each post are then gathered. Data like comments are parsed using the Instaloader package in Python (Fricke & Bodendorf, 2020). The search filters in this data collection stage are a predetermined time range, language, and keywords that match the research topic. Furthermore, all these datasets are cleaned up to remove information that will not be used, and things that are irrelevant, in the form of advertisements, images, or videos, would only become noise and cannot be used for textual analysis.

B. *Stage of Data Pre-processing*

Data preprocessing stage is carried out with the Google Colab with Python language and the help from several Gensim packages. Data firstly needs to be cleaned from duplicates or identical data (Rajaraman & Ullman, 2011), then tokenized into word tokens (Manning & Schütze, 2003; Manning et al., 2009). Then special characters and marks can be removed at this stage, and all letters are converted to lowercase (lower or case folding). After that, converting or standardizing it into standard words in Indonesian through normalization. The next step is stop-words removal, which removes words with no informational meaning or influence to reduce the dimensionality of terms and focus more on significant words (Bird et al., 2009; Hidayatullah & Ma'Arif, 2017). Finally, a lemmatization step to convert each word into actual words or words based on a dictionary (Manning et al., 2009; Suhartono et al., 2014). After these steps are carried out, all of them are combined into a preprocessed dataframe and saved in CSV format.

C. *Stage of Topic Modeling and Data Analysis*

The core analysis stage of the data is topic modeling using Latent Dirichlet Allocation (LDA), following the method of Blei et al. (2003). The data that has gone through preprocessing needs to be formed into a dictionary and corpus. Then in the formation of the corpus of the dictionary, this stage is assisted by processing text data (tokens) according to the bag-of-words format. While the TF-IDF process is carried out to transform the dictionary into a corpus. Furthermore, in bridging the LDA process, the topic calculation process is carried out where the best coherence value from the graph plot will show the largest value. In the LDA process with several different topics, this Coherence Value (c_v) aims to get the highest value on the topic coherence function of a data. Then,

the LDA process is carried out by using the LdaModel module from gensim.model to produce words related to each other in specific topics accompanied by the number of frequencies. Then the PyLDAvis module is used to visualize the topic modeling. Later, cross-case analysis is used to see the relationship between the topics obtained from Instagram data and Twitter data so that the exact meaning is identified and grouped into a topic group that can explain specific issues or themes.

IV. RESULTS / FINDINGS

The total cleaned data in the form of words (textual) was successfully obtained and cleaned from the results of scraping comments on Instagram (5,304 comments as cleaned data) and tweets from Twitter (33,504 tweets as cleaned data). Comments and tweets as data/documents used in this research are valid because they are based on consumers' perspectives or user generated content (UGC), removing all other company generated content (CGC). The data was collected only in the time range of the COVID-19 pandemic, with the discussion revolves around online food delivery services in Indonesia and originating from Indonesian users/consumers, as the language was collected only in the standard Indonesian language. All cleaned data has already filtered out from ads, identical data, posts from official accounts, other irrelevant data, and has been through the pre-processing stage, therefore making them all valid for the topic modeling process (Manning & Schütze, 2003; Denny & Spirling, 2017; Maier et al., 2018).

A. Result of Data Pre-processing

The need for preprocessing stages in the right order because they significantly affect the next process to the topic modeling results (Hopkins & King, 2010; Denny & Spirling, 2018; Maier et al., 2018). In pre-processing, there are stages that are interconnected with each other after cleaning the initial data, namely filtering duplicate or identical data, removing irrelevant language, tokenizing (tokenization), lowercase, removing punctuation marks, emoticons, emoji, URLs, numbers, and non-ASCII characters, and other certain characters, changing words not standard words (slang words) into standard words (normalization), removing meaningless words (stopwords), correcting typos (typo correction), and converting them into basic words (lemmatization) (Hidayatullah & Ma'Arif, 2017; Maier et al., 2018).

Table 1. Data Pre-processing Result.

Before Pre-processing	After Pre-processing
@*** min mau nnya saya mesen dri jam 6 kurng ud di trima sma restony pas jam 7 gk ad kbrin , dapet kabar tiba" restony tutup smpe jam 8 blom ada kelanjutanny lg , saldo blom balik , ini gmna ya kelanjutanny , minta pencerahanny min https://t.co/OHtG	pesan jam kurang terima restoran jam kabar kabar restoran tutup jam lanjut saldo balik lanjut minta pencerahan

B. Preparation of the Topic Modeling Process

Then in the formation of the corpus of the dictionary, this stage is assisted by processing text data (tokens) according to the bag-of-words format. The word tokens obtained from the preprocessing results are declared as unique features in a document by this bag-of-words analysis to produce Term Document Matrices. Neither the order of language nor the order in token words matter in this bag-of-words analysis (Deepu et al., 2016). Bag-of-words analysis practically counts the number of occurrences of each distinct word, converts the word to an integer word and returns the result as a sparse vector. The collection of words from each document becomes the content of the resulting Term Document Matrices. Meanwhile, the TF-IDF process is carried out to transform the dictionary into a corpus. TF-IDF can assess the importance of a particular word to a particular document, or to a corpus, or a collection of documents. So that it can serve to reduce the effect of terms that occur more often but are less meaningful and increase the influence of terms that are less frequent but more meaningful (Zhao et al., 2018). TF or Term Frequency means how often a certain word appears in a document. Meanwhile, IDF or Inverse Document Frequency indicates how often a particular word appears in the entire dataset or the entire document set (Nugroho et al., 2021). Below in Fig 1. are the result of word frequency analysis and ranking based on TF-IDF for Instagram data and Twitter data.
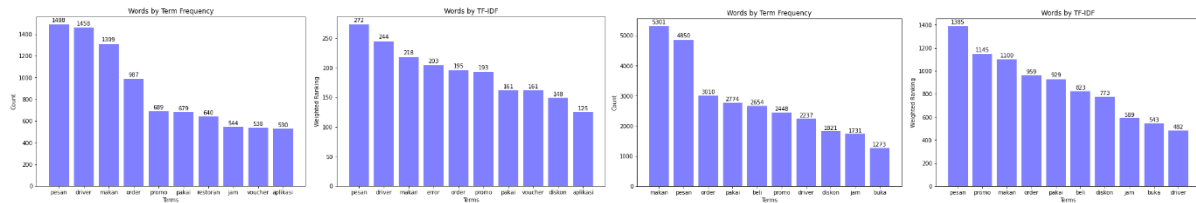
Fig. 1. Term frequencies of Instagram data (left) and Twitter data (right)

C. Topic Modeling of Instagram Data

Topic modeling was carried out to identify topics from public comments about online food delivery services during the COVID-19 pandemic. Coherence score metric used is coherence value (c_v), this metric is available in the Gensim topic coherence module. Based on the coherence value, for the comments taken from the Instagram platform, it was found that the best number of topics were three topics with the largest Coherence Value of 0.533693. Therefore, it is decided k = 3 topics for the LDA model. The eight sets of topics in Table 2. contain terms/words which were translated from Indonesian to English. All terms were evaluated to label the name of each topic and the interpretability. The approach used for this naming process of the topics is by reviewing the top 10 words from each topic model with their respective top 20 documents with the highest probabilities for each topic.

Table 2. Topic summaries from Instagram data.

Topic 0: Pricing	Topic 1: Transparency	Topic 2: Limitation
Voucher	Difficult	Error
Promo	Search	Cancel
Apply	Lost	Application
Fee	Promo	Help
Delivery	Order	Use
Pay	Discount	Help
Cost	Apply	Customer [service]
Code	Eat	Order
Eat	Ovo	Halal
Hour	Restaurant	Eat

Several sample documents were randomly read, which contained a relatively large proportion of representative words from their respective topics. The meaning for every sample document that represents topics is then written into a topic label. The specific aspect of the sample documents that comprehensively describes an issue would help give the topic a label or name.

D. Topic Modeling of Twitter Data

Meanwhile, for data from Twitter tweets, this study wants to group public tweets about their opinion of online food delivery services during the pandemic COVID-19 with LDA. Based on the coherence data, for the data from Twitter platform, the best number of topics are 7 topics with the largest Coherence Value of 0.540887. The LDA model was made with 7 topics (k).

Table 3. Topic summaries from Twitter data.

Topic 0: Partners	Topic 1: Delivery	Topic 2: Availability	Topic 3: Restaurant
Service	Error	Hour	Eat
Deliver	Order	Affordable	Variety
Eat	City	Search	Online
Order	Take	Open	Product

Rain	Driver	Online	Cash
Recommend	Online	Close	Afternoon
Online	Wait	Choose	Delicious
Compassion	Track	[Runs] Out	Recommend
Promo	Complete	Entice	Menu
Advice	Route	Night	Confused
Topic 4: Deals/Offers	Topic 5: Convenience	Topic 6: Value	
Discount	Online	Promo	
Deliver	Fail	Scheduled	
Service	Name	Order	
Economical	User	Online	
Error	End	Scroll	
Promo	Order	Apply	
Willing	Gojek	Great	
Order	Open	Buy	
Apply	City	Voucher	
Balance	Different	Choose	

The eight sets of topics in Table 2., which already translated to English, were evaluated to label the name of each topic and the interpretability. The approach used for this naming process of the topics is the same with Instagram data, by reviewing the top 10 words with their respective top 20 documents, and several sample documents were randomly read to find the meaning or some aspect of the sample documents that would help giving label or name to the topic.

V. DISCUSSION

The interpretability of every topic is discussed. The topics of the three themes are closely related to the dimensions of electronic service quality (e-service quality), namely Contact, Fulfillment, and System Availability (Zehir & Narcikara, 2016). And also, the dimensions of service quality, namely Responsiveness, Competence, Credibility, and Reliability (Parasuraman et al., 1988).

Firstly, words or terms identified in each topic are reviewed through their respective documents. It is found that some certain words or terms are the same and spread across several topics. For example, the term 'promo' in the distribution of the topics "Deals/Offers", "Value", "Pricing", and "Transparency". It can be traced from reading related documents that the topic "Deals/Offers" raises the issue of offers from service providers that provide various attractive prices for consumers, as well as on the topic "Pricing", and the topic "Value" discussed about the advantages of features in offering promos provide value for money for consumers. However, there is a difference in the meaning of 'promo' on the topic of "Transparency" which is related to the issue of implementing promos by consumers/users and not emphasizing the issue of price, therefore the presence of other words or terms in a particular topic can distinguish the meaning from other topics that may have one or more words in common.

The meaning of saving in cost as the value that consumers perceive has also represented in the topics "Value" and "Pricing" which both have the term 'use', where the use of services that provide superior features and desired pricing options can make consumers feel the value. And also on the two topics "Value" and "Deals/Offers" contain the term 'order' which means that consumers in determining their ordering steps, consider the cost factor that they feel is commensurate with the advantages of services or offers/deals they can get. Meanwhile, the topics "Transparency" and "Limitation" also contain the term 'use' but with the meaning that consumers expect a clear implementation of transparency and the service provider can reliably provide solutions to problems experienced by consumers. Then the term 'order' which is also contained in the topics of "Partners" and "Transparency" has the meaning of cognitive and affective trust where consumers tend to place orders on services or sales partners they already trust or who they feel can be trusted (Stouthuysen et al., 2019). Consumer trust is also implicitly

found in the term 'eat' contained in the topics "Partners", "Restaurant", "Transparency", and "Limitation", where consumers entrust the best quality of food provided by the service and its partners. While the topic "Pricing" also contains the term 'eat' but the implication in the document is that consumers seek information on social media related to eating activities using restaurant services or partners that provide the best prices desired by consumers.

Meanwhile, there is also the term 'discount' on the topic "Deals/Offers" and "Transparency", the term 'deliver' on the topic "Partners" and "Deals/Offers", and the term 'error' on the topic "Delivery", "Deals/Offers", and "Transparency", where these terms or words do not link one topic to another with the same word content. This is because even though certain words are found in several topics and have closeness to each other, there is no implication of a relevant relationship. As is the case with the word 'online' in the topics "Partners", "Restaurants", "Delivery", "Availability", "Convenience", and "Value" have too broad a meaning that it is difficult to see the relevance that describes the relationship between one or more topics with other topics explicitly. Therefore, it is necessary to understand the context of each topic that contains these words to find the relationship, such as on the topics "Delivery", "Availability", and "Convenience", it is found from the context of each document that contains the term 'online' means that consumers pay attention to the time factor in using this service online, which is reflected in the speed of delivery, in terms of service and information platforms being available and responsive, and also in terms of practicality and ease of use by consumers as users.

Apart from identifying certain terms or words contained in several topics, a comparison of documents representing each topic is also carried out to clarify the results of cross-case analysis on topics from Instagram and Twitter data. The results of this cross-case analysis of similarity or relationship can allow for the grouping several topics, and the differences can be separated from one topic or a group of topics to another. A similarity or relationship that groups some of the topics in this study divides them into three topic groups or three themes from the whole topic. From the cross-case analysis process, it was found from the comparison of Instagram data and Twitter data based on each topic generated that Instagram data was quite few in discussing efficiency and was dominant in discussions related to trustworthiness and cost factors. Furthermore, on Twitter's data, there is little discussion about trustworthiness and more about time and cost factors in using the service.

Based on cross-case analysis of Twitter data and Instagram data, new understanding is obtained that the results of topics can be grouped together into a topic group or theme that contains several topics in it. In this collection of topics, both from Twitter data and Instagram data, they can be grouped together into three topic groups or themes. In the first topic group, with the theme of Price-Saving Benefit, it has topics such as the "Pricing" topic which shows user/consumer demand for the desired price aspects and the efforts of service providers to fulfill them. And then the "Deals/Offers" topic raises the issue of evaluation from consumers regarding the price offers provided by service providers, which emphasize that low price value is the best offer that a food delivery service can provide. Furthermore, the topic of "Value", where aspects of the advantages possessed by service providers provide a sense of benefits that are commensurate with the costs incurred by consumers. In this theme, there are dimensions of Fulfillment of e-service quality and dimensions of Competence of service quality that need to be met because service providers must be able to deliver capabilities, either online (application) or offline (direct/delivery staff), so that consumers feel the benefits of cost savings from using this service (Marimon et al., 2009).

Then in the second group topic, namely with the theme Time-Saving Benefit, the topic "Delivery" shows consumers' attention to the expected delivery time as efficiently as possible, which is essential in ensuring consumers continue using the service. Timeliness and efficiency factors support food delivery services to not disappear easily from consumers' minds as a superior value that service can provide. The topic "Availability" shows concern for service providers and their partners in providing the benefits of timeliness, so it is essential to maintain and improve customer satisfaction based on the quality of application system, and the "Convenience" topic where the ease of using the features and advantages offered by the service provider provides the benefit of saving time for users/consumers. The three represent the System Availability dimension of e-service quality and the Responsiveness and Reliability dimensions of service quality (Fuentes-Blasco et al., 2010).

In the third group topic with the theme of Trustworthiness, it has topics such as the "Transparency" topic, namely communication and information that is in line with the implementation of users/consumers and regarding promotions/deals that are given and often get the attention of consumers, it is necessary to be exact and accurate that it can be used as expected by consumers. And then the "Limitation" topic which refers to the problems

experienced by users/consumers and how consumers expect assistance from service providers, the topic "Partners" which describes the concern of users/consumers on the credibility of the relationship between service providers and their partners, and the topic "Restaurants" which shows the reliability of restaurant partners and service providers in delivering products according to user/consumer expectations, it is also important for food delivery service providers to expand their customer base and offer new forms of foods and services, like modifying their menus and offerings to make them more diverse and attractive. These four topics show the Contact and System Availability dimensions of e-service quality that must be met, and the Responsiveness, Credibility, and Reliability dimensions of service quality that must also be met from service providers for users/consumers (Jiang & Lau, 2021; Hasan et al., 2021; Li & Tsai, 2022).

Regarding the impact on the use of food delivery services during the COVID-19 pandemic, other terms and discussions related to the safety and quality risks of food caused by COVID-19 have received less attention from Indonesian consumers. By reviewing the overall cleaned data, it was found that the issue raised through this UGC (Instagram and Twitter data) is regarding the impact of the pandemic on consumer habits as users in the intensity of online food delivery services usage. However, in this study, the topic modeling results did not explicitly state a particular topic related to the COVID-19 pandemic. Communication from online food delivery service companies or providers or from other sources to consumers regarding services during the COVID-19 pandemic had very little feedback from consumers where which implies that related facts or information has been communicated effectively but still needs to be improved to influence consumer trust as service users. This is similar to the results of research conducted by Hong et al. (2021) for consumers in the United States, where perceptions of food safety risk, severity, or vulnerability due to COVID-19 do not significantly affect consumer use of this service.

VI. CONCLUSION AND RECOMMENDATION

Exploratory research using the Latent Dirichlet Allocation topic modeling technique has been carried out to identify issues that Indonesian consumers pay attention to regarding online food delivery services during COVID-19. The conclusion from this study is that collections of Instagram comments and tweets from Twitter provide research results that conclude some topics from the overall words obtained, namely Pricing, Transparency, Limitation, Partners, Delivery Time, Availability, Restaurant, Deals/Offers, Convenience, and Value, where they are related to several dimensions of e-service quality and service quality that can be provided by online food delivery service provider platform. The topics can be grouped into three themes which are Price-Saving benefit (Pricing, Deals/Offers, and Value), Time-Saving Benefit (Delivery Time, Availability, and Convenience), and Trustworthiness (Transparency, Limitation, Partners, and Restaurant). It is also concluded that the perception of price and service quality's dimensions overweight the perceived risk regarding the effect of COVID-19, like food quality and safety risk.

This study will be helpful in the evaluation of service quality in making business decisions in the food delivery industry. In the end, the topics in this research can be seen as aspects considered by consumers of online food delivery services in Indonesia. The impact of accelerated digitalization and also from the restrictions on mobility during the COVID-19 pandemic have made changes in the usage behavior of Indonesian consumers where they focus quite a lot on the use of this online food delivery service so that the issues that are the topic of consumer attention deserve to be continuously reviewed and improved. Gaining a better understanding of the consumers through the insights from this study and focusing on consumers' attention will help better-personalized service to improve business performance. From a managerial aspect, this study implies that many stakeholders in the food delivery industry should encourage the consumers to provide more unbiased posts and comments on social media that focus on service characteristics rather than emotional reactions. This study has some limitations. First, there may be a subjective judgment based on the topics' interpretability (Blei, 2012). Second, this study does not differentiate the use of GoFood, GrabFood, ShopeeFood, and TravelokaEats service platforms because categorically, they are in the same ecosystem of online food delivery services. It is also recommended to conduct more research using the LDA technique from other perspectives, like merchants, partners, or other stakeholders in the industry, or also with many more methods like expert interview method or focus group discussion.

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Generation-Z Behavior: Social Media Marketing vs Brand Image

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Abstract

Social media platforms are commonly used to strengthen the identity of a brand. The image of a brand will strengthen the perception that consumers have about the product as a result of the reflection of the consumer's thoughts. The image attached to an object will be stronger and better, depending on the delivery of promotions through social media marketing carried out properly. Conversely, when product information is not good, the image of an object is also not good. This study aims to analyze the effect of social media marketing on brand image among Z-generation students in Garut, Indonesia. This research obtains data by distributing questionnaires with the purposive sampling technique to Z-generation students. The data using validity and reliability test were then analyzed by simple linear regression. The results indicate that social media marketing influence positively on brand image of generation Z students. Z-Generation are the most active Instagram users. Therefore, social media can create a high and positive brand in the minds of consumers. Thus, the company improve the image of a product, hit can be communicated through Instagram intensely because most Instagram users are Z-Generation consumers who encourage the brand image positively

Keywords— Brand image; digital marketing; generation-Z; social media marketing.

I.INTRODUCTION

The marketing sector encourages increasingly fierce competition between businesses and creates other issues such as product developments, new products appearing, and shifting consumer tastes (Charm et al., 2020). Even though the company provides the best products, it may not necessarily attract consumers' interest because each consumer has different perceptions (Peña-García, Gil-Saura, Rodríguez-Orejuela, & Siqueira-Junior, 2020), intentions, and purchasing abilities. Competition and marketing problems occur in the hijab industry due to the high demand for hijab products, thus stimulating business development in the Muslim fashion industry. The emergence of new businesses in the hijab industry is a threat to existing businesses, so one way to survive is to strengthen the product's brand image. Competitors do not hesitate to take customers' attention when the brand image of a product is weak. Brands have the function of building social bonds without revealing their identities. The strong communication between brand and consumer will impact the consumer's preference for the brand (Bilgin, 2018). The main about branding is to establish strong relationships with consumers to have the power to attract consumers to choose and increase consumer loyalty. Therefore businesses always conduct studies about consumers' perceptions to create a positive brand image by applying all communication channels to build brand value (Bilgin, 2018; ElAydi, 2018). Brand image is the perception of the brand or a set of beliefs, ideas, and impressions that customers have about the brand.

The best way to build and maintain a brand image effectively is using a multidisciplinary approach that combines elements of various media instruments as objects in a digital or online ecosystem with the marketing of the subject (Notarantonio & Quigley, 2013). Marketing activities through social media are more in brand image shaping. According to Gunelius (2011), social media marketing is direct or indirect marketing to build awareness, recognition, memory, and action for brands, businesses, products, people, or other entities by using tools from the social web such as blogging, microblogging, and content share. Most businesses use Instagram to market various products or services. Marketing through Instagram requires an online admin to rebrand, provide information, pursue consumers, and directly communicate with consumers (Tsimonis & Dimitriadis, 2014). Research has shown that social media influences trust and purchase intentions and facilitates knowledge and experience sharing among consumers (Lu & Hsiao, 2010). Social media pushes the boundaries of time and space in business interactions with potential customers and promotes relationships with consumers (So, Wu, Xiong, & King, 2017).

The recording of statistical data about internet users rose from 1998 until today. In 2019 there were 171.17 million Indonesians who actively use the internet and 99.1 million Instagram users (Statista, 2022). The increasing of social media users since the growth of the population in each cohort (the Y-generation, Millennial generation, and now Z-generation). The APJII survey (2018) shows that internet users are in the age range of generation-Z

itself by 29.94% (Statita, 2022), hence at the present time it can be said that most of the internet users are Generation-Z as much as 16.83% is used for online buying and selling activities (Charm et al., 2020).

II. LITERATURE REVIEW

A. *Social Media Marketing*

According to Kotler & Keller (2015) social media is a means for consumers to share text, images, audio, and video in the form of information with each other and the company and vice versa. (Gunelius, 2011), social media marketing is a form of direct or indirect marketing to build awareness, recognition, memory, and action for brands. The companies use tools from the social web such as blogging, microblogging, and content sharing (Hajli, 2014). The social media marketing variable adopts the concept of Kim & Ko (2012) use the dimensions of social media marketing, namely: 1) Entertainment is the function of social media to have pleasant conditions and influence consumers to be attracted to social media; 2). Interaction is the second function of social media to convey information, provide information, and as an attribute in exchanging opinions; 3). Trendiness relates to new information, and using the brand's social media is a trendy thing; 4). Customization means that social media provides various kinds of information that are customized or based on consumer demand; 5). Word of mouth describes the willingness of customers to use social media to pass on information to other customers in the form of brands, products, and services.

The leading goal of social media marketing activities is to acquire new customers, increase sales, strengthen word of mouth communication and create customer loyalty (Tsimonis & Dimitriadis, 2014). In addition, companies actively exploit this kind of content and generate customer-generated information in social media marketing actions (Fortezza & Pencarelli, 2015; Leavy & Sterling, 2010; So et al., 2017). In addition, social media influences customer trust sentiment and purchase intention beyond the ease of interaction among consumers. (Hajli, 2014). Then, social media is an efficient way to interact the present with potential customers and develop a positive brand image (Fortezza & Pencarelli, 2015). Social media is a marketing communication that affects customer attitudes (Duffett, 2017). In other words, social media is a web-based marketing communication that develops brand image (Coursaris, Van Osch, & Albini, 2018).

B. *Brand Image*

The customer determines the purchase decision from brand image. Keller defines brand image as an opinion that memorizes in consumers' minds. In other words, the brand image indicates the psychological aspects of how customers perceive a brand. Sallam (2014) revealed that a company has mainly responsible for the product to create the differentiation from the competitor. The identical product will be more straightforward to stay in customers' memory (Spenner & Freeman, 2012). Therefore, the companies strive to build a positive image to reflect their products. In addition, Keller (2013) defines brand image as a brand association. He describes the category of a brand's assets and liabilities that include anything linked in memory to a brand. The mental image that consumers have about the brand of a product is formed through marketing communications carried out by the company (Gavilan & Avello, 2020). Likewise with the consumer experience and the influence of the social environment. When the consumer's brand image has been formed, it will affect consumer attitudes towards the brand and trust. This study analyzes the brand image, which adopts the concept from Kotler & Keller (2012) use indicators: 1) Strength of brand associations; The power of information about the brand in the minds of the public, and how to maintain it as part of the brand image of the advertised product; 2) Favorability of brand associations; Creating consumer confidence that the brand has relevant benefits and can meet the needs and desires to form a positive brand attitude towards them. 3) Uniqueness of brand associations; The degree of uniqueness of a brand that has competitive and continuous benefits so that it can cause the target audience to be interested in using it.

Based on the literature about social media marketing and brand imgae, the research framework illustrated in Fig.1;

Social Media Marketing	Brand Image
1. Entertainment 2. Interaction 3. Trendiness 4. Customization 5. Word of mouth	1. *Strenght of brand associations* 2. *Favorability of brand associations* 3. *Uniqueness of brand associations* (Kotler & Keller, 2012)
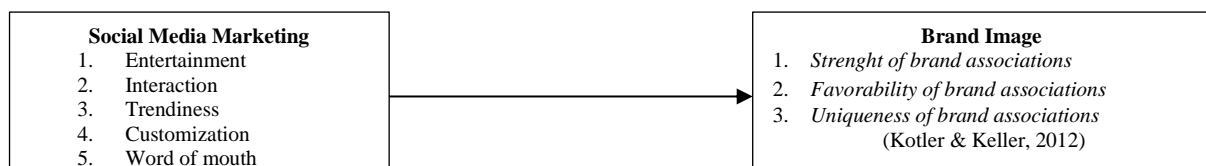
Fig. 14 Framework Research

C. *Hypotheses*

Social networks as marketing tool has a function to create the relationships between brands and consumers. Lately, many businesses have turned to social media such as Instagram to communicate product information to attract new customers and retain old customers. Bonilla, del Olmo Arriaga, & Andreu (2019) stated that marketing that uses Instagram well will produce effective marketing activities and build a positive brand image. Consumers will get to know the product faster than using media such as brochures which can lead to high advertising costs, narrower target reach, and limited advertising intensity. Social media marketing has a positive effect on brand image. Based on research by Hanaysha (2018), it shows social media marketing has an effect on brand image. If the application of social media marketing is getting better, automatically the brand image that is owned will also be good. Social media is able to influence the perspective of people on a business. Almost every time on social media someone sends posts or comments about the products or services. Consumers influence each other through posting or comments, and the message spreads. The favorable product will be positive reviews or positive recommendations that have an instant effect on how the customers interact with the business, and with the global influence of social media websites, the company can promote your brand to a worldwide audience (Alim, Ali, Ara, & Rokonuzzaman, 2017; Budiman, 2021; Guha, Mandal, & Kujur, 2021). Social media users exchange opinions and talk about everything. Invariably shopping is a popular topic, and it is common for users to offer opinions on products they buy or share their experiences with other users. This of course affects a brand greatly and it is not difficult to see how a few negative stories can soon spread like wildfire across sites such as Instagram, thus negatively affecting the brand and reputation. In building brand image use social media marketing the company require to determine the interesting brand, listen the feedback from the customer, and build the engagement with the customer. In building a brand image using social media marketing the company requires to determine the interesting brand, listen to the feedback from the customer, and build engagement with the customer (Guha et al., 2021).

H_1 : The social media marketing affect brand image

III. RESEARCH METHODOLOGY

An objectives have been identified in this study. This paper examines the effect of social media marketing on brand image. The Fig.1 has shown the research variables, correlation between variable, and the research model proposed for testing hypotheses. Quantitative methods applied to test the correlation between the both variables and achieve the determined objectives. The descriptive method aims to create an overview of social media marketing and brand image. The data collection using questionnaires to 96 respondents as generation Z. The data is measured with a likert scale between 1 to 5. Then the simple regression used to test the hypotheses using SPSS. The operational of variables shown in Table 1:

Table 25. Operational definitions of research variables

No	Variables	Dimensions	Indicators
1	Social media marketing	*1. Entertainment*	a. Interesting content b. Pleasant
		2. Interaction	a. Sharing information
		3. Trendiness	a. Follow the trend
		4. Customization	a. Clear information
		5. Word of Mouth	a. Recommendation
2	Brand image	*1. Strenght of brand association*	a. Positive opinion on product b. Impression
		2. Favorability of brand associations	a. Has a characteristics
		3. Uniqueness of brand associations	a. Recommended product

VII. RESULT / FINDING

This research examines the demographic characteristics of the respondents. 21 of the participants are students, 31 of the respondents are civil servants, and 44 are employee. The most frequently used Instagram in a day spend 1-3 hours 34.7% of the participants, then 65.3% of participants spend more than 3 hours per day on Instagram.

Before testing the hypothesis, this study tested the validity and reliability. The results of validity and reliability show a fair score. The descriptive analysis of respondents' responses to social media marketing variables is good. The highest indicator of hijab social media marketing, consumers participate in providing information on hijab products. The response is quite beneficial for hijab companies because it can help increase sales, and provide information to other consumers, namely new models, motifs, or colours issued by the company, hence information about products will quickly spread. Hijab Elzatta provides information on social media Instagram regarding outlet addresses for consumers who want to buy products directly, and customer service to make it easier for consumers to order products online. On social media, Elzatta's Instagram provides information on what ingredients are used in the product and the price of each Elzatta hijab product. Complete information is needed by consumers to consider and make purchasing decisions.

While the lowest value of the social media marketing indicator is that consumers exchange information about the hijab. This is supported by interviews that consumers are more interested in sharing information about other attractive products, such as lower prices with materials that are not much different from motifs. The description of the brand image indicates good criteria. It means that the brand image of Elzatta's hijab is good. A company must be able to create a good brand image in the minds of consumers. A good brand image will get a positive response from consumers because consumers already have confidence or trust in a brand. Unfortunately, there is a dimension that unfavorable criteria. It shows that consumers must buy Elzatta's hijab products in the city. The hypothesis testing uses inferential statistics, namely simple linear regression.

Table 26 The result of hypotheses testing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,961	3,966		-,242	,810
	X	,689	,082	,846	8,399	,000

a. Dependent Variable: Y

The test results reveal the value is 0.000. It means the value is smaller than the alpha value of 0.05, and social media marketing indicates a significant influence on brand image. A positive regression coefficient value shows the effect of the independent variable on the dependent variable is positive. It means that when companies use social media marketing well, the company's image will be better (Bilgin, 2018). On the other hand, when the company is not good at using social media marketing, the brand image will be not good (Momen, Sultana, & Haque, 2020). The test of determination explains the magnitude of the variable proportion of the dependent variable which is explained by the independent variable. This test looks at the r-square value as shown in Table 3;

Table 27. The results of determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,846a	,716	,706	2,03184

a. Predictors: (Constant), X

The value of R Square shows 0.716, meaning that the influence of social media marketing on brand image is 71.6%. While the remaining 28.4% that affect the brand image is another variable. The results showed that well-managed social media marketing can improve the brand image of a product offered to consumers. This study is in accordance with the results of previous research conducted by Halligan & Shah (2011).

IV. DISCUSSION

Gunelius (2011), social media marketing is a form of direct or indirect marketing to build awareness, recognition, memory, and action for brands. The descriptive result shows that social media marketing is beneficial for hijab companies because it can help increase sales, and provide information to other consumers namely new models, motifs, or colours issued by the company, hence information about products will quickly spread. In addition, Sallam (2014) revealed that a company has mainly responsible for the product to create the differentiation from the competitor. The identical product will be more straightforward to stay in customers' memory. The hypothesis testing indicates a positive influence on the brand image when the social media marketing is more intensive. This research is similar to Hanaysha (2018)showing that social media marketing has an effect on brand image.

The influence of social media on a brand image has an effect of 71.6%. The percentage proves that social media involvement can shape the brand image of an object. Promotional activities through social media are the key to the success of improving brand image. Based on the descriptive analysis, the customization dimension is an effort to adjust the product to the wishes of consumers. Customization refers to the process of offering products or services in a way that is consistent with the wants and needs of consumers. The context used is usually an interesting caption every time you post content. An object in context also provides a variety of important and interesting information periodically on various official social media, especially on Instagram.

As the company uses social media marketing properly, therefore the brand image gets positive. Social media with interesting concepts such as products promoted by the influencer will attract the attention of consumers. A celebrity or influencer will promote a product by using the product to be promoted by taking a photo in an interesting place, hence the uploaded photo looks more attractive because many encourage such as the concept of the photo or the words used are interesting enough to invite followers to use the same product (Dwivedi, Johnson, & McDonald, 2015). Then the number of followers of a brand will increase consequently, consumers will be more confident to use the same brand as their idol. Thus, the image of the product will improve in the consumers' perception.

V. CONCLUSION AND RECOMMENDATION

Social media is the marketing media that is effective to apply in the current 4.0 revolution era. Most of the consumers for each product are Z-generation, who are active social media users. The hypothesis test revealed a positive and significant influence of social media marketing on brand image. It explains that social media create a positive brand in the consumers' memory. It implies that social media can improve brand image. The descriptive result shows that social media marketing is beneficial for hijab companies because it encourages increased sales and provides information to other consumers about recent models, motifs, or colours. It implies that information about products will quickly spread using social media. Therefore, suggestions for companies that want to expand their marketing can use social media so that product information reaches consumers quickly, sales increase, and a better brand image.

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The Effect of Good Corporate Governance Characteristics on Company Financial Performance (Study on Mining Companies listed on IDX 2015-2020)

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Abstract
This study aimed to determine the effect of good corporate governance (GCG) characteristics on the financial performance of all listed mining companies in Indonesia from 2015 to 2020. The sample selected was mining companies. GCG is measured using five characteristics: the size of the board of directors, the board's independence, the frequency of audit committee meetings, insider shareholders, and institutional ownership. The other three independent variables are company size, interest rates, and the Covid-19 pandemic. Meanwhile, the firm's financial performance is measured by its profitability and market value. Using the fixed effect model, it is found that all characteristics of GCG except board independent and interest rates have a significant effect on company profitability. Meanwhile, the five characteristics of GCG and interest rates have a significant effect on the company's market value. This study also shows that the size of the company and the Covid-19 pandemic have no significant effect on the company's financial performance. In accordance with previous studies, this study found various findings from each of the independent variables tested. However, it has strengthened some existing theoretical frameworks. It can be said that companies in Indonesia, particularly in the mining sector, can improve their financial market performance by implementing appropriate corporate governance mechanisms.

Keywords— Good Corporate Governance; Company Financial Performance; Corporate Governance; Firm Size; Interest Rate

I. INTRODUCTION

The mining industry in Indonesia is one of the sectors that drives the Indonesian economy. This industry can be said to be an industry that absorbs quite a lot of workers. However, in its operation the mining industry has a significant impact on the environment and socio-economics (Dominguez-Gomez and Gonzalez-Gomez, 2021). This sector also causes serious environmental damage (such as landscape destruction, groundwater pollution, carbon emissions and industrial waste), threatens employee health and safety (such as work-related accidents), and disrupts the local communities where the company operates (Tang et al., 2020). Seeing these extraordinary environmental and social issues, Corporate Social Responsibility (CSR) has become an important activity in industrial sustainability in the mining sector in maintaining the company's reputation and increasing public trust in accepting companies operating. One of the driving forces for a company's CSR is corporate governance, where high CG standards are very important in ensuring financial stability and maintaining company growth (OECD, 2018).

In addition, as one of the sectors that is expected to have an effect on the national and regional economies, mining companies must be able to maintain good corporate governance which aims to ensure the survival of the company, employees, and other stakeholders. Through good corporate governance, it is expected to be able to improve the company's financial performance.

The concept of comprehensive Corporate Governance began to develop after The New York Exchange Crash in 1987 where there were many multinational companies listed on the New York Stock Exchange experiencing substantial financial losses. Subsequently a series of major financial crises, scandals, and corporate failures, especially from the 1990s onwards, such as Enron and the 2007/2009 global banking crisis led to the importance of Good Corporate Governance (hereinafter referred to as GCG).

The Forum for Corporate Governance in Indonesia (FCGI, 2001) formulated the purpose of CG to create added value for all stakeholders. GCG is expected to reduce the occurrence of conflicts of interest. Company performance can be affected by conflicts that arise within the company, these conflicts arise due to a different interest between the agent and the principal. Jensen and Meckling (1976) stated that the conflict of interest can be reduced through a supervisory mechanism that aims to align these various interests.

The purpose of establishing a company is to achieve the maximum profit, to prosper the owners or shareholders of the company and to maximize the value of the company (Ross et al. 2019). The high value of the company attracts the attention of shareholders to invest their shares in the company. Firm value is influenced by many factors, one of which is the GCG factor (Susanti and Amanti, 2012). In addition, there is some evidence showing that investors are willing to pay a high premium for the shares of companies that are considered to have a good corporate governance structure (Clarke, 2007). This confirms why the CG mechanism can be considered related to the company's financial performance.

Previous research has been conducted to examine the CG factors that affect the company's financial performance. The CG factors studied include the size of BOD, Board Independence, Insider shareholder, audit committee, and institutional ownership. Fama & Jensen (1983) stated that the general peak of the organizational decision control system, both large and small organizations is the Board of Directors (hereinafter written BOD) where companies with large BOD sizes tend to have effective supervision that can improve company performance. Al-Najjar (2014) found that a large BOD size will increase profitability, but a small BOD size will be more efficient in its stock performance. While the research of Peng et al. (2021) resulted in a negative relationship between the size of the BOD with the company's financial performance.

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Rosenstein and Wyatt (1990) argue that the proportion of independent directors has a positive effect on stock prices and company financial performance. The board of directors can supervise the company effectively if it is separated independently from the company's management (Fama & Jensen, 1983).

Insider Shareholder is a term used to describe a director or senior officer in a company who owns several shares of the company, usually the proportion is more than 10% (Jensen & Meckling, 1976). Jensen & Meckling (1976) also said that the number of insider shareholding or managerial ownership in the company affects the company's financial performance. This is because managers who have significant shares in their own companies, in their decision making will not invest in high-risk projects, so these managers will choose to invest in projects that are likely to generate high profits. However, Kyere & Ausloos (2020) found that insider shareholding had an insignificant effect on return on assets (hereinafter written ROA) and Tobin's Q in 252 companies listed on the London Stock Exchange.

Kent and Stewart (2008) find that the quantity of disclosures reported by companies is positively related to the frequency of board and audit committee meetings held. While Kyere & Ausloos (2020) found that there was a significant effect of the frequency of audit committee meetings on ROA, but there was no significant effect on the company's Tobin's Q value.

Lins (2003), Chaganti and Damanpour (1991), and Jafarinejad et al. (2015) concluded that there is a positive influence of institutional ownership on firm value. Grief and Zychowicz (1994) in their research show that high institutional share ownership will cause the level of supervision to be more effective.

Firm size can be measured using total assets in a company where creditors view companies with large total assets because the company will be able to pay off its debts in the future so that it can avoid financial problems/difficulties (Nora, 2016). In his research, Dogan (2013) found that total assets had a significant positive effect on company profitability. Meryani et al. (2020) also found that there was a positive relationship between firm size and firm ROA.

Macroeconomic factors are outside the company and are not under management control, including social, environmental, and political conditions; competitors, as well as government policies and regulations (Adidu and Olanye, 2006). Meanwhile, the main economic factors include gross domestic product (GDP), unemployment rate, exchange rate, inflation rate, and interest rates (World Bank Group, 2015; Broadstock et al., 2011). These factors can have a positive or negative influence on the company's performance. In this study, the macroeconomic factor used is the interest rate. According to Keynes (1936); Gupta (2011), the interest rate represents the cost of borrowing the company's capital for a certain period. Since loans are a significant source of finance for many companies, the prevailing interest rates are of concern to many companies because of the indexing of interest rates in some loan arrangements; interest rates will continue to affect the firm for the entire period (Keynes, 1936;

Gupta, 2011). According to Kithuria, (2006) an increase in interest rates increases the cost of funds where thiswill have an impact on businesses and investors.

Indonesia is one of several countries affected by the emergence of the Covid-19 virus. Covid-19 not only has an impact on public health, but also has an impact on the economic condition of a country. So that it also has an impact on the business activities of a company. Based on data from the Central Statistics Agency (BPS) in September 2020, it was recorded that 82.85% of companies in Indonesia were affected by the Covid-19 virus pandemic.

Based on the above background, the author is interested in conducting research on the effect of the company's GCG characteristics on the company's financial performance in Indonesian mining companies. The characteristicsof GCG that will be examined are the size of BOD, board independence, frequency of audit committee meetings,insider shareholders, and institutional ownership. In addition, there are three other independent variables,company size, macroeconomic variables measured by looking at interest rates, and the covid-19 pandemic. Meanwhile, the company's financial performance will be measured by looking at the profitability and market value of the company.

II. LITERATURE REVIEW

A. Agency Theory

Agency relationship is a contract in which the principal orders the agent to perform a service on behalf of theprincipal and authorizes the agent to make the best decision for the principal. If both parties have the same goal of maximizing the value of the company, it is believed that the agent will act according to orders in the interests of the principal.

By using the GCG mechanism, conflicts of interest can be avoided, in this case GCG functions as a supervisorin aligning the objectives of the principal with the agent. GCG can reduce agency problems because with supervision, management will tend to act in the interests of the company as a whole and not only individual interests.

B. Stewardship Theory

Donaldson and Davis (1991) define stewardship theory as a situation in which management is not motivated by individual goals but is more focused on the principal's main goals. Empirical evidence shows that the company's return on equity (ROE) increases when the chairman/director role is combined with the role of Chief Executive Officer (CEO) (Donaldson and Davis, 1991).

Fama & Jensen (1983) argue that a manager has access to more in-depth and specific information about the company than an independent director. So that managers will have deeper knowledge that will help in making theright decisions. Therefore, based on stewardship theory, a low number of independent directors is an ideal condition for companies (Donaldson and Davis, 1991).

C. Hypotheses Development

The Effect Of BOD Size On The Company's Financial Performance

BOD plays an important role in the corporate governance structure (Fama & Jensen, 1983). In addition, Al- Najjar (2017) also argues that the size of BOD is the main key in the field of corporate governance. A large BODsize will tend to be more able to access critical resources, also have more experience, knowledge, and skills (Dalton et al., 2005). Several previous studies have investigated the relationship between BOD size and firm performance. Coles et al. (2008) found that a large BOD size has a positive and significant effect on the company'sTobin's Q value.

Based on this description, the hypotheses to be tested are:

H1: The size of BOD affects the company's financial performance.

The Effect of Board Independence on the company's financial performance

According to agency theory, directors who are independently positioned apart from management can supervisethe company effectively (Beasley, 1996; Fama & Jensen, 1983). Jensen & Meckling (1976) argue that independent boards can help reduce agency problems by monitoring management's opportunistic behavior. The existence of anon-executive board can reduce the occurrence of fraud in the company's financial statements (Beasley, 1996).

Previous empirical research has been conducted in examining the relationship between board independence and the company's financial performance. Black & Kim (2012); Dahya & McConnell (2007); Atmaja, Haman & Tanewski (2011) found that board independence has a positive effect on financial performance.

Based on this description, the hypotheses to be tested are:

H2: Board Independence affects the company's financial performance.

The Effect Of The Frequency Of Audit Committee Meetings On The Company's Financial Performance

Audit committees must be diligent and active in carrying out their responsibilities to ensure transparency, high-quality reporting and to increase the confidence of external auditors in their role (Kalbers and Fogarty, 1993; Abbott et al., 2004). An indication of diligence that is often used is the number of audit committee meetings held annually. Kent and Stewart (2008) find that the quantity of disclosure is positively related to the frequency of board and audit committee meetings held.

Based on this description, the hypotheses to be tested are:

H3: The frequency of audit committee meetings effects on the company's financial performance.

The Effect Of Insider Shareholders On The Company's Financial Performance

The structure of corporate ownership and its impact on the economy and non-economics have been the subject of many recent literature breakthroughs, one of which is Jensen and Meckling's (1976) agency theory. Based on agency theory, the difference in interests between managers as agents and shareholders as principals gives rise to what is called agency conflict. One of the causes of the conflict of interest that occurs between the agent and the principal is the small ownership of the agent over the company (Said et al., 2009). Therefore, a mechanism is needed to protect the interests of shareholders (Jensen and Meckling, 1976). One way to reduce agency conflicts is by having share ownership by management (insider shareholders). Gupta and Sachdeva (2019) found that companies with a high number of insider shareholders performed better than companies with a low number of insider shareholders.

Based on this description, the hypotheses to be tested are:

H4: Insider Shareholder influences the company's financial performance.

The Effect Of Institutional Ownership On The Company's Financial Performance

Institutional ownership is ownership of company shares owned by agencies/institutions or institutions such as insurance companies, banks, investment companies and other institutional ownership. McConnell and Servaes (1990) found a positive relationship between institutional investors' share ownership and firm performance as measured by Tobin's Q. This is since institutional investors only buy shares of companies that perform well.

Based on this description, the hypotheses to be tested are:

H5: Institutional ownership affects the company's financial performance.

The Effect Of Firm Size On The Company's Financial Performance

Firm size is a major factor in determining company profitability, where companies with larger sizes can produce goods at a much lower cost than smaller companies (Indonesia stock exchange, 2019). Companies that have large total assets are considered to have good prospects in a relatively stable period and can generate profits compared to companies that have low total assets (Chen et al., 2005).

Dogan (2013) examined the effect of firm size on firm profitability, where firm size was measured using total assets, sales, and the number of workers. The results show that total assets have a significant positive effect on company profitability. Devi and Devi (2014) found that firm size has a positive effect on 50 Pakistani companies listed on the Karachi Stock Market. Meiryani et al. (2020) also found that firm size had a positive effect on the firm's ROA value.

Based on this description, the hypotheses to be tested are:

H6: Firm size affects the company's financial performance.

The Effect Of Interest Rates On The Company's Financial Performance

The interest rate is a measure of the cost of capital that must be incurred by the company for the use of funds from the owners of capital (Suseno, 1990). High interest rates will increase the cost of capital that must be borne by the company (Tandelilin, 2010). Interest rates affect the overall level of economic activity, the flow of goods

and services and financial assets in the economy (Saunders, 1999). According to Kithuria, (2006) an increase in interest rates will increase the cost of funds where this will have an impact on businesses and investors. In that situation it will be more attractive for investors to deposit money in banks, so companies or businesses will slow down the implementation of their business plans and investors will reduce their investment in financial markets.

Several previous studies have been conducted regarding the effect of interest rates on the company's financial performance. Aggarwal (2010) argues that the effect of interest rates on stock market performance greatly affectsthe price of securities which are basically determined by a company's net income, and therefore directly proportional to the company's performance. Lee (2009) argues that interest rate volatility may have mixed effectsacross the economic spectrum in any given country. For example, interest rates will have an impact on the cost ofdoing business. The effect of interest rates can ultimately be reflected in stock prices.

Based on this description, the hypotheses to be tested are:

H7: Firm size affects the company's financial performance.

The Effect Of The Covid-19 Pandemic On The Company's Financial Performance

Indonesia is one of several countries affected by the emergence of the Covid-19 virus. Covid-19 not only hasan impact on public health, but also has an impact on the economic condition of a country. So that it has an impacton the business activities of a company. Based on data from the Central Statistics Agency (BPS) in September 2020, it was recorded that 82.85% of companies in Indonesia were affected by the Covid-19 virus pandemic.

The Covid-19 pandemic affects the economy and financial markets through its impact on consumption, supply, financial markets, and its spillover effect on the real economy (Brodeur et al., 2020; Coibion et al., 2020). Economic inactivity and negative impacts on supply chains and employment directly affect the operational and financial performance of companies. Greenwood et al. (2020) said that the impact of the Covid-19 pandemic on corporate earnings was comparable to that of the global financial crisis.

Based on this description, the hypotheses to be tested are:

H8: The Covid-19 pandemic affects the company's financial performance.

I. RESEARCH METHODOLOGY

Research methodology, the research method describes the design of activities, scope or object, main materialsand tools, place, data collection techniques, operational definitions of research variables, and analytical techniques. [Times New Roman, 10, normal].

A. *Population and Sample*

The population in this study were all companies listed on the Indonesia Stock Exchange from 2015 to 2020. The sample selected was mining companies.

The method used for sampling is purposive sampling with the aim of obtaining a representative sample andmeeting predetermined criteria, including:

1 Mining companies listed on the Indonesia Stock Exchange in 2015 - 2020.
2 Mining companies that issue annual reports.

B. *Dependent Variables*

Several researchers have measured financial performance with various accounting-based measures such as sales, earnings per share (EPS), and return on equity (ROE). In this study, financial performance is measured by measuring the company's profitability and market value, profitability is measured by using ROA, while market value is measured by the value of Tobin's Q. Core et al. (2006) argues that ROA is the most appropriate measurein measuring the company's operating profit, especially in examining the relationship between corporate governance and the company's financial performance. ROA is also not affected by leverage, extraordinary items,and discretionary items. Several previous studies have also used ROA in measuring the company's financial performance (Kyere and Ausloos, 2020; Al-Najjar, 2014; Peng et al., 2021). So, the authors use the ROA measurein measuring the company's financial performance.

The second dependent variable used in this study is Tobin's Q. Tobin's Q is used to assess the company'sexisting assets and future growth potential (Malkiel and Fama, 1970). Tobin's Q can also show how investors'

expectations of future events include the evaluation of current business strategies (Demsetz & Villalonga, 2001). The following is a mathematical description of the two dependent variables.

- ROA provides an indication of how well a company's assets are being used to generate profits. ROA is calculated by dividing the company's annual net income by its total assets

$$\text{ROA} = \frac{Net\ Income}{Total\ Assets} \times 100$$

- Tobin's Q is the ratio of the market value of outstanding shares and the book value of debt divided by the book value of the company's assets.

$$\text{Q Ratio} = \frac{Total\ Market\ Value + Total\ Book\ Value\ of\ Liabilities}{Total\ Book\ Value\ of\ Assets}$$

C. Independent Variables

Size of BOD

BOD size is the number of BOD members in the company. BOD size is measured by counting the number of BOD members in the company.

Board Independence

Independent board refers to an outside board of directors who is not affiliated with the top executive of the company (Fama and Jensen, 1983). Board independence is expressed as a percentage (%) which is measured by comparing the number of independent boards divided by the total number of BOD in the company.

Frequency of Audit Committee Meeting

The frequency of audit committee meetings is the number of meetings/meetings in a year held by the audit committee in a company. The frequency of audit committee meetings is calculated by calculating the number of audit committee meetings frequency in the company's annual report listed in the corporate governance report.

Insider Shareholder

Insider Shareholder is the level of management's share ownership that actively participates in decision making (Jensen & Meckling, 1976). Insider Shareholder is measured by calculating the percentage (%) of the number of shares owned by the management, namely managers, affiliated commissioners (excluding independent commissioners), and directors divided by the total number of shares getting smaller.

Institutional Ownership Variables

Institutional ownership is shares owned by institutions such as banks, insurance companies, pension funds, limited liability companies, and other financial institutions (Pirzada et al., 2015). Institutional ownership is expressed as a percentage (%) which is measured by comparing the number of shares owned by institutional investors divided by the total number of shares outstanding.

Firm Size

Firm size is usually used as an important fundamental characteristic of a company (Dang et al., 2018). Several previous studies (Dogan, 2013; Saliha and Abdessatar, 2011; Pervan and Visic, 2012) have used the natural logarithm of total assets as an indicator of firm size. So that in this study the size of the company is measured by calculating the value of the natural logarithm (Ln) of the company's total assets.

Interest Rate

The interest rate is a measure of the cost of capital that must be incurred by the company for the use of funds from the owners of capital (Suseno, 1990). The interest rate used in this study is the Bank Indonesia interest rate. The Bank Indonesia interest rate is the interest rate that reflects the monetary policy set by Bank Indonesia and announced to the public (www.bi.go.id).

Covid-19 Pandemic (Dummy)

Dummy of the Covid-19 pandemic as a measure of conditions during and in addition to the Covid-19 pandemic in Indonesia. Where the number 0 is used as an indicator of the period of conditions other than the Covid-19 pandemic and the number 1 as an indicator of the period of conditions during the Covid-19 pandemic.

Hypothesis Testing

According to Nachrowi (2006), hypothesis testing is useful for testing the significance of the regression coefficients obtained. This means that the regression coefficient obtained statistically is not equal to zero, because if it is equal to zero, it can be said that there is not enough evidence to state that the independent variable has an influence on the dependent variable. For this purpose, all regression coefficients must be tested.

Testing the hypothesis regarding the effect of BOD size, board independence, frequency of audit committee meetings, insider shareholders, institutional ownership, company size, interest rates, and the Covid-19 pandemic on financial performance using panel data regression analysis. The regression model created is:

Model 1: Effect of GCG characteristics, firm size, interest rates, and the covid-19 pandemic on profitability

$$ROA_{it} = \alpha + \beta_1 UB_{it} + \beta_2 BI_{it} + \beta_3 FMKA_{it} + \beta_4 IS_{it} + \beta_5 KI_{it} + \beta_6 UP_{it} + \beta_7 SB_t + \beta_8 PC_t + e_{it}$$

Model 2: The effect of GCG characteristics, firm size, interest rates, and the covid-19 pandemic on market value

$$Q_{it} = \alpha + \beta_1 UB_{it} + \beta_2 BI_{it} + \beta_3 FMKA_{it} + \beta_4 IS_{it} + \beta_5 KI_{it} + \beta_6 UP_{it} + \beta_7 SB_t + \beta_8 PC_t + e_{it}$$

Information:
ROA: Return on assetsQ:

Tobin's Q Ratio

α: Regression equation constant
β: Regression coefficient of each variable

UB: Size of Board of Director

BI: Board Independence
FMKA: Frequency of Audit Committee MeetingsIS:

Insider Shareholder

KI: Institutional Ownership

UP: Firm Size

SB: Interest Rate
PC: Covid-19 pandemice:

error
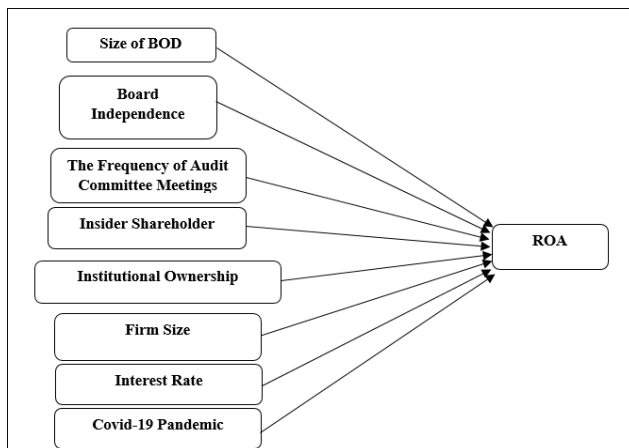
Fig.1 Research Model 1
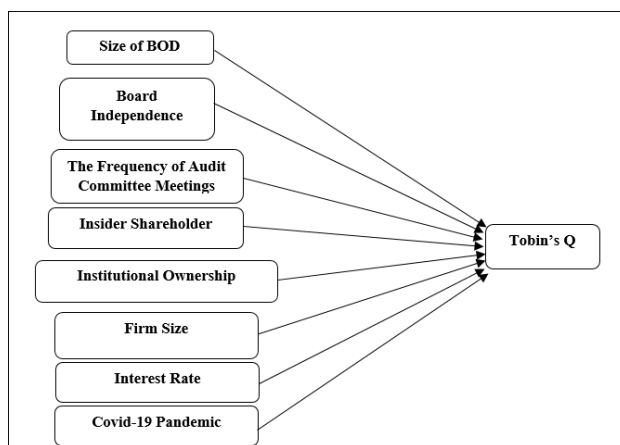
Fig. 2 Research Model 2

III. RESULT / FINDING

A. *Descriptive Statistics*

Descriptive statistics show the characteristics of the sample and data used in the study, namely by looking at the minimum and maximum values, the average (mean) and standard deviation which are the results of data processing of the dependent and independent variables.

Table 1. Descriptive Statistics.

Variable		Minimum	Maximum	Mean	Std. Deviation
UB	86	2,00	12,00	4,96	1,97
BI	86	0,20	0,75	0,41	0,11
FMKA	86	2,00	77,00	9,13	10,19
IS	86	0,00	0,94	0,06	0,17
KI	86	0,00	0,99	0,68	0,28
UP	86	18,40	31,10	23,43	3,93
SB	86	4,25	7,50	5,49	1,08
PC	86	0,00	1,00	0,67	0,47
Q	86	0,318,17	74.53244,4	7.0	11.061,52
ROA	86	2,00	12,00	4,96	1,97

The table shows that the value of Tobin's Q (Q) as the dependent variable has an average value of 7,244.40, or greater than 1, which means that most companies in the mining sector have a market value greater than the value of the listed company assets. This shows that the shares in most of the mining sector companies are overvalued. Meanwhile, the second dependent variable, namely ROA, shows an average value of -0.02 which means that most companies in the mining sector cannot use their assets effectively to generate income.

B. *Hypotheses Testing*

Coefficient of Determination ($R2$)

The coefficient of determination essentially measures how far the model's ability to explain variations in the dependent variable is. The value of the coefficient of determination of the regression model in this study is shown in the following table:

Table 2. Coefficient of Determination.

Model	R Square	Adjusted R Square
1	0,787	0,732
2	0,982	0,978

The table above shows the R^2 value of 78.7%% and Adjusted R^2 of 73.2% in model 1. While model 2 shows the value of R^2 of 98.2% and Adjusted R^2 of 97.8%. According to Ghozali (2009), the fundamental weakness of using R^2 is the bias towards the number of independent variables included in the model. Every additional one independent variable, then the value of R^2 must increase. Therefore, many researchers recommend using the Adjusted R^2 value when evaluating the best regression model. From the results of the table above, the value of Adjusted R^2 is 73.2% in model 1, which means that 73.2% of the variation in company profitability as measured by ROA can be explained by variations of eight independent variables, namely BOD size, Board Independence, meeting frequency. audit committee, Insider Shareholder, Institutional Ownership, company size, interest rate, and the Covid-19 pandemic. The remaining 26.8% is explained by other variables outside the model. While in model 2, the Adjusted R^2 value is 97.8%, which means that 97.8% of the variation in firm value as measured using Tobin's Q can be explained by variations of five independent variables, namely BOD size, Board Independence,

frequency of audit committee meetings, Insider Shareholder, Institutional Ownership, company size, interest rates, and the Covid-19 pandemic. The remaining 2.2% is explained by other variables outside the model.

F Test

The F test is used to determine the effect of the independent variables on the dependent variable together. The significance of the hypothesis model proposed in the F test is a significance (α) of 5%. The following is a table ofF test results:

Table 3. F Test.

Model	F	Sig. F
1	14,277	0,000
2	214,385	0,000

From the table above in model 1, the calculated F value is 14,277 with a significance of 0.000. Because the significance value of the F test in model 1 is 0.000 < 0.05, it can be concluded that the eight independent variablesare BOD size, Board Independence, audit committee meeting frequency, Insider Shareholder, Institutional Ownership, company size, interest rate, and the Covid pandemic. -19 jointly affect the company's ROA. While inmodel 2, the calculated F value is 214.385 with a significance of 0.000. Because the significance value of the F test in model 2 is 0.000 < 0.05, it can be concluded that the seven independent variables are BOD size, Board Independence, audit committee meeting frequency, Insider Shareholder, Institutional Ownership, company size, interest rate, and the Covid pandemic. -19 have a joint effect on the company's Tobin's Q value.

T Test

For testing the first hypothesis to the eighth hypothesis testing is done using the t test. The t-test basically shows how far the influence of one independent variable individually on the dependent variable. Based on the test results using multiple linear regression analysis, the following results were obtained:

Table 3. T Test.

Variable	Coef. Regression	t.	Sig	Results
Constanta	3,543			
UB	-0,202	-8,149	(,0000	Significant
BI	1,075	1,754	(,0816	Not Significant
FMKA	-0,027	-3,374	(,0009	Significant
IS	1,318	3,049	(,0027	Significant
KI	0,909	2,767	(,0064	Significant
UP	0,005	1,426	(,1561	Not Significant
SB	-0,738	-7,068	(,0000	Significant
PC	-0,350	-1,652	(,1006	Not Significant

In model 1 of the eight independent variables, namely BOD size, Board Independence, frequency of audit committee meetings, Insider Shareholder, Institutional Ownership, firm size, interest rates, and the Covid-19 pandemic, there are five independent variables that have a significant effect on company profitability as measuredby using ROA.

Table 4. T Test.

Variable	Coef. Regression	t	Sig.	Results
Constanta	30304,71			
UB	-495,69	-2,132	0,0346	Significant
BI	-23823,89	-4,163	0,0001	Significant
FMKA	772,81	10,2	0,00	Significant

		40	00		
IS	12670,92	3,13 9	0,00 20	Significant
KI	-6402,45	- 2,085	0,03 88	Significant
UP	-68,17	- 1,083	0,07 34	Not Significant
SB	-2036,18	- 2,087	0,03 87	Significant
PC	1078,69	0,54 5	0,58 65	Not Significant

While in model 2 of the eight independent variables, namely BOD size, Board Independence, frequency of audit committee meetings, Insider Shareholder, Institutional Ownership, firm size, interest rates, and the Covid- 19 pandemic, there are 2 independent variables that have no significant effect on the company's market value. as measured using Tobin's Q ratio. This can be seen from the significance probability for the company size of 0.0734

> 0.05 and the Covid-19 pandemic of 0.5865 > 0.05. While the other six variables have a significant effect on thecompany's Tobin's Q value.

IV. DISCUSSION

Testing the effect of the BOD measure showed a significant negative result on ROA and Tobin's Q. These results are in line with the research of Peng et al. (2021) which results in a negative relationship between the sizeof BOD and the company's financial performance as measured by ROA. Yeh (2018) argues that a small BOD sizehas the advantages of communication, collaboration, and more efficient decision making compared to companieswith a large BOD size. This is also supported by the view that a large BOD measure can weaken the efficiency ofsupervision, control, and decision making (Lipton and Lorsch, 1992). Then the first hypothesis can be proven bymodels 1 and 2 or the first hypothesis is accepted.

Testing the effect of board independence shows results that are not significant to the company's ROA. This could be because the existence of independent commissioners in the company is only used as a formality in fulfilling existing regulations. So that the function of the independent commissioner in monitoring and independence of the board of directors' policies is not carried out properly (Darwis, 2009). Meanwhile, the second model of board independence shows a significant negative effect on the company's Tobin's Q value. These resultsare in line with the research of Klein (1998) and Peng et al. (2013) which resulted in a negative relationship between BI and the company's financial performance. This is supported by the view of stewardship theory whichstates that inside directors have more in-depth knowledge of the company (Donaldson, 1990). Thus, compared toinside directors, the effectiveness of independent directors' performance is limited by asymmetric information (Matsusaka et al., 2010; Fama & Jensen, 1983). So, the second hypothesis cannot be proven by model 1, but canbe proven by model 2 or the second hypothesis proposed is accepted.

Testing the effect of the frequency of audit committee meetings shows negative and significant results on the company's ROA value. The results in model 1 are in line with previous studies conducted by Bouaine & Hrichi (2019) and Ferial et al. (2016) which says that the audit committee has a negative effect on financial performance.Not all audit committees have expertise in accounting and finance, thus affecting the effectiveness of supervisionof the company's financial statements. However, the test showed significant positive results on the company's Tobin's Q value. This result is different from the first model but supports the view of Kent and Stewart (2008) that a high frequency of audit committee meetings leads to high financial performance. This result also shows thatthe role of the audit committee is well implemented, namely, to assist the Board of Commissioners in carrying outits oversight function (oversight) and become one of the main pillars in the implementation of GCG principles inthe Company. It can be concluded that the third hypothesis which states that the frequency of audit committee meetings influences the company's financial performance is acceptable.

Testing the influence of insider shareholder shows a significant positive result on the ROA value. This means that the increase in IS will have a positive effect on the company's ROA and Tobin's Q values. This result is in line with the research of Gupta and Sachdeva (2019) which found that companies with a high number of insider shareholders have better performance than companies with a low number of insider shareholders. Jensen and Meckling (1976) observed that an increase in insider shareholder can reduce agency costs. Managers who have a significant stake in a company will not invest in high-risk projects that are destructive or excessive. Therefore, in principle, managers will be careful in investing. Based on the results of panel data regression testing, it can be concluded that the fourth hypothesis which states that insider shareholders affect the company's financial performance can be proven by model 1 or the fourth hypothesis proposed is accepted. It is concluded that the fourth hypothesis which states that insider shareholder influences the company's financial performance can be proven or the fourth hypothesis proposed is accepted.

Testing the effect of institutional ownership using panel data regression showed a significantly positive result on ROA. Every increase in KI will have a positive effect on the company's ROA value. This result is in line withthe research of McConnell and Servaes (1990) which found a positive relationship between institutional investors'share

ownership and firm performance. This is due to the fact that institutional investors only buy shares of companies that are performing well. It is different in the second model, which shows a significant negative resulton the company's Tobin's Q value. This result is in line with research by Jennings (2002) which shows that institutional ownership does not succeed in increasing firm value, namely institutional ownership reduces firm value. This is because institutional investors are not the majority owners so they are not able to monitor the performance of managers properly. Institutional existence actually reduces public confidence in the company. Asa result, the stock market reacted negatively in the form of a decrease in stock trading volume and stock prices, thereby reducing the value of the company. So it can be concluded that the fifth hypothesis which states that institutional ownership affects the company's financial performance is proven or the fifth hypothesis proposed isaccepted.

Testing the effect of firm size shows insignificant results on ROA and Tobin's Q. These results may be due to the limited number of research samples. Based on the results of panel data regression testing, it can be concludedthat the sixth hypothesis which states that company size affects the company's financial performance cannot be proven or the sixth hypothesis proposed is rejected. So it can be concluded that the sixth hypothesis which statesthat company size affects the company's financial performance cannot be proven or the sixth hypothesis proposedis rejected.

Testing the effect of interest rates using panel data regression showed a significant negative result on ROA and Tobin's Q. This result is supported by the argument of Kithuria (2006) which states that an increase in interestrates will increase the cost of funds where this will have an impact on business and also investors. In that situationit will be more attractive for investors to deposit money in the bank, so the company or business will slow down the implementation of their business plans and investors will reduce their investment in the financial market, as aresult the value of the company will decrease. So it can be concluded that the seventh hypothesis which states thatinterest rates affect the company's financial performance can be proven or the seventh hypothesis proposed is accepted.

Testing the effect of the Covid-19 pandemic showed insignificant results on ROA and Tobin's Q. This result may be due to the limited number of research samples. In addition, the sample of companies studied are mining companies listed on IDX, so it can be said that they are large companies. Greenwood et al. (2020) found that small businesses most impacted by the Covid-19 pandemic were thus highly dependent on bank debt and loans from shareholders, which could trigger financial difficulties for these companies during the pandemic. In addition Shibata's (2020) research found that at the employee level the Covid-19 pandemic had more of an impact on low-income groups compared to wealthier groups. So it can be concluded that the eighth hypothesis which states thatthe Covid-19 pandemic affects the company's financial performance cannot be proven or the eighth hypothesis proposed is rejected.

Companies in Indonesia, especially in the mining sector, can improve their financial performance both in termsof profitability and market value by implementing the right GCG mechanism. One of the GCG factors that can betaken into consideration is the size of the BOD in a company where the two models tested show that the higher the BOD size, the lower the company's financial performance. A small BOD size has the advantage of more efficient communication, collaboration, and decision making compared to a company with a large BOD size. From these results, it can be considered for the company to streamline the number of its BOD members so that the company's performance can increase. Then another GCG factor that can be taken into consideration by the company is the insider shareholder, where the high number of insider shareholder also shows a positive influenceon the company's financial performance in the two models tested. Management who has a fairly high shareholdingin their own company tends to be more careful and calculating in making investment decisions.

V. CONCLUSION AND RECOMMENDATION

Based on the results of the analysis presented in chapter 4, namely the panel data regression method on two models of the influence of the five characteristics of GCG, company size, bank interest rates, and the Covid-19 pandemic on the company's financial performance.

The estimation results of the first model show that of the five characteristics of GCG, there is only one independent variable whose hypothesis is rejected, namely the independent variable board independence. While in the second model, the results of the study show that the five characteristics of GCG have a significant influenceon the company's financial performance. The two models tested show that the independent variable interest rate has a significant effect on the company's financial performance. While the independent variables of company sizeand the covid-19 pandemic have no significant effect on the company's financial performance.

In accordance with previous studies, this study produced various findings from each of the independent variables tested. However, it has strengthened some existing theoretical frameworks. It can be concluded that companies in Indonesia, particularly in the mining sector, can improve their financial market performance by implementing appropriate corporate governance mechanisms.

One of the GCG factors that can be taken into consideration is the size of the BOD in a company where the two models tested show that the higher the BOD size, the lower the company's financial performance. A small BOD size has the advantage of more efficient communication, collaboration, and decision making compared to acompany with a large BOD size. From these results, it can be considered for the company to streamline the numberof its BOD members so that the company's performance can increase. Then another GCG factor that can be taken into consideration by the company is the insider shareholder, where the high number of insider shareholder also shows a

positive influence on the company's financial performance in the two models tested. Management who has a high shareholding in their own company tends to be more careful and calculating in making investment decisions.

Other academics can develop this research further, it should be noted that this research has a limitation, namely it only uses a period of 6 years (2015 to 2020), so that the scope of the research period can still be expanded. In addition, the sample used in this study is only for companies in the mining sector, so it can be studied further in other sector companies. Further research can also consider other GCG factors such as BOD/BOC gender, BOD/BOC tenure, and others. In addition, other factors outside of GCG such as technology, economic conditions, and others can be considered for research, because they may have an impact on the company's financial performance.

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Does Educating Customers Increase Loyalty Toward Digital Banks?

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Abstract

Digitalization, as part of the use of technology in the financial industry, plays an important role in cost efficiency, network enhancement, and innovation. Banking is one of the industries experiencing a rapid digitalization transition with the emergence of digital banking. Indonesian people are still not very familiar with digital banking and have considerations related to information security and usage. For this reason, it is important for digital banking to educate customers about specifications, benefits, financial services, and expertise. Education will enhance the different skills of each individual, both company-specific skills and market-specific skills. When digital banking invests in education to customers, it will be smarter and more informative, whether it will lead customers to switch or even carry out E-WOM positive associations and generate customer loyalty. The purpose of this study was to test sixteen hypotheses about the effect of education on customer loyalty with a multi-cross-sectional study design. Two hundred respondents of digital banking customers in Indonesia will be surveyed in stage one (T1) on independent variables. thereafter within three months will be re-tested for the dependent variable (T2). Data analysis will be carried out using the SEM (Structure Equation Model) method to measure the level of loyalty to education that has been carried out by digital banking. The result is the significant effect of education on digital banking loyalty, so digital banking needs to make the right education strategy to increase the level of customer loyalty.

Keywords— Education; E-WOM; Perceived Switching Cost; Customer Satisfaction; Customer Loyalty

I. INTRODUCTION

Indonesia is a country with the fourth-largest population in the world (Hayati et al., 2011). Indonesia is also a member of the G20 consisting of developed and emerging countries in the world. The forum has dicussed that one of biggest challenge in economic development is digitalization(Zaoui & Souissi, 2020). It is predicted and expected there will be a transformation into the internet and data-based digitalization in order to support the realization of the cost efficiency, network development, and the utilisation of technology. For example, as the implication of the COVID-19 pandemic many commercial transaction has moved towards the digital sphere, where customers are no longer visiting a physical store but instead browse through an online store or online marketplace; completing transaction through bank transfer, e-wallet, or credit card, and have the products delivered directly to home(Tabrizi et al., 2019). The development of digitalization in Indonesia is still growing. Digital banking channels improve customers' access, facilitate the offerings of more services, increase customer loyalty, attract new customers, provide services offered by competitors and reduce customer attrition(Muluka et al., 2015).

Based on the data from OJK (Otoritas Jasa Keuangan). Banking as one of the indicators of the economy cannot be separated from the transformation of digital development, currently, there are many emerging Digital Banking where the bank does not have a branch office(OJK, 2020). Today's increased regulation and competitive challenges are forcing banks to have transformation in cost reduction and enter digital banking (Muluka et al., 2015). Digital banking technology is very advanced that it plays a major role in improving service standards in the financial institution sector (Fernandes & Pinto, 2019). Currently, major players in the conventional bank industry these are competing to invest in digital banks (Laycock, 2021). The digital bank was pioneered by major conventional banks in Indonesia such as Blu by BCA, TMRW by UOB, Digibank by DBS Indonesia, Jenius by BTPN, and others. Digital Bank has a low-cost structure because it does not have a branch office, which makes it easy for its customers to manage their financial portfolios (Laycock, 2021). People can open accounts without having to come to the branch office, can open deposits online, and also able to make money transfers via their mobile phones easily and quickly. However, at the present time, the Indonesian people are still quite anxious (Setiawan, 2012). People still feel worried about the security of online transaction and also suspicious with the concept of having their money in a digital bank that has no physical presence(Priyambodo, 2016). Conventional banking is still very dominant in Indonesia, seeing that most Indonesians are still comfortable with banking with branch offices. Whereas digital banks have to heavily educate the public by providing advertisements both in traditional channels such as television, prints, and outdoors, as well as online channel such as social media, and others.

Customers skepticism and their lack of knowledge encourage digital banks to continue their education effort to the public. Investment in education is hoped to be the gateway to build positive perception towards the service and loyalty in long term. Company education will produce expertise and knowledge for customers. Company and market education can produce two different customer skills, namely firm-specific expertise and market-specific expertise(Bell et al., 2017). The expertise of a customer can come from anywhere, such as the environment, family, workplace, and others customer learning and product standards in creating switching costs that can reduce the threat from competition in mature markets. (Anderson & Simester, 2013) said that three stages for customers in learning information. the awareness stage, the consideration stage, and the decision stage.(Kotler & Keller, 2016) Kotler said the initial stage in buying a product and service is to seek information. The first stage in learning is awareness. For this reason, it is important to conduct proper education when customers are looking for information and awareness.

It has been suggested that WOM can serve as one of the most credible ways for customers to obtain product-related information and make product adoption decisions (Zhang et al., 2021). WOM is also something to consider in the marketing mix (Cheng et al., 2021).Customers who are expert can easily evaluate alternatives so that they can focus more on the benefits of the product. If customers are experts and are satisfied, will they engage in spreading positive word-of-mouth(Imbayani & Gama, 2018). World of Mouth and provide references to others However, increased knowledge may lead to the exploration of other services from competing providers(Sun et al., 2021). The effect is that customer loyalty can decrease even though the company has invested in customer educationThe main goal of the company in the final stage is loyal customers. Loyal customers will certainly accept all the advantages and disadvantages of the company and remain customers who make purchases and even make references to others(Keller et al., 2006). In addition, the research of Jin Zhang Et al (2019) found that one of the factors for customers to determine the satisfaction of payment platform services is the customer expertise. In their research, customers with high expertise has higher satisfaction and tend to be more loyal to the brand(Eisingerich et al., 2014).

The main problem of this research is how digital banking should educate considering the market for digital banking is still relatively new in Indonesia. The role of education is whether to bring customers to try digital banking and become loyal like in conventional banking.:

a. What are the benefits of educating customers?
b. What is the relationship between customer education and customer expertise?
c. Will customer expertise relate to E-WOM positively?
d. How is customer expertise related to perceived switching cost?
e. How is E-WOM related to customer loyalty?
f. How is customer expertise related to customer loyalty?
g. What is the relationship between customer education and customer satisfaction?

At first, the researcher will determine the problem, namely how a digital banking needs to educate customers, and whether this will have a positive impact (loyalty) to the Firm or vice versa. In addition, will investing in the customer education stage make the customer switch to another Firm in the same market. The initial hypothesis sees that there is a possibility that when the Firm conducts market education it will make customers disloyal to the Firm, seeing the intense business competition. After finding the right problem, data will be collected using a survey method with Structure Equation Modeling. Furthermore, data analysis will be carried out using MOS (Moment Analysis of Structure). After the data is successfully analyzed, a hypothesis and validity test will be carried out and conclusions will be drawn for the Firm's managerial steps.

II. LITERATURE REVIEW

A. Customer Education

The definition of customer education is refers to activities initiated by a company/firm to provide knowledge to their customers (Sweeney et al., 2014).,The effect of customer education can be positive (on loyalty) or negative (on buying a competitor's product). Education is a process of informing, explaining, and demonstrating concepts to customers (Bell et al., 2017).It leads to the reduction of information asymmetry between the firm and its customers and provides direction to customers on how to evaluate the selection of products and services(Bergh et al., 2019).

Firm-Specific Education

Firm-specific education refers to education activities initiated by firm that produces special abilities related to the products and services offered by the firm itself(Bell et al., 2017). The information provided is an attribute, specification, and others related to the firm directly. A direct example is when a firm educates customers about the benefit of low administrative costs or the free transfer fee to other bank(Eisingerich & Bell, 2006).

Market-Specific Education

Market-specific education refers to any education activities initiated by a firm that produces industry-specific skills from firm-related products and services(Bell et al., 2017). The firm provides extensive information about products and services in related industries(Bell & Eisingerich, 2007). For example, when a firm conducts education related to the digital banking about how efficient it is due to its ability toopen an account anywhere or the ease of use of its mobile app.

Customer Expertise

Basic customer expertise is obtained when customers have product-related experiences(Wirtz & Mattila, 2003). Customer will form an expertise from internal (demography, family, reviews) and external factors (firm, environment) so that they will be able to see and understand the products and services in the market(Bell & Eisingerich, 2007). Customer expertise has been noted as a "valuable asset" that can be leveraged to increase cross-selling opportunities, while customer expertise a major determinant of engagement in the service co-production process (Sweeney et al., 2014). Customer expertise related to the firm is the expertise possessed by customers about aspects related directly to the firm such as brand, product value, and added value. For example, customers know that Bank BCA, for example when a customer knows how to apply for a mortgage product at BCA. What documents are required as well as the benefits of the product compared to other banks. Another thing could be when a customer has a problem with a debit card, what is the procedure and does the customer understand the firm's expertise? Expertise related to the market is the expertise possessed by customers about product and service variables and perceptions of the value and benefits of products in the product and service industry. for example, when customers know what savings are, what are the procedures, and benefits.

B. *Perceived Switching Cost*

Customers with more education perceive less risk in switching companies as a result of being more confident in assessing competitive alternatives (Anderson & Simester, 2013).Switching costs are one-time costs, not recurring costs when customers first switch to other products and services(Eisingerich & Bell, 2006). Based on the following theory,(Burnham et al., 2003) explain that switching costs are costs that are obtained by customers when they switch to competitors from the products and services they have used. The costs that may arise are not only economic costs but can also be more indirect such as costs of seeking information, discount fees, study costs, and psychological risks.

The cost of switching customers consists of three parts, namely (Burnham et al., 2003):

Information Switching Costs

This principle makes the customer will incur costs related to the economic and time costs that have been carried out by the customer, such as evaluation costs, study costs, and setup costs.

Financial Switching Costs

Financial switching costs are more related to the resources already expended by the customer. Customers will lose these resources by switching to competitors. Examples such as financial losses due to the cost of closing an account at a bank.

Switching Costs Associated With Relationships

when a customer switches to products and services elsewhere, they will experience psychological and emotional risks due to losing their identity and relationship with the main Firm. For example, when a banking customer loses contact with customer service customers at the bank

C. *E-WOM*

WOM is ranked as the most effective source of information in marketing products and services(Huang et al., 2011).Because service products such as financial products cannot be seen directly, experience from other customers become important information to shape perception and evaluation(Keller et al., 2006).

E-WOM is the process by which customers exchange information with each other through online channel/platform about a brand(Tantrabundit, 2018). Marketing is done through word of mouth between customers to meet the marketing objectives of a Firm(Kotler & Keller, 2016). (Hennig-Thurau et al., 2004) define eWOM as positive or negative statements made by potential, current, or former customers about products or companies that are made available to people and institutions via the Internet. Based on the virtual community created by the Internet, consumers can create social networks with people they have never met in person and exchange opinions about products and services with others(Le et al., 2018). From the communication capabilities of eWOM, (Hennig-Thurau et al., 2004) noted that the perpetuation of opinion has increased the level of information exchange compared to offline WOM. In addition, according to eWOM can be considered an extension of traditional interpersonal communication in the new era. Although studies (Eisingerich et al., 2014)found that about 90% of WOM communications are offline, many recent marketing practitioners and scholars believe that eWOM will play an important role for consumers to rely on as a source of information soon due to the increasing number of consumers(Anderson & Simester, 2013). Internet user. There are different researchers in the existing literature, who have recognized that E-WOM is positively related to customer loyalty (Zhang et al., 2021).

D. *Customer Satisfaction and Loyalty*

Customer satisfaction said it involves customer creation, customer maintenance, and retention(Kotler & Keller, 2016). Customer satisfaction is a very personal assessment that is strongly influenced by individual expectations(Boateng, 2019). Customer loyalty is the activity of customers who remain loyal to the product/brand/firm they have chosen. Customer loyalty is the goal of all companies. Customers who already have loyalty will continue to buy goods even though there are weaknesses in terms of price or quality. Customer loyalty is the customer's attachment to a brand, manufacturer, or service provider(Suh et al., 2015). Customer loyalty is how a customer will continue to buy products that have been sold by the Firm even though there are certain factors(Iqbal et al., 2021). Tandjung (2004) says there are four types of customer loyalty, as follows:

a. No Loyalty: Customers who do not have loyalty and rarely go to the same place repeatedly
b. Inertia Loyalty: These customers will buy because they feel comfortable and comfortable with the product, resulting in loyalty
c. Latent Loyalty: This customer will buy a product or service because of the situation and conditions so that they make a purchase
d. Premium Loyalty: Customers are very proud of the products they already have and even give references to their relatives.

For this reason, every Firm needs to make each of its customers loyal to the Firm. This will have a positive impact on the Firm because every customer will continue to buy the Firm's products(Suprajang et al., 2019).

E. *Digital Banking*

Digital banking is a digital transformation from conventional banking. All types of activities from account opening to banking transactions are carried out online. (Kennedy, 2016) note that digital banking technology has advanced so much that it plays a major role in raising the standard. The main market for digital banking today is Generation X, Y and Millennials (Katadata, 2022). Market characteristics that prefer convenience, speed and flexibility increase rapid market penetration in big cities. Digital banking increases customer satisfaction by providing convenience and promotions in terms of fees, rewards and others (Muluka et al., 2015).(Muluka et al., 2015) that digital banking technology has advanced so much that it plays a major role in raising the standard of service provision in the financial institution sector. OJK explained the definition related to digital banking by introducing OJK Regulation number 12/POJK.03/2021. The regulation states that digital banks are banking institutions that are includeding the Indonesian legal entity bank (BHI). Based on these categories, digital banks have the function to provide and carry out banking business activities through electronic channels without a physical office other than the head office or using limited physical offices. The issuance of digital bank services can be carried out by new banks or old banks that are transformed into digital banks (Jasa, 2021).

Previously, this study continued research from (Bell et al., 2017) regarding how the paradox of education to customers is, will education provide loyalty with indicators of increased sales or will keep customers away from the company because customers prefer competitors. The response from customers will be different to the education that the company does. It is very interesting if researched based on different industries will produce different customer responses as well. In addition, related to service companies, there is another hypothesis that service quality can strengthen customer expertise towards company loyalty.

Table. 1. Previous Research

No	Journal	Author	Research Objectives	Study	Findings	Result
1	Unraveling the Customer Education Paradox: When, and How, Should Firms Educate Their Customers?	Bell et al	Find different primary data (education) and secondary data (sales) and importance of educating customer increasing loyalty	Using AMOS to test primary data and secondary data	Education increase loyalty and will release different expertise both firm-spesific and market-related	Company firm spesific education will increase expertise to make switching cost (high) and will increase sales
2	Relationship Marketing in The Financial Services Industry. The Importance of Customer Education, Participation and Problem Management for Customer Loyalty	Eisingerich Andreas B. Bell, Simon J.	How Educating Customer (Direct) using CRM on Financial Industry and importance variabel customer education, participation and problem management for loyalty	Customer relationship management factor increasing loyalty	Customer Education through CRM have effect to customer loyalty	CRM through customer education increase loyalty
3	The Impact of Customer Education on Customer Loyalty Though Service Quality	Suh Munshik Greene, Henry Israilov, Baiastan, Rho, Taeseok	Find what is importance of customer education with excellence services on customer loyalty	Customer education and service quality	Customer Education with excellent service will give loyalty	Customer Education importance factor on repurchase intention
4	Making your online voice loud. The Critical Role of WOM Information	Huang, Minxue et al	Importance of WOM Information on purchase decision and loyalty	WOM, and customer purchase retention	Customer will trust WOM from other customer who already using the product	Purchase decision is depend on WOM and validity
5	Does educating customers create positive word of mouth?	Sun et al	How Educating customer can create positive WOM to increase firm loyalty	Find different expertise to increase positive WOM	Expertise increase WOM intention	Satisfaction and expertise increase WOM intention

Source : Journal Marketing

The table above illustrates a summary of several previous research journals related to related variables. As in the beginning (Bell & Eisingerich, 2007) conducted research related to relationship marketing in the banking world on loyalty. How customer education plays a significant role in customer loyalty.

III. RESEARCH METHODOLOGY

Bryman (Cooper & Schindler, 2014) argues that the quantitative research process starts from theory, hypothesis, research design, selecting subjects, collecting data, processing data, analyzing data, and writing conclusions. This research was conducted to measure the dependent variable, namely customer loyalty. While the independent variables are firm-specific education and market-related education. The mediator variables are firm-spesific expertise, market-related expertise customer satisfaction, perceived switching cost, and E-WOM. This research uses descriptive and analytic designs. Where in the early stages the researcher seek information on the situation that occurs based on the time the research takes place. So that the factors will be found based on the analysis carried out. According to (Cooper & Schindler, 2014) descriptive is a research conducted to determine the value of independent variables, either one or more (independent) variables without making comparisons or connecting with other variables.

Data collection will be used primarily, according to(Cooper & Schindler, 2014) Primary data is a data source that directly provides data to data collectors and is carried out online and offline. In this study, the author will focus more on the distribution of online data collection.

1. Population

    The total amount consists of objects that have certain qualities and characteristics determined by the researcher. According to (Cooper & Schindler, 2014). Population is an area/study of research that has certain characteristics that are studied and given conclusions. In this study, the population is all digital banking customers in Indonesia. Based on the data (Katadata, 2022), digital bank customers fall in between 20-45 years old, hence this paper limits its participants into that age range.. The population in this study is 200 customers who have been or are currently digital banking customers in Indonesia. Digital banking in Indonesia is banking without branch offices and has online transaction features.

2. Sampling

    a. The sampling technique used is purposive sampling, which is a sampling technique with certain considerations (Cooper & Schindler, 2014).The reason for using this purposive sampling technique is because it is suitable for use for quantitative research. Meanwhile, simple random sampling is the taking of sample members from the population that is carried out randomly without regard to the strata that exist in the population(Cooper & Schindler, 2014). This was done seeing that the demographic and customer background variables were not seen in this study. The sample in this study was 200 customers who became digital banking customers in Indonesia. These customers have transacted and become customers of digital banking.   The   research   sample   criteria   are:
    a. Digital banking customers in Jabodetabek because most digital banking in Indonesia has a head office in Jakarta and the largest transaction center is in Jabodetabek.

    b. Have been a digital bank customer for at least 3 months, the main reason for being a digital banking customer for 3 months is to be able to experience the services and education provided. In addition, seeing that digital banking in Indonesia is still relatively new and only a few banks are carrying out digital transformation.

A. Research Study

    This research uses multi-cross-sectional studies where one respondent will be measured for other variables in different periods. According to (Zick et al., 2008), a study is said to be a multi-cross-sectional study when the data variables taken are one in different periods. In contrast to longitudinal studies where data is taken twice in different periods where data is usually measured in the before and after periods so that they can be compared(Allis Nurdini, 2006). In this study, another variable will be taken in a different period, namely the Y variable (loyalty). The time interval between the variables taken between X and Y is 3 months. Variable Y, namely loyalty is taken after the variable X is taken. According to McKinsey, the education and learning process only takes 3 months with the 3x3x3 method ((Sneader & Sternfels, 2020).Based on this, we recommend that customers have learned and understood the products, services, and services of digital banking within three months. Based on this, it can be said that respondents have received more than adequate education within 3 months, and the next variable data can be taken, namely loyalty(Sneader & Sternfels, 2020). Loyalty variables will be measured for the same respondents and data analysis will be carried out at the same time.

    This paper primary data collection relies on survey carried out both offline and online.. Primary data is a data source that directly provides data to data collectors and is carried out online and offline. In this study, the authors will focus more on the distribution of online data collection (Cooper & Schindler, 2014).

a. The population are all digital bank customers in Indonesia
b. The sample is digital bank customers who use the account for 3 months in jabodetabek*

* Jabodetabek because 70% of business and CASA are based on Jabodetabek also head office (Katadata, 2022).

Questionnaire is a data collection tool by provides a list of questions answered by respondents(Cooper & Schindler, 2014). Researchers used an online questionnaire. According to (Setiawan, 2012) online questionnaires provide the benefits of cost-effective, time-saving, broad reach, and effective dissemination media. Where there are more Digital Banking respondents and they often interact online compared to offline. Questionnaires are given to respondents who have been determined according to the specified criteria. The questionnaire uses a Likert scale of 1-5 based on the variable measuring factors that have been determined. The distribution of the questionnaire is based on 3 stages, namely:

B. The First Part Is Related To The Screening Of Respondents

In the first part, the respondent's profile will be filtered according to the research limitations, namely respondents who have been Digital Banking customers in Indonesia. Furthermore, the respondents resided in Indonesia, especially the Jabodetabek area in the past year. Initial filter questions are useful for getting the right target respondents, namely customers who have gained experience in becoming a Digital Banking customer and received education from digital banking.

C.   The second part is related to the Profile and Characteristics of Digital Banking customers

The second part aims to obtain more in-depth information regarding the profile and characteristics of respondents from Digital Banking customers in Indonesia. Respondents will mention the digital banking companies they have and their behavior in transacting there. For example, transactions that are often made, the purpose of opening, account opening factors, and the number of accounts held. Each question aims to address certain variables, such as the number of account holdings, which means that customers have a low perceived switching cost level so they can easily have multiple accounts.

D. Part Three Core questions related to independent and moderator variables

In this section, the respondents have entered the core question stage. Each question will lead to the selected operational variable indicator. In the third stage, respondents will be measured for independent and moderating variables from education, expertise, perceived switching costs, and E-WOM. Based on research from Bell and Eisingerich (2007) the author uses questions related to the 'expertise' scale, mostly taken from the market-related skill variable. The last three items capture the words 'E-WOM', 'expertise', and 'knowledge' according to the predefined variables.

E. Fourth Part Questions related to the dependent variable (loyalty) will be conducted after 3 months* (T2) - multi-cross-sectional studies.

*According to Mckinsey, the education and learning process only takes 3 months with the 3x3x3 method (Sneader & Sternfels, 2020)

Furthermore, respondents will measure the dependent variable for this study, namely loyalty with operational variable indicators obtained based on journals. Respondents will be asked to answer questions related to loyalty to the digital banking they use.

F. Part Five Questions related to demographics from respondents

In the last section, the respondents were asked to demographic data such as gender, occupation, income, and others to see the characteristics of the existing respondents. In addition, at this stage respondents will be asked to provide email data and cellphone numbers for further research (T2) to measure after education by the Firm.

Based on previous research (Bell et al., 2017)it was found that the education of the firm produce expertise and knowledge for customers. Expertise provide customers with various information that have an impact on purchase evaluations. In subsequent research (Bell et al., 2017) found that education to customers should be divided into two variables, namely firm-specific education and market-specific education. Firm-specific education is education conducted by the firm regarding the firm's products and services, while market-specific education is more related to the firm's industry in the market. In this study, there are independent variables, namely firm-specific customer education and market-specific customer education which affect the dependent variable, namely repurchase intention. Further development, according to (Sun et al., 2021) education will be able to provide positive or negative associations to WOM (Word of Mouth). This study makes the WOM variable a endogenous variable on the impact of education on customers. Zhang et al. (2021) said that WOM will provide loyalty to customers. Iqbal et al. (2021) said the more satisfied the customer, the higher the customer will be satisfied and comfortable so that they become loyal to the firm. Meanwhile, satisfied customers can refer the firm's products to others in WOM. In this study, the author focuses on digital banking so the impact study is more focused on the WOM occurred online (Le et al., 2018).
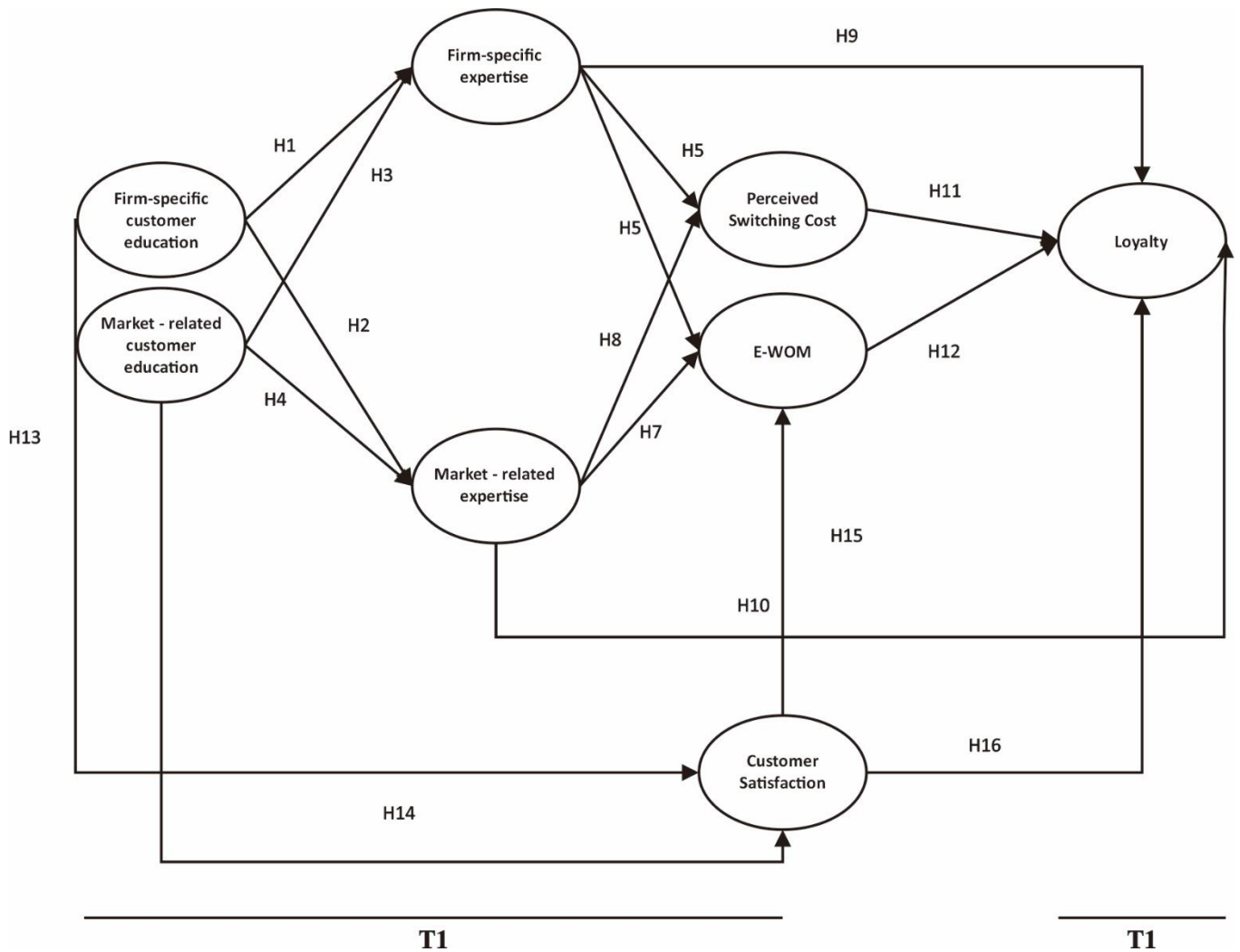
Fig 1. Research Model

Hypothesis 1: Firm-specific customer education will be positively related to firm-specific skills with a positive association

(Bell & Eisingerich, 2007)says that the education carried out will produce expertise for customers. (Kotler & Keller, 2016)says that in making purchasing decisions, customers will look for information. At this time, education will be carried out by the fFirm. Customer education can be delivered through various educational programs: professional advice, seminars, advertising, booklets, blogs, and service provider forums can educate customers(Buttle & Burton, 2002). Education steps will play a role in helping customers know which behavior to adopt and how to do it in the service delivery process (Dellande et al., 2004). Simon J.Similar to customer education, Bell et al. (2017) divides the education carried out by companies into two dimensions, namely firm-specific expertisecompanies and market-specific expertises. Of course, when the Firm conducts Firm education,Education conducted by the firm about the knowledge related directly to the firm it will produce firm-specific.

Hypothesis 2: Firm-specific customer education will be positively related to market-specific skills

The difference between declarative knowledge / procedural knowledge is often used in assessing the type of expertise gained from education. The Firm's customer education can enhance the Firm's or market-specific expertise(Retana et al., 2016).

Knowledge is also often differentiated according to the specific level of expertise it can be broad-based or product-specific (Goodman, 2006). Broad knowledge skills (market) can increase knowledge related to product variants in the industry, but product knowledge skills can focus on product specifications, Firm services, and others. On the other hand, when the customer's expertise regarding the market increases, the customer will have greater confidence in evaluating competing alternatives (Burnham et al., 2003).Market-specific information provided by the firm will increase the expertise to customer not only about the market but also about the firm. For example, educating customers about the new product of mortgage will notify customers that a new type of mortgage is now available in the market, too. Hence, this research posits.

Hypothesis 3: Market-specific customer education will be positively related to firm-specific skills

When customers receive education about the market through the internet, advertisements, forums, social media, and others, customers will receive complete information about the industry. The information obtained can be managed by the customer and will increase the Firm's product expertise. Customers will learn how an industry does business and which products suit them. Even according to (Susskind & Curry, 2016) customers will continue to look for the services of each Firm that best suits their needs. Solutions from customers can even be made by themselves. Education that revolves around the market knowledge such as financial products available within the industry will feed customer expertise specific to the market as well. Bell et al. (2017) found that these two variables are related positively. Therefore

Hypothesis 4: Market-specific customer education will be positively related to market-specific skills

In line with the education carried out regarding the market, it will increase customer expertise regarding the market. When customers are looking for an identical product such as financial services, customers are looking for education to produce market services. According to (Fernandes & Pinto, 2019) customers will continue to seek information and then evaluate it until it suits their needs. This is by the impact of education on increasing market knowledge.

Hypothesis 5: Firm-specific customer expertise will be negatively related to perceived switching cost

According to (Hennig-Thurau 2002) customers who have Firm-specific related expertise are more loyal to the Firm. They are familiar with the products and services of the Firm they have purchased from. Customers are familiar with service quality, aftersales, product capabilities, specifications, and others. So to be able to switch to competitors requires higher costs because customers need to know more, try the product and evaluate it. The knowledge that customers have accumulated provides trust and loyalty. In other words, switching costs between firms grow (Bell et al., 2005) as customers become more comfortable with certain ways of doing things. Switching costs are perceived as "the initial investment costs that customers associate with getting to know another Firm" (Burnham et al., 2003).

Hypothesis 6: Firm-specific customer expertise will be positively related to E-WOM

The higher the specific expertise of the customer's Firm, the higher the information about products and services, customers who feel comfortable with the service tend to see the value of timely information provided. difficult and expensive to obtain (Kohlbacher, 2009).Previous research has found that customer expertise influences the way customers use and evaluate information and (Wirtz & Mattila, 2003); Eisingerich and Bell 2008; Hibbert, Winklhofer, and Temerak 2012; Wieseke, Geigenmüller, and Kraus 2012). As customer expertise increases, customers also feel more comfortable asking questions (Miyake and Norman 1979). Customers with higher levels of expertise feel greater control and are more confident in participating in the service process by making constructive suggestions;(Eisingerich & Bell, 2008; Hibbert et al., 2012); Customer expertise related to Firm specifics will increase the ability and confidence in doing E-WOM so that the association hypothesis is positive(Sun et al., 2021).

Hypothesis 7: Market-specific customer expertise will be positively related to E-WOM

Customers who have market expertise are more aware of the services of various companies. Customers with a high level of expertise also value services more functionally such as politeness, empathy, and personal attention.

Because experienced customers may feel more comfortable asking questions when the service context is complex (Eisingerich et al., 2014), they are more comfortable providing references and information to other customers. Customers with more market expertise use products from several companies so they will judge better. So the possibility to do E-WOM will be higher than for those who do not have market-specific expertise.

Hypothesis 8: Market-specific customer expertise will be positively related to perceived switching costs

Customers who have expertise and information related to the market will find it easier to switch to competitors. Customers already understand the Firm's work processes in the industry and can easily choose products that suit customer needs(Hibbert et al., 2012). Because their knowledge is more extensive and can easily move, customers will experience lower evaluation costs (costs associated with assessing competitive alternatives) and economic risk costs (costs of uncertainty about a new provider) because these customers are better suited to the market as a whole (Burnham et al., 2003).

Hypothesis 9: Firm-specific related customer expertise will be positively related to customer loyalty

Customers who have a high level of Firm-specific expertise will be more loyal to companies they already know. Customers with product-specific skills, for example, have been shown to show a greater calculative commitment to the firm (Hennig-Thurau 2002). When the information obtained by customers is limited and only about certain products, customers will buy products from the same Firm. They are comfortable with existing products so the authors propose a positive relationship between Firm-specific customer expertise and a positive relationship with customer loyalty. Customers who have longer expertise will be more loyal to the Firm (Burnham, Frels, and Mahajan 2003).

Hypothesis 10: Market-specific customer expertise will be negatively related to customer loyalty

According to (Porter, 1990) the higher the customer's expertise related to the specific market, the more confident they are in evaluating alternatives in the market. So that it is more likely that a customer will buy another product from a well-known Firm. For example, when a customer who already has market knowledge finds a cheaper product with the same value while looking for information before buying a product, it is easy for the customer to switch to another product. For this reason, the authors propose a hypothesis of the relationship between customer expertise related to specific markets with negative associations.

Hypothesis 11: Perceived switching cost will be negatively related to customer loyalty

Switching costs are related to purchasing decisions from customers. Before making a purchase, the customer will look for information related to the product and the Firm in question. These expectations are based on information-seeking theories (eg, Heilman, Bowman, and Wright 2000) and decision-making heuristics (eg, Park and Lessig 1981) which predict that the decision-making process and evaluation of choices will change as customer expertise changes. The lower the switching costs, the easier it is for customers to switch to other companies. According to (Punj and Staelin 1983) Loyalty will increase if the switching costs are low so the relationship between switching costs and customer loyalty is negative. If customers are easier to switch to competitors then no Loyalty levels will decrease and customer retention to buy products repeatedly will decrease. The perception of switching costs will have several advantages depending on the level of loyalty of the customer. For example, switching costs will reduce sensitivity to customer satisfaction and price (Retana et al., 2016).

Hypothesis 12: E-WOM will be positively related to customer loyalty

Hennig-Thurau et al., (2009) say e-WOM is, "a negative or positive statement made by a prospective or actual consumer, a consumer before a product or Firm where this information is made available to a person or institution through the medium of the internet. Of course, based on research (Zhang et al., 2021) it was found that customers who do e-WOM must have been educated and have knowledge related to the Firm or market so they are expected to give e-WOM positive associations and can become more loyal to the Firm (Retana et al., 2016). The possibility of negative e-WOM associations may occur if the Firm provides a negative message/education (Sweeney et al., 2014). Every Firm will certainly provide the best service and education so that if a customer does e-WOM, the customer is satisfied with the Firm's products and services which will have an impact on loyalty.

Hypothesis 13: Firm-specific related customer expertise will be positively related to customer satisfaction.

Customers who receive education from the Firm will manage information and make customers more experts (Sun et al., 2021). The results of education will make customers more skilled and more satisfied with the services provided by the Firm. Customers can further appreciate detailed information about their investment portfolios, additional insight into advisory decision-making processes, and more opportunities for co-production. An online interface may provide an ideal forum for responding to an increasing level of customer expertise (i.e. enabling the provision of targeted technical information) (Bell & Eisingerich, 2007). Customers who understand more about all the products they have purchased and are experts in the Firm's products will be more satisfied with the service because they understand what products they are buying about the weaknesses and strengths of a product.

Hypothesis 14: Market-specific customer expertise will be positively related to customer satisfaction

Continuous education to customers will increase customer satisfaction because customers will increasingly get information so that they can get services according to their expectations (McKinney et al., 2002). Customers who are increasingly skilled in the market will be more satisfied because they higher the ability to evaluate alternatives. (Retana et al., 2016) Customers who are not actively educated will be increasingly dissatisfied with services because they have to find information on their own (low expertise). For this reason, if the customer is increasingly skilled in the market, if the customer chooses a product, he will feel satisfied because he has compared it with competitors' products and services. Satisfied customers have received the best products in the market.

Hypothesis 15: Customer satisfaction will be positively related to E-WOM

The higher the customer satisfaction, the higher the possibility of customers doing E-WOM (Sun et al., 2021). Satisfied customers will be happier to tell other people so that it will bring up product references to relatives, family, or friends. Previous research in the tourism sector found that there was a positive relationship between a satisfying tourist experience and a positive intention to recommend WOM ;(Serra-Cantallops et al., 2018; Swanson & Hsu, 2011) said it had not, when customers are satisfied with service, they will provide references to others. In the restaurant industry, Yang (2017) found no support for the relationship between satisfaction and positive eWOM intentions. Meta-analysis of methodological aspects of guest surveys in the industry. travel also raised some concerns regarding the relationship between satisfaction and intention to recommend to others(Suprajang et al., 2019). For this reason, the authors examine how in the banking industry customers will have the intention to recommend. Satisfied customers should tend to give positive experiences to others resulting in positive associations.

Hypothesis 16: Customer satisfaction will be positively related to customer loyalty

Satisfied customers will be comfortable with products and services from products that have been used so they will make repeat purchases (Bell et al., 2017). When the customer is satisfied with a product, of course, the customer will be reluctant to switch to another product and create loyalty. If the customer wants to switch to another product, switching costs will arise and the customer needs to search for related information again.

IV. RESULT / FINDING

The measurement model to be carried out uses exploratory and confirmatory factor analysis in AMOS (Hair et al., 2011). The measurement model that will be carried out using exploratory factor analysis and confirmation in Smart PLS The author will use the method of structural equation modeling and SMART PLS

Where the main reasons are:

    a. Suitable for theoretical and predictive
    b. Multiple Model Constructions and Relationships
    c. Model Complexity - Small Population

Degree of Confidence = 95%

The questionnaire has been tested through a wording test and pilot test before being used for our data collection.

Measurement of models and indicators needs to be done to determine the level of validity and consistency of the data. Rhoa_A is a correlation that shows the value and construct. CR (Composite Reliability) is a value that shows the consistency of each variable. Meanwhile, the AvE (Average Variance Extracted) value is to measure the amount of variance that appears compared to its construct related to the variance error that appears. According to (Shiau et al., 2019) indicators that can be declared valid and reliable are

a. Valid value if Rhoa_A > 0.7
b. Reliable value if CR > 0.7
c. Valid value if AvE > 0.5

Table 1. AVE, Rho.A, Cronbach Alpha, CR

	Cronbach's Alpha	rho_A	CR	(AVE)
Customer Loyalty	0.848	0.860	0.898	0.688
Customer Satisfaction_	0.943	0.945	0.956	0.815
E-WOM	0.949	0.950	0.961	0.832
Firm-spesific education	0.853	0.868	0.901	0.695
Firm-spesific expertise	0.867	0.867	0.918	0.790
Market-related education	0.919	0.922	0.943	0.804
Market-related expertise	0.909	0.910	0.943	0.845
Perceived switching cost	0.819	0.820	0.892	0.734

Based on this value limit, it can be concluded that all analyzed variables are valid because they have exceeded the following indicator value limits. Validity is defined as the degree to which a concept is measured accurately in quantitative research. (Heale & Twycross, 2015). The KMO value ranges from 0 to 1 which indicates whether the data is suitable or not for further analysis. If the KMO value is equal to or greater than 0.5 and with a significant value (sig) or probability (p) less than 0.05, it means that the data has met the requirements for further analysis in factor analysis (Napitupulu et al., 2017). For this reason, the author analyzes the KMO value of each variable against the limit value.

Table 2. KMO Result

Variable	KMO	Value	Result
Firm Spesific Education	0.799	0.5	Valid
Market Spesific Education	0.838	0.5	Valid
Firm spesific expertise	0.728	0.5	Valid
Market-related expertise	0.745	0.5	Valid
Perceived Switching Cost	0.700	0.5	Valid
E-WOM	0.877	0.5	Valid
Customer Satisfaction	0.903	0.5	Valid
Customer Loyalty	0.744	0.5	Valid

Each variable that was tested resulted in varying KMO values. The highest KMO value is in the customer satisfaction variable, which is 0.903, while the lowest KMO value is in the perceived switching cost indicator, which is 0.700. All variable values have passed the limit value of 0.5 so it can be said that all data that has been collected is valid and can be analyzed further

Reliability Test

The second measure of quality in quantitative studies is the reliability, or accuracy of the instrument. In other words, the extent to which a research instrument consistently has the same results when used in the same situation on repeated occasions (Heale & Twycross, 2015). Cronbach's alpha and composite reliability scores. (Johnson & Guilford, 1956) suggested a value of 0.7 as a benchmark for Cronbach Alpha. However (Napitupulu et al., 2017) showed that Cronbach's alpha value of 0.6 was acceptable. The author takes a higher value of 0.7 for the level of reliability so that the results obtained are more consistent at different times. The table below is the result of the reliability test

Table 3. Cronbach Alpha testing II

Variable	Cronbach Alpha	Value	Result
Firm Spesific Education	0.852	0.7	Reliable Consistent
Market Spesific Education	0.919	0.7	Reliable Consistent
Firm spesific expertise	0.867	0.7	Reliable Consistent
Market-related expertise	0.907	0.7	Reliable Consistent
Perceived Switching Cost	0.814	0.7	Reliable Consistent
E-WOM	0.949	0.7	Reliable Consistent
Customer Satisfaction	0.961	0.7	Reliable Consistent
Customer Loyalty	0.848	0.7	Reliable Consistent

Furthermore, after each variable is declared valid, a reliability test will be carried out to see the level of consistency of each variable. A reliability test can be done by calculating the Cronbach alpha value for each variable being tested. A good cronbach alpha value is 0.7 (Tavakol & Dennick, 2011). If the value is above 0.7 then the variable can be declared consistent. Values higher than 0.7 can be said to be consistently high.

Discriminant Validity Test

The indicators will be measured using the measurement of discriminant validity and convergent validity. It is used to see the suitability of the model. According to J. F. Hair et al., (2011) the minimum AVE (Average Variance Extracted) level is 0.5 while the outerloadings value is 0.70.

Table 4.

Variable	Item	AVE	Outer Loadings
Firm-specific education	FED1		0.810
	FED2	0.688	0.891
	FED3		0.801

	FED4		0.829
Market-related education	MED1	0.865	0.891
	MED2		0.898
	MED3		0.912
	MED4		0.886
Firm-specific expertise	FEX1	0.832	0.862
	FEX2		0.903
	FEX3		0.900
Market-related expertise	MEX1	0.695	0.931
	MEX2		0.921
	MEX3		0.906
Perceived Switching Cost	PSC1	0.790	0.857
	PSC2		0.827
	PSC3		0.886
E-WOM	WOM1	0.804	0.903
	WOM2		0.897
	WOM3		0.921
	WOM4		0.923
	WOM5		0.916
Customer Satisfaction	CS1	0.845	0.903
	CS2		0.857
	CS3		0.927
	CS4		0.928
	CS5		0.896
Customer Loyalty	CL1	0.734	0.898
	CL2		0.819
	CL3		0.788
	CL4		0.809

Based on the data and the AVE value, it can be seen that all variables are above equal to 0.5 while the indicator value of each variable is at 0.7. This can be indicated that the indicators and variables are valid.

Furthermore, the level of discriminant validity can be seen by using the Fornell-Lacker test. The condition that must be met in this test is that the Fornell-Lacker value itself must be above the value of the inter-construct correlation (J. Hair et al., 2014).

Structural Model

Structural model. It indicates the quality of the adjusted model (Ringle et al., 2014). Based on R Square Table 5. E-WOM and Customer loyalty are the highest effect on dependent variable. R Square >0.75 strong relationship, 0.50 moderate relationship and 0.25 weak relationship (Hair et al., 2011).

Table 5. R Square

Variable	R Square	R Square Adjusted
Customer Loyalty	0.682	0.673
Customer Satisfaction_	0.500	0.495
E-WOM	0.703	0.698
Firm-spesific expertise	0.490	0.484
Market-related expertise	0.378	0.371
Perceived switching cost	0.518	0.513

Market-related expertise have weak relationship regarding dependent variable indicate R Square adjusted. Model fit analysis carried out to test the model alignment and validity

Table 6. Model fit test

	Saturated Model	Estimated Model	Fit Criteria
SRMR	0.052	0.097	<0.08
d_ULS	1.358	4.715	>0.95
d_G	1.044	1.243	>0.95
Chi-Square	1,165.167	1,237.101	<1
NFI	0.813	0.802	>0.9

The model is measured based on five related indicators to measure the suitability of the model. For the SRMR indicator, the model is considered less fit because it exceeds the value of 0.08. Meanwhile, the d_ULS and d_G model indicators exceed the limit values, so they are said to be good. For Chi-Square, it has a positive value of 1,249 so it can be accepted. The NFI value is 80.4% fit to the model.

V. RESULT/FINDING

Hypothesis testing is done by looking for the value of T Statistics and also the value of P Values. According to (Cohen 1998) the T statistic value below 1.96 means that there is no relationship, whereas if the T statistic value is > 1.96 then there is a relationship between variables. If the P Values are above 0.05 then it is not significant but if the P Values are below 0.05 then the relationship between the independent and dependent variables has a significant value (AlWahaibi et al., 2020).

Table 7. Hypothesis result

Relationship Variable	T Statistic	P Values	Result
Hypothesis 1 Firm Education → Firm Expertise +	5.441	0.000	Accepted
Hypothesis 2 Firm Education → Market Expertise +	3.838	0.000	Accepted

Hypothesis 3 Market Education → Firm Expertise +	2.935	0.002	Accepted
Hypothesis 4 Market Education → Market Expertise +	2.918	0.002	Accepted
Hypothesis 5 Firm Expertise → Perceived Switching Cost +	4.942	0.000	Accepted
Hypothesis 6 Firm Expertise → E-WOM +	2.522	0.006	Accepted
Hypothesis 7 Market Expertise → E-WOM +	0.765	0.222	Rejected
Hypothesis 8 Market Expertise → Perceived Switching Cost +	3.139	0.001	Accepted
Hypothesis 9 Firm Expertise → Customer Loyalty +	1.407	0.080	Weak
Hypothesis 10 Market Expertise → Customer Loyalty -	0.270	0.394	Rejected
Hypothesis 11 Perceived Switching Cost → Customer Loyalty +	3.278	0.001	Accepted
Hypothesis 12 E-WOM → Customer Loyalty +	2.938	0.002	Accepted
Hypothesis 13 Firm Education → Customer Satisfaction +	4.695	0.000	Accepted

Hypothesis 14 Market Education → Customer Satisfaction +	2.693	0.004	Accepted
Hypothesis 15 Customer Satisfaction → E-WOM +	11.844	0.000	Accepted
Hypothesis 16 Customer Satisfaction → Customer Loyalty +	2.078	0.019	Accepted

Based on the results of hypothesis testing, it was found that there were 3 rejected hypotheses, namely hypothesis 7, namely the influence of Market-related expertise on E-WOM has no relationship and is not significant, hypothesis 9 is firm-specific expertise on customer loyalty has no relationship and is not significant and hypothesis 10 namely Market-related expertise on customer loyalty has no relationship and is not significant and hypothetical. In addition, all hypotheses are accepted and by initial assumptions, namely the T values above 1.96 and the P values below 0.05, which are significant.

VI. DISCUSSION

Education is how a company provides information as to facilitate a learning process to customers so that they can how to conceptualize and, explain the asymmetry of products and services, and direct customers to the right information related to products and services. According to (Bell et al., (2017) the education carried out by the company will produce two expertise, namely firm-specific expertise and market-related expertise. Our research extends the findings by Bell et al. (2017) and confirms how customer education and customer expertise are both should be analysed in two separate dimensions namely market-specific and firm-specific.

Based on the results of hypothesis testing, it can be seen that there is a significant relationship between education and expertise. The theory is that education will produce information that can be learned by customers which makes them experts (Workshop, 2009). When they are experts, customers can do positive E-WOM so that it provides benefits for the company (Sun et al., 2021), but of course, when they become more skilled, it becomes easier for customers to choose products and services from competing industries (Bell et al., 2017). Therefore education is one of the most important elements and companies are obliged to analyze further before conducting education. Even if the company does not provide education, customers will still seek information before looking for products and services (Kotler & Keller, 2016), so that they can satisfy their needs.

The initial hypothesis says that customer expertise will be directly related to positive E-WOM. Customer expertise influences the way customers use and evaluate information and experiences (Alba and Hutchinson 1987; Eisingerich and Bell 2008; Hibbert, Winklhofer, and Temerak 2012; Wieseke, Geigenmüller, and Kraus 2012). Customers who have received education will understand the products and services used so that they will share their experiences with others. Highly skilled customers feel greater control and are more confident in participating in the service process by making constructive suggestions (Eisingerich et al., 2014); Eisingerich and Bell 2008; Hibbert, Winklhofer, and Temerak 2012; Wieseke,(Nyffenegger et al., 2015). Hypothesis testing saw that the initial hypothesis related to firm-specific expertise would be significantly related to positive E-WOM, but market-related expertise did not have a significant relationship with positive E-WOM. This happens because when companies provide education regarding the product and service industry as a whole, customers cannot tell their experiences and advantages of products and services but understand the information in choosing their products in the product and service industry (Bell et al., 2017). For this reason, companies need to provide more education related to companies than the industry to create positive E-WOM.

The initial hypothesis is that after the customer receives education, the expertise of the customer will increase. Based on Bell's research in 2017, the results of the education carried out can produce two types of

expertise, namely market-related expertise and firm-specific expertise. According to the results of the hypothesis test, it is known that the accepted hypothesis, namely firm-specific and market-related expertise, has a significant relationship with perceived switching costs. It is also by the theory that customers who have company-specific related expertise are more loyal to the company. They are familiar with the products and services of the company they have purchased from (Hennig-Thurau 2002). Customers who are familiar with the values, products, specifications, and how the company works will have a higher perceived switching cost compared to people who do not have related knowledge. They know the company better and understand the advantages and disadvantages of products and services. Customers will find it more difficult to move and have to do product research again, try to get to know the product, and see other people's reviews. This will increase the perceived switching cost so that it is better for customers to stay with the products they already have. It's different when the customer is not comfortable. dissatisfied with the products and services they have received, the perceived switching cost will decrease and they will easily switch to other companies (Duarte et al., 2018).

According to Kotler (2016), there are several levels of loyalty, one of which is Premium loyalty where not only do customers continue to buy goods and services from related companies, but customers act as people who make positive references/WOM. In this study, as the basis for most of the reviews and digital banking education channels through digital means, E-WOM is one of the research variables. Based on the hypothesis test by the initial hypothesis, namely positive E-WOM will be significantly related to loyalty. The higher the level of positive E-WOM customers, the higher the level of customer loyalty. Customers show loyalty by buying references and sharing their experiences with others (Imbayani & Gama, 2018). By the results of hypothesis testing, there is a significant positive relationship when E-WOM increases loyalty increases. Customers who do E-WOM have entered a higher level of loyalty by sharing their experiences with others. Loyalty is one of the good impacts that have been carried out by companies and banks (Churchill, 2000).

Expertise is the result of education conducted by the company and can make customers make repeat purchases, but customers can also consider moving to competitors after knowing more about products and services (Bell et al., 2017). Based on the hypothesis test on loyalty, the result is rejected where expertise does not have a direct significant effect on loyalty. Expertise has no direct effect on loyalty, but based on the hypothesis test, expertise has a direct effect on customer satisfaction, E-WOM, and also perceived switching costs. Every customer who has better firm-specific and market-related expertise does not directly affect loyalty but influences other variables that will later affect loyalty. Customers who have more knowledge will not necessarily be loyal but will understand more about the goods they buy and are satisfied with them.

Continuous education carried out by the company will increase customer satisfaction, because customers increasingly understand what they are buying according to the desired value (Bhattacherjee 2001, McKinney et al. 2002). In line with the results of hypothesis testing that education has a significant relationship to customer satisfaction, customers who receive an education will understand more about the goods they have purchased, and they are satisfied because they have spent resources (psychology, money, energy, etc.) understand how the process, how it works, advantages and specifications (Suh et al., 2015). Of course, customers will be satisfied because they understand that every money spent on goods and services is explained by changes, and specifications, continuously through education. Therefore the importance of education is carried out by the company to provide a higher level of satisfaction to customers so that it can have a positive impact on loyalty and positive E-WOM.

VII. CONCLUSION AND RECOMMENDATION

The results of the study stated that education had an impact on loyalty, but education related to market specifics did not have a significant impact. According to Kotler & Keller (2016), customers in making purchases will definitely seek information. The goal of the customer is to get goods and services according to their needs and objectives. For example, customers who need higher quality will focus more on quality than price, but buyers who focus on specifications will be different from buyers who focus on reputation and price. For this reason, education is very useful for customers because customers will directly seek information and education in various distribution channels. Engel, (2014) said that currently digital channels are seen by customers such as reviews and online comments made by customers (E-WOM). In accordance with the positive association hypothesis test between education and expertise and E-WOM, it is therefore important for companies to analyze the distribution channels of marketing education carried out by customers, for example digital marketing can be done on Twitter, Instagram or YouTube. In addition, the hypothesis test shows that firm-specific expertise has a positive relationship with E-WOM and loyalty, therefore companies should focus more on providing benefit

features and product specifications compared to the industry. (Bell et al., 2017) The results of education can lead to a switch, but the higher the value of the company, the higher the switching costs so that customers will be loyal. For this reason, the company must have a competitive advantage over other companies. Based on previous research, it is said that education will produce expertise related to the market and firm (Bell et al., 2017). The results of the hypothesis test also provide an answer that there is a significant relationship between the two, but looking at the results of the hypothesis test, the overall model should focus more on developing firm-specific education compared to market-related education. This can be seen from other variables that are affected such as E-WOM, customer satisfaction and loyalty will have a positive impact on the company through loyalty. Customers who understand more information about the company will be more satisfied because they understand what they have got (Suh et al., 2015). Companies can provide more education related to product benefits, specifications, promotions compared to education related to the industry as a whole. Customers who understand the product industry more highly will tend to look for better products and evaluate (Kotler & Keller, 2016).

For this reason, considering the company's limited resources, the company should focus on doing firm-specific education rather than market-related education. Positive e-WOM is one of the company's goals, because of course customers can become promotional "agents" for the company by telling their best experiences and references to others. Even E-WOM is one of the best marketing strategies because customers will be more receptive to information than other distribution channels (Huang et al., 2011). Based on the results of hypothesis testing, it can be seen that E-WOM has a significant relationship with expertise. Of course, how can a customer do E-WOM if the customer has minimal information regarding the company's products and services. For this reason, companies need to carry out proper analysis in educating customers.

For example, if the company's target market is customers who often open LinkedIn, the company can focus on educating there, either with videos, pictures or reviews of people who have used it. One of the things that companies can do to improve their expertise is to provide promotional programs so that customers can try to use products and services and finally, if they are in accordance with the customer's value, positive E-WOM will be carried out to other customers (Sa'ait et al., 2016). After we educate and customers become more familiar with the company and get information related to market-related and firm-specific expertise, the company must work harder in increasing the value of products and services. Customers who understand the industry and products about the company will understand more about the advantages and disadvantages of each product and service so that companies need to monitor and evaluate each product and service every time. Companies must always innovate related to products and services and carry out continuous education to increase perceived switching costs so that customers are reluctant to switch to competitors. Appropriate education for banking customers can be done by means of relationship management where Education is carried out directly personally to improve good relations with customers (Boateng, 2019). WOM is an effective marketing tool and has an important role in marketing to customers (Huang et al., 2011). In accordance with the results of hypothesis testing that there is a significant relationship between E-WOM and customer loyalty. Customers will do E-WOM if they have higher firm expertise, therefore it is important that the company provides more education regarding the advantages and specifications of the company. For example, companies can create infographics related to specifications and benefits compared to other digital banking. One of them is SEABank which provides infographics regarding the differences between other banks and SEABank in terms of interest, transfer fees and others. Customers who get information and feel comfortable with banking will do positive E-WOM to their family, friends and relatives and of course because they feel comfortable with the company will become loyal customers.

E-WOM has an important role in getting customers to buy company products and services (Imbayani & Gama, 2018). Based on the hypothesis test, customers who have expertise are not directly related to loyalty. Customers who already have more expertise but are less comfortable with the company after knowing information related to products and services can easily move. For this reason, companies need to provide personal education, especially to customers who have personal needs. One of the things that can be done is to do relationship management (Boateng, 2019). Directly, expertise does not have a direct relationship with loyalty, but customer expertise will be satisfied if they understand all the details of the process, specifications and value of goods and services. For this reason, companies should focus more on providing personal education to each customer to increase loyalty through customer education (Bell et al., 2017). Customer satisfaction is the main thing in a company (Muluka et al., 2015). When customers are satisfied, they can make repeat purchases or even make referrals to other customers. Of course, indicators of customer satisfaction will differ in different demographics (Seiler et al., 2013). For this reason, in the current digital banking era, companies need to personally educate customers. Companies can focus on education focused on companies related to aftersales,

purchasing, process and value. When customers fully understand the specifications of products and services, even product guarantees and product benefits, customers will feel satisfied because they have received goods in accordance with the sacrifices they made (Iqbal et al., 2021). For this reason, comprehensive education is important for the company so that customers can be satisfied doing E-WOM and in the long term will be loyal to the company.

In consumer behavior theory, customers will search for information at an early stage, and the right time for education is at this stage. Digital banking which is still relatively new in the market must take the right time when customers are searching for information. Digital banking can focus more on the features and benefits of digital banking products such as ease of transactions, how to submit and others compared to conducting education related to the market industry. In addition, banking by conducting education has proven to have a positive impact on customer satisfaction and can provide positive E-WOM. This can be an effective marketing communication strategy to customers. These customers can become marketing agents from digital banking to other customers and create loyalty to digital banking.

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The Effect Of Financial Literacy, Financial Inclusion, And Financial Behaviour On Investment Decision Of WRAP Entrepreneurship Students

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Abstract

Merdeka Belajar Kampus Merdeka is implemented in various ways, one of which is WRAP Entrepreneurship by Telkom University, which organizes studens who want to learn to build their own businesses. As entrepreneur, they must have good financial literacy related to managing their business finances. Besides, entrepreneurs are also required to have a good level of financial inclusion and financial behaviour because the business activities carried out depend on capital, then as an entrepreneur is required to be able to make decisions related to the investment made. Therefore, this study will examine whether there is an effect of financial literacy, financial inclusion, and financial behaviour on the investment decisions of the WRAP Entrepreneurship students. The research method used is quantitative research, with descriptive analysis using using SPSS software by distributing questionnaires to 52 respondents. The results showed that WRAP Entrepreneurship students had good levels of financial literacy, financial inclusion, financial behaviour, and investment decisions. Partially, financial literacy and financial inclusion do not affect investment decisions, but financial behaviour does affect investment decisions. Even though financial literacy, financial inclusion, financial behaviour, and investment decisions are classified as well, this still needs to be improved so that the results are very good by providing knowledge about business finance and business investment, even if possible, given a business finance simulation so that the business carried out can run smoothly, and investment decisions can be made correctly while participating in the WRAP Entrepreneurship program.

Keywords— financial literacy; financial inclusion; financial behavior; investment decision

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I. INTRODUCTION

Along with economic development, people are required to be able to manage their finances well because nowadays someone is more responsible for managing their own finances than before. Currently, the available financial products are increasingly diverse, including those for consumption, savings, pension and investment needs. (Lusardi, 2019). In Indonesia, investment continues to increase every year, as evidenced by the continued increase in Single Investor Identification (SID) throughout 2018-2021 (KSEI, 2021).
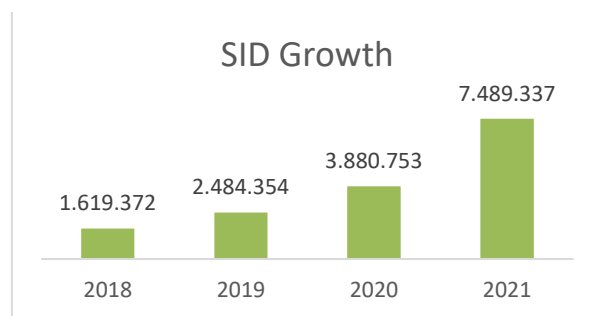
Fig. 1. SID growth (KSEI,2021)

In 2018 the number of owners of capital market SID was 1,619,372. In the following year, 2019, the number of owners of the capital market SID was 2,484,354. Then in 2020, the number of capital market SID owners increased to 3,880,753, and in 2021 the number of capital market SID owners grew drastically by 93% compared to the previous year, 7,489,337. This large number of investors can certainly be an opportunity for startups to obtain funding from investors.

WRAP Entrepreneurship is one of *Merdeka Belajar Kampus Merdeka* (MBKM) conducted by Telkom University which organizes studens who want to learn to build their own businesses. As startup business owners,

WRAP Entrepreneurship students should have good financial knowledge so that if their startup succeeds in obtaining income from investors, they can allocate it well too. One of them by investing. According to a survey by KSEI, as many as 28.03% of SID holders are students, so it is possible that WRAP Entrepreneurship students will also invest. Making investment decisions must be supported by financial literacy, financial inclusion, and good financial behaviour because the business activities carried out depend on capital, then as an entrepreneur is required to be able to make decisions related to the investment made because they will be faced with various investment alternatives.

Based on the results of a survey by Otoritas Jasa Keuangan (OJK) in 2019, it was found that the student financial literacy index was 31.69%. It can be seen that although students have a high interest in investing, only 31.69% of them have the adequate financial literacy to make good investment decisions. As entrepreneurs, WRAP Entrepreneurship students must have good financial literacy related to managing their business finances. Therefore, it is necessary to provide financial-related information by banks, financial institutions, and academics who will be the spearhead in an effort to improve financial literacy in the community (Finansialku, 2019).

Based on the resultsof a survey by the OJK in 2019, it was also known that Indonesia's financial inclusion index was 76.19%, an increase compared to 2016, with a financial inclusion index of 67.80%. This means that the use of financial products or services by the public continues to increase. However, increasing financial inclusion does not always have a positive impact if the younger generation is not equipped with a good financial understanding (OCBC, 2021). According to research conducted by OCBC NISP Bank and NielsenIQ, it shows that the average financial health of the younger generation is only 37.72%. The results of this research and statement indicate that the financial behaviour of the younger generation is still not good and still needs to be improved. According to research conducted to determine the pattern of student financial behaviour, students often have difficulty managing their finances because they do not have their own income and only depend on monthly money from their parents (Suryanto, 2017).

According to several previous studies, it is known that financial literacy has a significant effect on investment decisions (Adil et al., 2021;Baihaqqy et al., 2020;Kumari, 2020). Then the research conducted by Bongomin et al. (2015) shows that financial literacy and financial inclusion are interrelated because financial literacy will help in using financial products. Johan et al. (2021) stated that financial behaviour would affect financial decisions, as evidenced by the difference between someone who has attended financial training will produce better financial decisions than someone who has never attended financial training. Concerning factors that can influence investment decisions, the researcher wants to know whether financial literacy, financial inclusion, and financial behaviour can influence investment decisions made by WRAP Entrepreneurship students because we want to know how students make investment decisions as part managing their finances if they have earned income from their startup business.

II. LITERATURE REVIEW

Investment is a long-term investment in assets or securities to make a profit. (OJK, 2017). Investment is an action to delay the use of funds or assets in the present in the hope of getting a profit in the future (Ekananda, 2019). Kumari (2020) found that investment decisions can be influenced by financial literacy, including those related to ability, knowledge, and financial management.

Financial literacy is the knowledge, ability, and trust to improve the quality of decision-making and financial management that aims to achieve prosperity (OJK, 2019). The Organization for Economic Co-operation and Development (OECD) defines financial literacy as a combination of awareness, knowledge, attitudes and behaviour in making financial decisions in order to achieve financial well-being goals (OECD, 2020). Financial literacy refers to the ability to use the knowledge and skills possessed to manage finances effectively. Financial literacy is very important in making investment decisions (Adil et al., 2021).

According to a survey conducted by the OJK, financial literacy and financial inclusion are interrelated in achieving prosperity. Financial inclusion is important in the growth and development of a country. Financial inclusion is the availability of access for the public to understand financial institutions, services and products according to their needs and abilities in managing finances with the aim of achieving prosperity. (OJK, 2019). Financial inclusion, according to Chandran (2014) is a process of ensuring access for the public, especially the lower classes, to obtain information about financial products and services in a fair and transparent manner. Reliable, useful, and affordable financial products and services (Nugraha et al., 2021). Financial inclusion provides access to financial services such as savings, credit, insurance, and other payment methods to the public, especially those who have not or have never used banking services. The information provided is about savings, credit, insurance, and other payment methods (Thomas, 2020).

Kumari (2020) stated that making investment decisions requires not only high financial literacy but also behavioural factors. Human behaviour related to financial decision-making and money management, such as budget control, bill payments, and saving habits, is called financial behaviour (Rai et al., 2019). Good financial planning will minimize the problem of the financial crisis, one of which is making purchases as needed with the principle of looking for the best product at the best price so that the money you have will run longer and be able to avoid debt (OECD, 2020). Fitriarianti (2018) found that the better a person's financial mentality, the better they are in making financial decisions, including investment decisions. According to Baihaqqy et al., (2020) making individual investment decisions will be driven by how they manage their finances, which will affect satisfaction in financial management. Based on the description described above, to make it easier to understand the research, the following is a framework that describes the research problem.
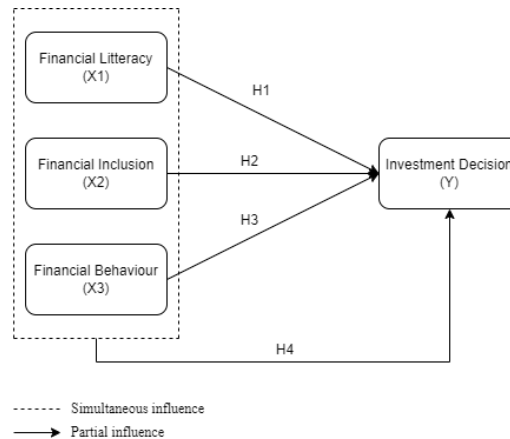
Fig. 2. Conceptual Framework (adopted from Upadana & Herawati (2020) and Nugraha et al. (2021))

Based on the framework above, it can be concluded that the hypotheses in this study are:

H1 : Financial literacy (X1) has a significant effect on the investment decisions of WRAP Entrepreneurship students (Y).
H2 : Financial inclusion (X2) has a significant effect on the investment decisions of WRAP Entrepreneurship students (Y).
H3 : Financial behaviour (X3) has a significant effect on investment decisions of WRAP Entrepreneurship students (Y).
H4 : Financial literacy (X1), financial inclusion (X2), and financial behaviour (X3) simultaneously affect the investment decisions of WRAP Entrepreneurship students (Y).

III. RESEARCH METHODOLOGY

The research method used in this research is quantitative research, which is a type of research that uses measurement procedures to achieve new findings from several characteristics that appear in human life called variables. The variables used in this study are financial literacy, financial inclusion, financial behaviour as the independent variable and investment decisions as the dependent variable. The scale used for the variables in this study is the ordinal scale, which is a measurement scale that has levels in each category. The assessment of this variable was carried out using a Likert scale. Namely, a score of 1 for the answer 'strongly disagree', a score of 2 for 'strongly agree', a score of 3 for 'neutral', a score of 4 for 'agree', and a score of 5 for 'strongly agree'. The population in this study were all students who were members of the WRAP Entrepreneurship, as many as 60 students. Sampling was done by using the convenience sampling technique. Namely, the sample was selected based on the availability of the population to be used as a sample. The sample in this study amounted to 52 students who were determined based on the Slovin formula.

This study uses primary and secondary data. The primary data source in this study is the result of a questionnaire distributed to selected respondents, namely students who are members of the WRAP Entrepreneurship program. At the same time, secondary data relating to data related to investment, financial literacy, financial inclusion, and financial behaviour are sourced from scientific articles, printed books and e-books, online news, previous research, and other sources relevant to this research. After the data obtained answers from the respondents to the questionnaires that have been given, the researchers will then test the validity using the Pearson Product Moment and test the reliability by looking at Cronbach's Alpha to determine the level of

validity and reliability of all statements in this study. The data analysis technique in this study is descriptive analysis with Microsoft Excel, classical assumption test, multiple linear regression and hypothesis testing using SPSS 26 version.

IV. RESULT / FINDING

Based on the results of distributing questionnaires to 52 WRAP Entrepreneurship students, the characteristics of the respondents are as follows:

Table 1. Characteristics of Respondents

Characteristics		Amount	Percentage
Startup	Aipet	1	1,9%
	Arkamaya	2	3.8%
	A-Tani	3	5,7%
	Survo	3	5,7%
	Edu Alecta	5	9,4%
	Gravis Indonesia	4	7,5%
	GrowUp	5	9,4%
	Halo Law	3	5,7%
	Houset	5	9,4%
	Kiri	4	7,5%
	Nufish	5	9,4%
	ServEasy	3	7,5%
	Signature Store	4	7,5%
	Travemates	5	9,4%
Gender	Male	33	63,5%
	Female	19	36,5%
Personal Income	<2.000.000	31	58,5%
	2.000.001-5.000.000	18	35,9%
	5.000.001-10.000.000	2	3,8%
	>10.000.000	1	1,9%
Investment Experience	Never	11	21,2%
	Yes	41	78,8%
Investment Asset	Never	5	9,6%
	Gold	4	7,7%
	Cryptocurrency	2	3,8%
	Property	1	2%
	Bond	1	2%
	Mutual funds	12	23,07%
	Mutual fund, Cryptocurrency	1	2%
	Stock	8	15,4%
	Stock, Gold	1	2%
	Stock, Mutual fund	10	19,2%
	Stock, Mutual fund, Cryptocurrency	1	2%
	Stock, Mutual fund, Bond	5	9,6%
	Stock, Mutual fund, Bond, Cryptocurrency, Gold	1	2%

Data processed

In reference to table 1. it can be seen that all respondentsin this study were studentswho came from 15 WRAP Entrepreneurship startups and were in accordance with the target respondentsof this research. Respondents in this study were dominated by male students, as much as 63.5%. As many as 31% of students have income below IDR 2,000,000 per month, and as many as 78.8% of studentshave invested with the choice of investment asset, the most chosen Mutual fund as much as 23.07%.

The results of the validity test for the variables of Financial Literacy (X1), Financial Inclusion (X2), Financial Behavior (X3), and Investment Decisions (Y) indicate that all statement items are valid because the R count is greater than R table (0.233). Meanwhile, for the reliability test, the results show that the value of Cronbach's Alpha variables for Financial Literacy (X1), Financial Inclusion (X2), Financial Behavior (X3), and Investment Decisions (Y) is above 0.60, so all statement items in this study are reliable.

Furthermore, the questionnaires that have been filled in are then collected and calculated to determine the percentage level of scores and the assessment criteria for each of the variables studied. The categories for assessing the variables are based on the table of score interpretation criteria that have been determined below.

Table 2. Score Interpretation Criteria

Index	Category
20% - 36%	Very Not Good
37% - 52%	Not Good
53% - 68%	Pretty Good
69% - 84%	Good
85% - 100%	Very Good

Arikunto (2013)

After distributing questionnaires to WRAP Entrepreneurship students to determine the scoring on each statement item that has been determined, the following is the result of calculating the index for each variable in this study.

A. *Financial Literacy*

Table 3. Financial Literacy Descriptive Statistics

Item	Statement	Strongly Disagree	Not Agree	Neutral	Agree	Strongly Agree	Index	Category
		1	2	3	4	5		
LK1	To make short-term and long-term plans, good financial management is needed.	0	0	0	10	42	96%	Very Good
LK2	Financial knowledge is important for students all the time.	0	0	1	14	37	94%	Very Good
LK3	To increase my financial knowledge, I like to read or watch news related to finance.	1	2	11	18	20	81%	Good
LK4	I understand the importance of keeping expenses within the set budget.	0	0	5	17	30	89%	Good
LK5	I compare the available credit offers when buying goods in installments	2	3	11	13	23	80%	Good
LK6	I understand the type of investment that yields the highest returns.	3	3	12	16	18	77%	Good
LK7	I understand the savings products provided by financial institutions.	2	7	13	17	13	73%	Good
LK8	Speculative risks will still arise even though I have made good financial planning.	1	1	8	19	23	84%	Good
	Average total index						84%	Good

Data processed

Based on the results of the analysis in Table 3. Financial Literacy Descriptive Statistics, it can be seen that the financial literacy index of WRAP Entrepreneurship studentsis 84% and is in a good category. The highest index of each statement is on LK1 (To make short-term and long-term planning, good financial management is needed) of 96%, with the most answering 'Strongly Agree' as many as 42 students. While the lowest index of financial literacy is in the statement of LK7 (I understand the savings products provided by financial institutions) at 73%, with the most answering 'Agree' as many as 17 students.

B. Financial Inclusion

Table 4. Financial Inclusion Descriptive Statistics

Item	Statement	Strongly Disagree 1	Not Agree 2	Neutral 3	Agree 4	Strongly Agree 5	Index	Category
IK1	Products and services provided by financial institutions are safe for students.	0	1	11	23	17	82%	Good
IK2	The initial cost of opening an account from a financial institution is quite affordable for students.	0	0	11	19	22	84%	Good
IK3	Financial products and services issued by financial institutions have low administrative costs.	1	4	10	24	13	77%	Good
IK4	Financial products or services provided by financial institutions have increased student access to financial facilities.	0	0	8	24	20	85%	Very Good
IK5	Financial products or services provided by financial institutions have improved student welfare.	0	1	13	23	15	80%	Good
IK6	Financial products in the form of investments provided by financial institutions according to student needs	0	1	12	26	13	80%	Good
IK7	Financial products in the form of savings provided by financial institutions according to student needs	0	0	8	24	20	85%	Very Good
IK8	Financial products in the form of loans provided by financial institutions according to student needs	0	5	14	19	14	76%	Good
Average total index							81%	Good

Data processed

Then the results of the descriptive analysis are in Table 4. Financial Inclusion Descriptive Statistics show that WRAP Entrepreneurship students have a financial inclusion level index of 81% and are included in the 'Good' category. The highest index of each statement is in IK4 (Financial products or services provided by financial institutions have increased student access to financial facilities), with 24 students answering 'Agree' and IK7 (Financial products in the form of savings provided by financial institutions according to student needs) of 85% with 24 students answering 'Agree'. While the lowest index of financial inclusion is in the statement of IK8 (financial products in the form of loans provided by financial institutions according to student needs), at 76%, with 19 students answering 'Agree'.

C. Financial Behaviour

Table 5. Financial Behaviour Descriptive Statistics

Item	Statement	Strongly Disagree 1	Not Agree 2	Neutral 3	Agree 4	Strongly Agree 5	Index	Category
PK1	I always pay my bills on time to avoid extra fees	0	2	4	13	33	90%	Very Good
PK2	I record and control my personal expenses	2	5	5	19	21	80%	Good
PK3	I save regularly every month	0	5	9	21	17	80%	Good
PK4	I have financial reserves that can be used in the most unexpected times	0	3	6	16	27	86%	Very Good
PK5	I have an expense budget (daily, weekly, monthly, yearly, etc.) that I follow	2	5	9	19	17	77%	Good
PK6	I spend money according to my planned budget	10	11	13	6	12	60%	Pretty Good
PK7	I like to use financial products to save money	1	2	9	16	24	83%	Good
Average total index							79%	Good

Data processed

Furthermore, based on the results of the descriptive analysis in Table 5. Financial Behaviour Descriptive Statistics, it is known that WRAP Entrepreneurship students have an index of financial behaviour level of 79% and are included in the 'Good' category. The highest index of statements about financial behaviour is on PK1 (I always pay my bills on time to avoid additional fees) at 90%, with the highest frequency of answers being 'Strongly Agree' as many as 34 students. While the lowest index of financial behaviour is in the PK6 statement (I spend money according to my planned budget) of 60%, with the highest frequency of answers being 'Neutral', as many as 14 students.

D. Investment Decision

Table 6. Investment Decision Descriptive Statistics

Item	Statement	Strongly Disagree 1	Not Agree 2	Neutral 3	Agree 4	Strongly Agree 5	Index	Category
KI1	I can take into account the security and risk of investment	1	4	10	20	17	78%	Good
KI2	I can predict the factors that can be a risk in investment	1	4	9	26	12	77%	Good
KI3	I can calculate the rate of return on investment	1	5	11	21	14	76%	Good
KI4	I can calculate the duration and rate of return of the investment in order to meet expectations.	1	4	13	20	14	76%	Good
KI5	I can understand the future value of money as an aspect of the growth of the investment I make	2	3	7	28	12	77%	Good
KI6	I can understand changes in asset values over time	1	4	9	23	15	78%	Good
KI7	I can analyze the flow of funds disbursement (liquidity) from each investment instrument	1	6	14	14	17	75%	Good
KI8	I prefer to invest in multiple assets rather than just one asset	1	2	9	22	18	81%	Good
Average total index							**78%**	**Good**

Data processed

The results of the descriptive analysis are in Table 6. Investment Decision Descriptive Statistics shows that WRAP Entrepreneurship students have an investment decision level index of 78% and are included in the 'Good' category. The highest index of each statement is at KI8 (I prefer to invest in various assets rather than only one asset) at 81%, with the most answering 'Agree' as many as 22 students. While the lowest index of investment decisions is in the statement of KI7 (I can analyze the flow of funds disbursement (liquidity) from each investment instrument) of 75%, with the most answering 'Strongly Agree' as many as 17 students.

E. Classic assumption test
Normality Test

The purpose of the normality test is to determine the distribution of the data in the variables to be used. The normality test in this study used the Kolmogorov-Smirnov normal test, with the results of the normality test using SPSS version 26 as follows:

Table 7. Normality Test Results

One-Sample Kolmogorov-Smirnov Test	
Asymp. Sig. (2-tailed)	Results
0,200	Data is normally distributed

Data processed

Based on table 7. Normality test results show that the value of sig. $0.200 > 0.05$, then it can be seen that the data in the variables to be used is normally distributed.

Heteroscedasticity Test

A heteroscedasticity test was conducted to test whether there was a difference in residual variance from one observation period to another. The results of the heteroscedasticity test using SPSS version 26 are as follows:
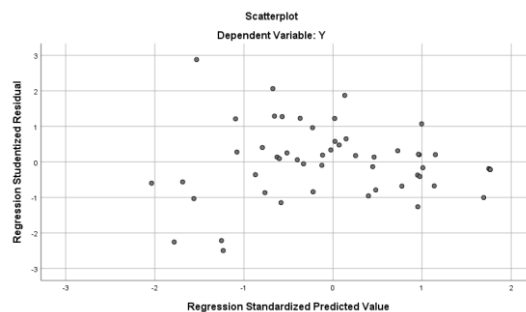
Fig. 2. Heteroscedasticity Test Results (Data processed)

Based on Figure 2. Heteroscedasticity Test Results can be seen that there is no heteroscedasticity in this research model because :

    a.   The data points on the scatterplot spread above and below or around the number 0.
    b.   There are no clustered points above or below the scatterplot.
    c.   The points on the scatterplot do not form a wavy pattern that widens, then narrows again and widens again.
    d.   The scattered dots on the scatterplot do not form a pattern.

Multicolinearity Test

The multicollinearity test was carried out to determine the similarity between one variable and another variable so that a strong correlation could occur. According to the multicollinearity test, the criteria for a good regression model is if the VIF is between 1 to 10. The results of the multicollinearity test using SPSS version 26 are as follows:

Table 8. Multicollinearity Test Results

Variables	VIF	Results
Financial Literacy	2,225	No Multicolinearity
Financial Inclusion	1,765	No Multicolinearity
Financial Behaviour	1,845	No Multicolinearity

Data processed

Based on table 8. Multicollinearity test results, it can be seen that there is no multicollinearity because the financial literacy VIF results are 2.225, financial inclusion VIF is 1.765, and financial behaviour VIF is 1.845, which is still between 1 to 10, so it can be said that the regression model in this study This, when viewed from the multicollinearity test, is good.

Multiple Linear Regression

The results of multiple linear regression using SPSS 26 in this study are as follows:

Table 9. Multiple Linear Regression

			Coefficients			
		Unstandardized Coefficients		Standardized Coefficients		
	Model	B	Std.Error	Beta	t	Sig.
1	(Constant)	-8.842	4.011		-2.204	.032
	Financial Literacy	.271	.167	.181	1.621	.111
	Financial Inclusion	.041	.135	.031	.305	.761
	Financial Behaviour	1.059	.152	.707	6.953	.000

Data processed

So that the following equation is generated:

$$Y = -8.841 + 0.272X1 + 0.042X2 + 1.057X3$$

The explanation of this study's multiple linear regression equation is as follows:

    a.   The constant value of investment decision (Y) is -8.841, which states that if the variables of financial literacy (X1), financial inclusion (X2), and financial behaviour (X3) are equal to zero, then the investment decision is -8.841. So in this condition, all variables cannot be zero.

    b.   The coefficient of financial literacy (X1) is 0.272, meaning that assuming other variables are constant, every time there is an increase in the financial literacy variable (X1) by 1 unit, the investment decision of WRAP Entrepreneurship students increases by 0.272.

    c.   The coefficient of financial inclusion (X2) is 0.042, meaning that assuming other variables are constant, every time there is an increase in the financial inclusion variable (X2) by 1 unit, the investment decision of WRAP Entrepreneurship students increases by 0.042.

    d.   The coefficient of financial behaviour (X3) is 1.057, meaning that assuming other variables are constant, every time there is an increase in the financial behaviour variable (X3) by 1 unit, the investment decision of WRAP Entrepreneurship students increases by 1.057.

F. Hypothesis Test

Hypothesis test in this study using t-test and F-test. The t-test was conducted to determine how far the influence of one independent variable individually in explaining the variation of the dependent variable was carried out, while the F-test was conducted to determine whether the dependent variable had a linear effect on the independent variables. The following are the results of hypothesis testing using the t-test. Based on table 9. The results of the t-test can be interpreted as follows:

a. The financial literacy variable, when projected with investment decisions, has a significant level of 0.107 which means it is greater than 0.05 and produces a t count of 1.642, which means it is smaller than a t table of 2.00958. So it can be concluded that financial literacy has no significant effect on investment decisions (H1 is rejected).

b. The financial inclusion variable, if projected with the investment decision variable, has a significance value of 0.755, which is greater than 0.05 and produces a t count of 0.314, which is smaller than t table 2.00958. This result means that if projected, financial inclusion has no significant effect on investment decisions (H2 is rejected).

c. The financial behaviour variable, if projected with the investment decision variable, produces a significance value of 0.000, meaning it is 0.05 smaller. The projection of financial behaviour variables and investment decisions also results in a t count of 7.042, which is greater than the t table of 2.00958. This result means that financial behaviour significantly affects investment decisions (H3 is accepted).

After the t-test is carried out, the F test is then conducted to find out how financial literacy, financial inclusion, and financial behavior, when tested together, will affect investment decisions.

Table 10. F- test Result

Model		Sum of Squares	df	Mean Square	F	Sig.
		ANOVA				
1	Regression	1569.532	3	523.177	43.720	.000ᵇ
	Residual	574.391	48	11.966		
	Total	2143.923	51			

Data processed

Based on table 10. The results of the F test can be seen that the calculated F value generated is 44,725. This result is greater than the F table 2.79. Then it can also be seen that the resulting significance value is 0.000, which is greater than 0.05. Based on these results, it can be concluded that the independent variables (financial literacy, financial inclusion, and financial behaviour) simultaneously affect the investment decisions of WRAP Entrepreneurship students (H4 is accepted).

G. Coefficient of Determination

Table 11. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
		Model Summary		
1	.856a	.732	.715	3.459

Data processed

Based on table 11. The coefficient of determination can be seen that the value of the coefficient of determination (R square) is 0.732 (73.2%). So it can be concluded that the variable ability of financial literacy, financial inclusion, and financial behavior as independent variables in explaining the investment decision variables of WRAP Entrepreneurship students as the dependent variable is 73,2% and the rest is explained by other variables not discussed in this study.

V. DISCUSSION

A. The Effect of Financial Literacy on Investment Decisions

Based on descriptive statistical analysis, it is known that the financial literacy index of WRAP Entrepreneurship students is 84% . Depending the classification of the categories that have been set, it is in the 'Good' category. Descriptive statistical analysis also shows that the investment decision index of WRAP Entrepreneurship students is 78% and is in the 'Good' category. However, after doing the analysis using the t-test with SPSS 26, it shows that the t-count is 1.621, smaller than the t-table 2.01063. So this result does not follow

the hypothesis set earlier because financial literacy was in the 'Good' category and investment decisions were in the 'Good' category. However, they did not significantly affect the investment decisions of WRAP Entrepreneurship students. These results can be because students have never received material related to investment and business finance in the WRAP Entrepreneurship program. The results of this study contradict several previous studies by Kumari (2020); Baihaqqy et al. (2020); Adil et al. (2021), which state that financial literacy has a positive and significant effect on investment decisions.

B. The Effect of Financial Inclusion on Investment Decisions

In reference to the results of financial inclusion descriptive statistical analysis, it is known that the financial inclusion index of Entrepreneurship WRAP students is 81%, and the investment decision index of WRAP Entrepreneurship students is 78%. Hence, both variables fall into the 'Good' category. However, after the t-test with SPSS 26, it is known that the t-count of 0.305 is smaller than the t-table 2.01063, so financial inclusion does not significantly affect the investment decisions of WRAP Entrepreneurship students, and this result is not following the established hypothesis. So even though the level of financial inclusion increases, this does not improve the quality of investment decisions. This result may also be because the WRAP Entrepreneurship program does not provide investment or personal finance material. Financial inclusion still needs to be improved if it gets capital from investors one day and wants to be allocated to investment instruments. The results of this study contradict the results of previous studies by Ziyao & Nuoxin (2021), which stated that financial inclusion had a positive effect on investment decisions.

C. The Effect of Financial Behaviour on Investment Decisions

Contingent on financial behaviour descriptive analysis, it is known that the financial behaviour index of WRAP Entrepreneurship students is 79% and is in the 'Good' category. Moreover, the investment decision index of WRAP Entrepreneurship students is 78%, so both variables fall into the 'Good' category. Furthermore, the t-test using SPSS 26 to determine the effect of financial behaviour on investment decisions shows that the t count is 6.953, greater than t table 2.01063, so it can be concluded that financial behaviour has a significant effect on investment decisions of WRAP Entrepreneurship students, the third hypothesis in this study was accepted. This study's results align with the research by Zahera & Bansal (2018), which concluded that financial behaviour influences investment decisions because the value of financial behaviour will enrich the understanding of financial markets related to an investor's investment pattern.

D. The Effect of Financial Literacy, Financial Inclusion, and Financial Behavior on Investment Decisions Simultaneously

Depending the results of the t-test, it is known that financial literacy and financial inclusion variables do not seem to affect investment decisions. In contrast, financial behaviour has a significant effect on investment decisions. However, after the F test, it is known that the calculated F value produced is 43,720, which means it is greater than the F table of 2.79. Then it can be seen that the resulting significance value is 0.000, which is smaller than 0.05. Therefore, based on the results of the F test, it can be concluded that if the test is carried out together, financial literacy, financial inclusion, and financial behaviour can simultaneously affect the investment decisions of WRAP Entrepreneurship students.

VI. CONCLUSION AND RECOMMENDATION

A. Conclusions

Based on the results of quantitative research using questionnaires to collect answers from WRAP Entrepreneurship students in 2021/2022 as research objects, the following conclusions can be drawn :

a. Financial literacy has no significant effect on investment decisions of WRAP Entrepreneurship students.
b. Financial inclusion has no significant effect on investment decisions of WRAP Entrepreneurship students.
c. Financial behaviour has a significant effect on investment decisions of WRAP Entrepreneurship students.
d. Financial literacy, financial inclusion, and financial behaviour simultaneously affect the investment decisions WRAP Entrepreneurship students.

This result is obtained because financial behaviour is the most influential in investment decision-making. Therefore, these results show that even though they have good financial knowledge, they cannot make sound investment decisions if an exemplary implementation does not support it.

B. Recommendations

a. Students can improve their financial literacy and inclusion by increasing their knowledge of financial institutions' savings, loans, and investment products. In addition, it is hoped that students will be more aware of the importance of understanding investment before deciding to invest so that they are not wrong in making investment decisions.

b. Telkom University as the organizer of WRAP Entrepreneurship can provide knowledge through courses and even simulations, if possible, about business finance and investment so that personal finances and business finances that are managed can run smoothly and investment decisions can be made appropriately while participating in the WRAP Entrepreneurship program.

c. The next researcher can conduct similar research on the next period of WRAP Entrepreneurship students by using the same variables and other variables such as income, geographics, gender and others.

d. Financial institutions, OJK, and IDX are expected to hold outreach to Indonesian people from various circles, especially students, regarding the importance of financial literacy to have better financial literacy.

e. The Indonesian Stock Exchange (IDX) is expected to disseminate information about an investment to the Indonesian people, especially students, so they not only increase investment but also avoid illegal and untrusted investments that promise high profits.

f. Online investment platform providers are expected to provide more investment products accompanied by explanations of the benefits, risks, and flow of funds disbursement so that people are more interested in investing.

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The Effect of Platform Characteristics, Reward Recognition, and Customization on Customer Loyalty Intention of MSMEs Culinary Products in Food Delivery Applications

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Abstract

This study focuses on using the Stimulus Organism Response (SOR) model to analyze the influence of platform characteristics on customer loyalty intention in food delivery applications. High expectations for food delivery application users to food merchants on the platform are not directly proportional to the digital literacy capabilities of MSMEs actors in the culinary field during the migration process from convenience stores to digital platforms. Previous studies related to the influence of platform characteristics on customer loyalty with the SOR model in the context of different platforms and studies related to food delivery applications in previous studies were dominated by the use of different theoretical frameworks. This research uses a Stimulus-Organism-Response (SOR) perspective on food delivery applications (Platform to Consumer) with the development of the organism variable using perceived value and satisfaction mediation.: The unit analysis of this research is individuals aged 14–35 years who have purchased MSMEs culinary products through the food delivery applications with 276 respondents and data processing with Structural Equation Modeling (SEM). Results show that system quality and customization affect the perceived value and customer satisfaction. Service quality, information quality, and reward recognition do not affect the perceived value and customer satisfaction. Perceived value and customer satisfaction affect customer loyalty intention MSMEs culinary merchants need to pay attention to the quality of food and customize it to the customer's wishes advertised through the food delivery applications platform.

Keywords— Food delivery applications; platform characteristics; reward recognition; customization; customer loyalty intention

I. INTRODUCTION

Most MSMEs are engaged in the culinary field. Based on BPS economic census in 2016, the number of MSME actors in the accommodation, food and beverage sector is 16.93%, making it the second largest business sector after wholesale and retail trade. The growth in the number of MSMEs in the culinary field is also influenced by the use of information technology, especially food delivery applications. In the last five years, internet penetration in Indonesia has increased from 82 million to 143 million. In 2017, the ratio of internet users in Indonesia touched 54.68% of the total population of Indonesia and 49.2% aged 14–35 years, which has great potential as a consumption base (Krisnawati 2018). Furthermore, according to Krisnawati (2018), the development of the culinary industry in Indonesia has been significantly affected by the existence of digital technology, including social media, websites, culinary review applications, websites, e-commerce applications, and distribution applications.

The food delivery applications are divided into two categories: firm-owned applications directly owned by restaurants such as McDonald's Delivery, Pizza Hut Delivery, KFC Delivery, and Domino's Pizza Indonesia. Then there are third-party applications belonging to certain companies that provide food delivery services, such as Gofood, Grabfood, and Shopeefood. According to Dirsehan & Cankat (2021), mobile food applications are divided into two categories: firm-owned applications (restaurant to consumer) and third-party applications (platform to consumer). Firm-owned applications, i.e., restaurants, develop their applications to provide online delivery services for the convenience of their customers. Meanwhile, third-party applications focus on ordering and delivering food, not on its preparation.

The increasing number of food delivery application consumers, especially third-party applications that based on the platform to the consumer, is an indicator for MSMEs in the culinary field to pay attention to their appearance and services. High expectations from users of food delivery applications cause food and beverage sellers to pay more attention to packaging, food quality, delivery costs, offers, ease of use, and different payment options (Elvandari et al., 2017). The existence of limited capital and knowledge for MSME actors related to digital literacy is one of the challenges for them to be able to provide an attractive appearance and quality services to consumers on digital platforms, so it is feared that it will have an impact on consumer loyalty in the future.

Although many studies on loyalty have been carried out in various industries, the results of studies in one industry are difficult to generalize to other industries due to differences in characteristics. This needs to be

investigated regarding the formation of loyalty in other new industrial sectors. According to Yeo et al. (2017), the food delivery applications service business is currently developing and promising in the future. In contrast, little literature examines the factors that drive customer loyalty to online food delivery services (Suhartanto et al., 2019). In addition, the high number of MSMEs, especially the culinary sector that migrates from convenience stores to digital platforms have not been matched with sufficient digital literacy, so it can impact store displays that are less attractive, uninformative, and services that lack quality on digital platforms. This makes the characteristics of the platform on food delivery applications, especially third-party applications which are the basis for the MSMEs in the culinary sector in Indonesia need to be investigated further to see how it affects consumer behavior and loyalty in the future.

Several studies have been carried out to see the effect of website design or platform characteristics with various models. Molinillo et al. (2020) previously investigated the effect of website design variables on behavioral loyalty by assessing intermediary perceived value as an organism factor using the SOR model on the social media platform Facebook. The research by Lin, Li, and Guo (2021) looked at the effect of platform characteristics on continuous purchase intention through perceived value as an organism factor using the Stimulus Organism Response (SOR) model on the fresh food e-commerce platform. Wang et al. (2016) looked at the effect of platform characteristics on stickiness intention with perceived value and customer satisfaction as intermediary variables using the e-commerce success model on the group buying website. However, no research uses the Stimulus Organism Response (SOR) model to see the effect of platform characteristics on food delivery applications.

The influence of platform characteristics on consumer behavior and loyalty needs to be investigated further to determine the success of culinary MSMEs on digital platforms. Information quality and service quality are the two dimensions most often used by researchers to measure the design, quality, and success of website services (Wu et al., 2015). Attractive, informative displays and qualified services on digital platforms are expected to increase perceived value and customer satisfaction, which will further foster consumer behavior loyalty in the future. This is in line with the research of Fida et al. (2020) that shows service quality and perceived value are considered antecedents of customer loyalty. Furthermore, service quality has an important influence on customer loyalty and customer satisfaction.

This research is also important because although the Stimulus Organism Response (SOR) model has been widely used in research related to online retail, it is still limited in the context of social commerce and e-commerce platforms. On the other hand, the use of research models in the context of food delivery applications in previous studies was dominated by the use of the Technology Acceptance Model (Dirsehan & Cankat, 2021), Theory of Planned Behavior (Yeo et al., 2017) and Unified Theory of Acceptance and Use of Technology (Alalwan, 2020). Based on this, it is necessary to conduct a study with a different theoretical framework from previous research through the use of the Stimulus Organism Response model on the food delivery applications platform.

This study contributes to the theory and practice of marketing by enhancing the understanding of customer perceived value and behavioral intentions in the food delivery applications context, by testing relationships and a moderating effect hitherto unassessed. Therefore, we believe that the present study's findings will be of interest to academics and MSMEs culinary merchants.

II. LITERATURE REVIEW

A. Food delivery applications

Mobile commerce is an example of e-commerce where consumers engage in digital purchases using mobile devices. Mobile commerce is a platform for shopping and product browsing and has experienced higher growth compared to e-commerce over the last decade. One example of the emergence of m-commerce is retail delivery services or food delivery services in developing countries, which are mostly based on mobile technology (Zhao & Bacao, 2020).

The presence of integrated m-commerce through the internet encourages the presence of products and services such as clothing, mass transportation, travel, and ordering food and beverages (Hidayanto, 2017). Mobile commerce is a platform that has a dominant role in society and provides benefits to all stakeholders related to comprehensive business processes, including customers and vendors involved in the process from upstream to downstream (Prastiwi and Iswari, 2019).

Since the advent of smartphones, most mobile devices have been used as a means of e-commerce. In 2016, e-commerce penetration in China reached 66% of all e-commerce activities (Evans, 2017). The decrease in the cost of producing smartphones can lead to increased use of m-commerce in the short term and make it a relevant platform for commerce and outreach activities. Based on the report of the Global Association of Cellular

Operators, it is estimated that more than 4 billion mobile internet users in 2020 expect huge growth from the current 51% penetration rate of mobile services to 60% by 2025 (GSMA, 2021).

Food delivery applications are online-to-offline services that offer two-way benefits for catering companies and customers through the provision of efficient online ordering and offline delivery services (Zhao & Bacao, 2020). The popularity of food delivery applications is related to their ability to provide convenient and fast food delivery facilities to customers (Xu, 2017). In addition, according to Xu and Huang (2019), food delivery applications also provide restaurants with more opportunities to increase revenue without increasing restaurant seating capacity.

B. The stimulus-organism-response (SOR) framework

The SOR psychological model explains human behavior through a three-phase process, namely the perception of external or environmental stimuli (stimulus), which affects the emotional and cognitive state of the individual (organism) to encourage conscious or unconscious responses (response) (Mehrabian and Russell, 1974). According to Zhang et al. (2014), an organism is a consumer's internal state, which is related to cognitive and emotional systems, including perception, experience, and evaluation. Furthermore, the result of such processing is responses, which come in various forms, ranging from conscious to subconscious and from internal to external (Jiang, Chan, Tan, & Chua, 2010). Chang and Chen (2008) modeled website quality and website brand as stimuli to examine their effect on purchase intention (R), through moderating trust and perceived risk (O).

In retail trade, environmental stimuli have an effect on internal consumers, which in turn directs their behavior towards the store. In online retail, stimuli relate to the design features of the online environment that consumers interact with (Eroğlu et al., 2003). In physical stores, arousal refers to cues that come from appearance, decoration, music, smell, and store staffing (Baker, Parasuraman, Grewal, & Voss, 2002). Although the Stimulus Organism Response (SOR) model has been widely used in research related to online retail, so far it is still limited in the context of social commerce and e-commerce platforms. On the other hand, the use of research models in the context of m-commerce platforms, especially food delivery applications, in previous studies was dominated by the use of the Technology Acceptance Model (Dirsehan & Cankat, 2021), Theory of Planned Behavior (Yeo et al., 2017) and Unified Theory of Acceptance and Use of Technology (Alalwan, 2020).

C. Previous Research

This study is a development of two previous research models by Molinillo et al. (2021) and Wang et al. (2016). The first model adaptation of Molinillo et al. (2021). This study uses a stimulus-organism-response (SOR) framework to see the effect of website design consisting of information quality, service quality, reward recognition, and customization variables on behavioral loyalty mediated by consumer perceived value in social commerce. The next model adaptation comes from Wang et al. (2016), this study uses an e-commerce success model and commitment–trust theory to see the effect of the characteristics of the group buying website platform on stickiness intention by mediating perceived value and customer satisfaction.

D. Hypotheses development

The research of Molinillo et al. (2021) shows that service quality has a considerable influence with the same intensity as the perceived value on social commerce platforms. Other studies also show that service quality has a significant impact on perceived value when shopping through a fresh food e-commerce platform (Lin, Li, and Guo, 2021). Thus, the following hypothesis is proposed:

H1. Service quality has a positive effect on perceived value

Service quality has an important influence on customer loyalty and satisfaction. This is based on the phenomenon that there is a significant relationship between the three variables: service quality, customer satisfaction, and customer loyalty (Fida et al., 2020). Service quality also has a positive direct influence on customer satisfaction in the context of group buying websites (Wang et al., 2016). Thus, the following hypothesis is proposed:

H2. Service quality has a positive effect on customer satisfaction

Information quality influences the perceived value on social commerce platforms (Molinillo et al., 2021). Lin, Li, and Guo (2021) state that information quality has a significant influence on the perceived value of fresh food e-commerce platforms. Information quality also has a positive direct influence on perceived value in the context of users of group buying websites (Wang et al., 2016). Thus, the following hypothesis is proposed:

H3. Information quality has a positive effect on perceived value

According to Fu et al. (2020), information quality is potential technical support that can be provided by an e-commerce platform to ensure customer satisfaction in the form of smoothness, ease of use, and user convenience in accessing the platform and is a technical characteristic of the platform. Information quality is the dimension most often used by researchers to measure the design, quality, and success of service websites (Wu et al., 2015). Thus, the following hypothesis is proposed:

H4. Information quality has a positive effect on customer satisfaction

System quality plays an important role in influencing consumers' perceived value of online shopping websites (Gao and Li, 2018). According to Hsu et al. (2017), system quality as part of the characteristics of the platform positively affects consumers' perceived value related to e-commerce platforms. System quality is manifested in the overall website system performance and can be measured through the level of customer perception of user-friendliness when shopping at online retailers. Thus, the following hypothesis is proposed:

H5. System quality has a positive effect on perceived value

System quality has a positive influence on customer satisfaction in the use of group buying websites (Wang et al., 2016). The stability, smoothness, and innovation of the platform system have improved significantly, and the quality of the system has gradually become a key factor for evaluating the shopping platform and continuing to buy as a form of customer satisfaction (Li et al., 2017). Thus, the following hypothesis is proposed:

H6. System quality has a positive effect on customer satisfaction

In general, customers positively appreciate the reward recognition they receive through social media, which in turn makes them feel like doing something in return and makes them increase their participation and engagement (Van Doorn et al., 2010). Consumers who see themselves as having an idiosyncratic fit with reward programs have a higher perceived value (Kivetz & Simonson, 2002). Molinillo et al. (2021) also researched to see the effect of reward recognition on customer perceived value on social commerce platforms. Thus, the following hypothesis is proposed:

H7. Reward recognition has a positive effect on perceived value

Satisfied and dissatisfied customers perceive reward program loyalty in different ways, and further studies are needed to verify this relationship (Dowling & Uncles, 1997). Direct rewards should be more easily and integrated to form service evaluation, studies show that customer satisfaction is greater when resources from the same category are exchanged than when resources from different categories are exchanged maintaining a constant value (Foa et al., 1993). Financial incentives such as price discounts, quantity discounts, points, and rewards such as vouchers and loyalty programs should be implemented for customers who actively use food ordering applications (Shareef et al., 2014). Thus, the following hypothesis is proposed:

H8. Reward recognition has a positive effect on customer satisfaction

Customization in the context of e-commerce relates to activities carried out by retailers to adapt their sites to meet actual customer needs and can add value and strengthen the relationship between customers and retailers (Srinivasan et al., 2002). Lee J. et al. (2012) argue that customers value well-tailored programs for the value they derive from the final product or service because they enjoy the experience of the customization process. Thus, the following hypothesis is proposed:

H9. Customization has a positive effect on perceived value

Research by Kasiri et al. (2017) in the hospitality industry found that customization is applied to ensure maximum customer satisfaction. Therefore, further research needs to be done to see the direct effect of customization on customer satisfaction on the m-commerce platform. Thus, the following hypothesis is proposed:

H10. Customization has a positive effect on customer satisfaction

According to Wu et al. (2014), perceived value is the fundamental basis for all exchange activities and can drive purchase choices. The perceived value of a product or service has become a concern because of its critical effect on consumers' buying behavior in the future (Ha & Jang, 2010). Previous studies have shown that in the context of e-commerce, perceived value positively influences repurchase intentions (Fang et al., 2016). Thus, the following hypothesis is proposed:

H11. Perceived value has a positive effect on continuous purchase intention

Perceived value significantly affects consumers' willingness to rebuy, increases word of mouth towards products, and reduces the chance for consumers to seek other alternatives (Ulaga et al., 2002). When consumers feel that the supplier has given them value that can develop an emotional commitment to the company, then this will make them like it, which is reflected by positive WOM (McKee et al., 2006). Previous research in the context of e-commerce has shown empirically that perceived value has a positive effect on eWOM (Shaikh et al., 2018). Thus, the following hypothesis is proposed:

H12. Perceived value has a positive effect on positive eWOM intention

According to McDougall and Levesque (2000), perceived value is a key element in explaining consumer behavior and future intentions towards certain companies and brands. If the consumer's value needs for the product are not met, the consumer will be dissatisfied with the platform and will no longer want to buy products on the platform (Xuequn et al., 2021). Thus, the following hypothesis is proposed:

H13. Perceived value has a positive effect on customer engagement behavior intention

Several studies have shown a positive relationship between satisfaction and measures of repurchase intention (Anderson et al., 1994). There is a direct relationship between service, sales, satisfaction, and profit (Gerson, 1993). Continuous Purchase Intention is the subjective frequency of consumers' intentions to continue buying products from the same seller, which represents consumer recognition, satisfaction, and loyalty to the product or platform (Chiu et al., 2014). Thus, the following hypothesis is proposed:

H14. Customer satisfaction has a positive effect on continuous purchase intention

Customer satisfaction is identified as a determinant of consumer eWOM communication (Chen et al., 2021). Individuals with high levels of satisfaction can have a large impact on positive eWOM. If consumers have a very good psychological experience with a particular product or service, they may feel satisfied and tend to adopt that product or service shortly (Teng & Wu, 2019). Thus, the following hypothesis is proposed:

H15. Customer satisfaction has a positive effect on positive eWOM intention

According to Lee and Charles (2021), consumers will have a deeper understanding of the platform or product and leave a deep impression after the first purchase so that they feel the high value brought by the product or platform, which will also encourage them to have higher satisfaction and loyalty. Thus, the following hypothesis is proposed:

H16. Customer satisfaction has a positive effect on customer engagement behavior intention

Previous studies have shown that gender influences user behavior in their intention to shop online (Shaouf et al., 2016). Huang and Benyoucef (2017) show that gender affects the social perception of commerce website design and the importance of this function on website usability. Thus, the following hypothesis is proposed:

H17. Gender moderates the effect of platform characteristics, reward recognition, and customization on perceived value and customer satisfaction, as well as their impact on customer loyalty intention.

Frequency of use is a significant moderator of customer behavior in contexts such as social networking services, internet banking, and electronic commerce. Wang (2010) showed that the frequency with which customers browse a particular online store positively affects their loyalty to that store. Frequency of use is a behavioral variable that may be a consequence of the characteristics of the social trading website or the value of profits. Frequency of use can also be considered to be a moderator of the customer-retailer relationship (Molinillo et al., 2021). Thus, the following hypothesis is proposed:

H18. The frequency of using food delivery applications moderates the effect of platform characteristics, reward recognition, and customization on perceived value and customer satisfaction, as well as their impact on customer loyalty intention.
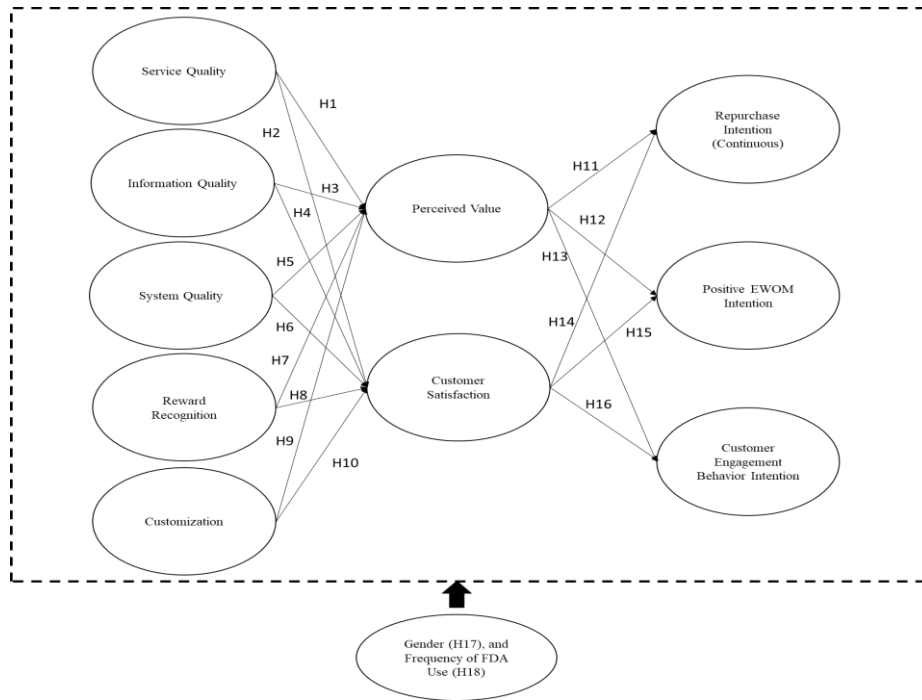
Fig. 1. Research model (Source: Molinillo et al. (2021); Wang et al. (2016)

III. RESEARCH METHODOLOGY

This model is expected to be able to represent the needs of researchers because of the desire to prove the influence of platform characteristics, reward recognition, and customization that reflects the readiness of MSMEs to enter digital platforms, which includes store appearance, quality of information and services provided, perceived value, and customer satisfaction, and their impact on consumer behavior and loyalty in the future. In all cases, 6-point Likert-type scales were used (1 strongly disagree; 6 strongly agree).

In addition, before the data collection, five experts reviewed the questionnaire and introduced minor modifications to improve the understanding of the questions while maintaining the meanings of the original scales. Subsequently, a pre-test was conducted with a convenience sample of 30 respondents with experience in food delivery applications. The Cronbach's alpha results were greater than 0.60 (Hair et al., 2010). This research was conducted in a cross-sectional manner with a purposive sampling method and judgment sampling type. The questionnaire uses 18 hypotheses with 51 indicators, so the minimum number of respondents required is 255–510 respondents. The questionnaire consists of four parts, namely opening, screening questions, core questions, and respondent profiles.

The questionnaire is addressed to individuals aged 14–35 years who have purchased culinary products from MSMEs through food delivery applications based on platforms (Gofood and Grabfood) in the last 3 months since the questionnaire was received. In April 2022, data were gathered through an online survey with a structured questionnaire in Indonesia. Following a convenience sampling method and to reduce possible bias, the link to the questionnaire was posted on various WhatsApp groups and distributed through social media (e.g., Facebook, Instagram). Before they completed the questionnaire, the participants viewed an invitation to take part in the study and a piece about the objectives of the study, which included a tick box where they provided their consent to participate. Participation was voluntary. If they agreed to take part, they could access the questionnaire using the link. A screening question was posed to exclude people who did not belong to the target group.

Structural equation modeling was applied to evaluate the quality of the measurement instrument and the hypotheses of the proposed model. Structural Equation Modeling (SEM) is a class of statistical models looking for relationships in multiple variables (Hair et al., 2010). Structural Equation Modeling (SEM) is a multivariate statistical technique that combines aspects of multiple regression and allows researchers to simultaneously test a group of interrelated dependent relationships in the tested variables and latent constructs or between several latent constructs.

IV. RESULT / FINDING

From the results of the study, a total of 276 valid questionnaires were obtained. Of the respondents, 63% were female, and 35% used food delivery applications every few weeks (see Table 1).

Table 1. Sample characteristics.

Characteristic	Count	%
State Civil Apparatus (ASN)	16	5.80%
Teacher	8	2.90%
Housewife	3	1.09%
BUMN employee	18	6.52%
Private employee	42	15.22%
Student	165	59.78%
Unemployed	4	1.45%
TNI/ POLRI	6	2.17%
Self-employed	14	5.07%
S1/ Bachelor	96	34.78%
S2/ Master	11	3.99%
S3/ Doktor	1	0.36%
Primary school studies	90	32.61%
High school	27	9.78%
Secondary school studies	51	18.48%
Jabodetabek	60	21.74%
Non Jabodetabek	216	78.26%
Male	102	36.96%
Female	174	63.04%
Income < Rp 1.000.000	136	49.28%
Income Rp 1.000.000 – Rp 2.500.000	39	14.13%
Income Rp 2.500.000 – Rp 5.000.000	39	14.13%
Income Rp 5.000.000 – Rp 10.000.000	24	8.70%
Income > Rp 10.000.000	38	13.77%
Outcome < Rp 1.000.000	152	55.07%
Outcome Rp 1.000.000 – Rp 2.500.000	55	19.93%
Outcome Rp 2.500.000 – Rp 5.000.000	35	12.68%
Outcome Rp 5.000.000 – Rp 10.000.000	23	8.33%
Outcome > Rp 10.000.000	11	3.99%
Several times a day	9	3.26%
Several times a week	96	34.78%
less than once a month	61	22.10%
Every few weeks	98	35.51%
Once every day	12	4.35%
Promo/ discount	4	1.45%
Fast	6	2.17%
Hygienic	1	0.36%
Want to help MSMEs	44	15.94%
Practical	221	80.07%
Gofood	213	77.17%
Grabfood	63	22.83%

Source: SPSS Statistics 26.0

Table 2 shows the results of the construct reliability and convergent validity assessments. All factor loads are greater than 0.50, except CE1. Cronbach's alpha (CA) and composite reliability (CR) in all cases exceeded the minimum value of 0.6 (Hair et al., 2010). The average variance extracted (AVE) exceeded the minimum recommended level of 0.5 (Fornell and Lacker, 1981).

The assessments demonstrated the reliability and validity of the measures; thus, the structural model is appropriate for the analysis. If an unreliable construct cannot be valid, it is necessary to measure reliability using

composite reliability (CR). The value of CR 0.70 is declared to have good reliability. Values between 0.6 and 0.7 are declared acceptable if the validity value is good (Malhotra, 2010).

Table 2. Variable descriptive statistics, reliability and convergent validity

Construct Variable	Variable	M	SD	Loading	CA	CR	AVE
Service Quality (SQ)	SQ1	5.30	0.71	0.66	0.86	0.90	0.60
	SQ2	5.26	0.79	0.68			
	SQ3	5.24	0.82	0.72			
	SQ4	4.96	0.85	0.69			
	SQ5	4.93	0.87	0.73			
	SQ6	5.04	0.84	0.73			
Information Quality (IQ)	IQ1	5.17	0.76	0.78	0.90	0.92	0.74
	IQ2	5.24	0.76	0.81			
	IQ3	5.18	0.79	0.81			
	IQ4	5.14	0.78	0.76			
System Quality (SIQ)	SIQ1	5.43	0.75	0.80	0.89	0.94	0.79
	SIQ2	5.37	0.70	0.80			
	SIQ3	5.40	0.73	0.80			
	SIQ4	5.46	0.70	0.87			
Reward Recognitioin (RR)	RR1	4.97	0.91	0.82	0.89	0.90	0.75
	RR2	4.99	0.88	0.86			
	RR3	4.99	0.94	0.85			
Customization (CU)	CU1	5.20	0.83	0.75	0.82	0.90	0.64
	CU2	5.21	0.76	0.81			
	CU3	4.88	0.96	0.73			
	CU4	4.66	1.10	0.74			
	CU5	5.02	0.91	0.86			
Perceived Value (PV)	PV1	5.04	0.95	0.74	0.84	0.90	0.69
	PV2	5.14	0.85	0.78			
	PV3	5.14	0.75	0.81			
	PV4	5.27	0.72	0.78			
Satisfaction (SA)	SA1	5.25	0.81	0.84	0.88	0.93	0.81
	SA2	5.24	0.78	0.87			
	SA3	5.14	0.86	0.88			
Continuous Purchase Intention (CPI)	CPI1	5.11	0.86	0.57	0.84	0.89	0.57
	CPI2	5.21	0.83	0.80			
	CPI3	5.20	0.87	0.81			
	CPI4	5.21	0.85	0.87			
	CPI5	4.48	1.29	0.60			
	CPI6	5.08	0.87	0.80			
Positif EWOM Intention (PE)	PE1	4.82	1.01	0.82	0.94	0.92	0.74
	PE2	4.94	0.97	0.88			
	PE3	5.01	0.90	0.83			
	PE4	5.00	0.97	0.87			
Customer Engagement Behavior Intention (CE)	CE1	5.12	0.92	0.38*	0.92	0.92	0.52
	CE2	4.82	1.06	0.55			
	CE3	5.17	0.89	0.58			
	CE4	4.80	1.03	0.76			
	CE5	4.70	1.07	0.84			
	CE6	4.53	1.17	0.86			
	CE7	4.24	1.30	0.86			
	CE8	4.12	1.39	0.81			
	CE9	4.02	1.46	0.81			
	CE10	4.88	0.93	0.72			
	CE11	4.76	1.08	0.71			
	CE12	4.58	1.23	0.77			

Source: Output Lisrel 8.72

The square root value of AVE for each latent variable is greater than the correlation value between latent variables so that all variables meet the criteria of discriminant validity (see Table 3).

Table 3. Discriminant validity

Var.	CE	CPI	CU	IQ_	PE	PV	RR	SA	SIQ	SQ
CE	**0.749**									
CPI	0.604	**0.796**								
CU	0.606	0.703	**0.833**							

IQ	0.538	0.635	0.727	**0.847**					
PE	0.685	0.705	0.705	0.632	**0.888**				
PV	0.544	0.747	0.778	0.711	0.682	**0.850**			
RR	0.578	0.563	0.648	0.609	0.660	0.616	**0.899**		
SA	0.492	0.738	0.692	0.645	0.680	0.752	0.604	**0.911**	
SIQ	0.387	0.613	0.587	0.707	0.505	0.674	0.487	0.600	**0.866**
SQ	0.599	0.665	0.737	0.741	0.661	0.702	0.634	0.657	0.664	**0.761**

Source: Output SmartPLS 3

This study uses a 95% confidence level, so the t-critical value is 1.96. If the t-value is greater than 1.96, it indicates a significant effect between the two variables being tested. Structural coefficient estimation is the coefficient of the result of linear regression in hypotheses testing.

Table 4. Results of hypotheses testing

No.	Hypotheses	*Estimate*	*t-value**	Supported
1	SQ→PV	0.089	0.42	No
2	IQ→PV	- 0.11	-0.55	No
3	SIQ→PV	0.27	3.24	Yes
4	RR→PV	0.12	1.65	No
5	CU→PV	0.68	5.62	Yes
6	SQ→SA	0.086	0.38	No
7	IQ→SA	- 0.15	-0.63	No
8	SIQ→SA	0.28	2.74	Yes
9	RR→SA	0.16	1.56	No
10	CU→SA	0.55	3.20	Yes
11	PV→CPI	0.56	3.71	Yes
12	PV→PE	0.60	6.13	Yes
13	PV→CE	0.64	4.09	Yes
14	SA→CPI	0.37	3.76	Yes
15	SA→PE	0.27	3.19	Yes
16	SA→CE	- 0.12	-0.91	No

Source: Output Lisrel 8.72

The coefficient of determination (R^2) shows the strength of the relationship between two variables, which explains the large proportion of the total variation of the dependent variable that is explained by the variation of the independent variable (Malhotra, 2010). The higher the R^2 value, the higher the prediction accuracy level as well (Hair et al., 2010).

Table 5. Assessment of the structural model

Construct	R^2	β	Correlation
Perceived Value (PV)	0.90		
Service Quality (SQ)		0.09	0.85
Information Quality (IQ)		-0.11	0.83
System Quality (SIQ)		0.27	0.76
Reward Recognition (RR)		0.12	0.75
Customization (CU)		0.68	0.92
Customer Satisfaction (SA)	0.70		
Service Quality (SQ)		0.09	0.74
Information Quality (IQ)		-0.15	0.72
System Quality (SIQ)		0.28	0.68
Reward Recognition (RR)		0.16	0.68
Customization (CU)		0.55	0.80
Continuous Purchase Intention (CPI)	0.78		
Perceived Value (PV)		0.56	0.85
Customer Satisfaction (SA)		0.37	0.81
Positif EWOM Intention (PE)	0.69		
Perceived Value (PV)		0.60	0.81
Customer Satisfaction (SA)		0.27	0.74
Customer Engagement Behavior Intention (CE)	0.31		
Perceived Value (PV)		0.64	0.55
Customer Satisfaction (SA)		-0.12	0.39

Source: Output Lisrel 8.72

Two multi-group analyses were performed using the SEM-MGA technique to test the hypotheses associated with the two proposed moderating variables (hypotheses 17 and 18). Each moderator variable was categorized into two values, which were then used as criteria to divide the sample into groups. As to gender, the sample was divided into male and female. The groups were formed using the median values of their distributions. Thus, the sample was divided into two groups based on the frequency of food delivery applications use, with the low-

frequency group using it once a day or less, and the high-frequency group using it several times a day. In the multi-group analyses, the path coefficients of the two structural models resulting from the division of the sample were compared based on the two categories of the moderating variables. The Student t-test for independent samples was used to evaluate whether there were significant differences.

Table 6. Results of the SEM multigroup analysis (MGA)

No	Hypothesis	Male		Female		Difference	
		Estimate	*t-value**	*Estimate*	*t-value**	*Estimate*	*t-value**
1	SQ□PV	0.089	0.480	-10.830	-1.800	10.919	1.816
2	IQ□PV	0.049	0.280	10.740	1.920	-10.691	-1.908
3	SIQ□PV	0.360	3.130	-0.150	-0.600	0.510	1.839
4	RR□PV	-0.062	-0.740	0.920	4.110	-0.982	-4.170
5	CU□PV	0.620	4.800	0.370	0.530	0.250	0.346
6	SQ□SA	0.051	0.280	-8.870	-1.470	8.921	1.481
7	IQ□SA	-0.100	-0.380	8.800	1.530	-8.900	-1.546
8	SIQ□SA	0.560	2.810	-0.120	-0.560	0.680	2.345
9	RR□SA	0.095	0.730	0.800	4.530	-0.705	-3.175
10	CU□SA	0.320	1.750	0.430	1.080	-0.110	-0.251
11	PV□CPI	0.720	4.330	-2.070	-0.760	2.790	1.024
12	PV□PE	0.600	4.430	-6.390	-0.460	6.990	0.507
13	PV□CE	0.520	1.990	-13.800	-0.650	14.320	0.679
14	SA□CPI	0.260	2.120	2.890	0.860	-2.630	-0.787
15	SA□PE	0.290	2.330	7.170	0.450	-6.880	-0.429
16	SA□CE	-0.150	-0.750	14.310	0.580	-14.460	-0.591

No	Hypothesis	Low		High		Difference	
		Estimate	*t-value**	*Estimate*	*t-value**	*Estimate*	*t-value**
1	SQ□PV	-1.200	-24.210	-0.160	-0.001	-1.040	-0.005
2	IQ□PV	-0.013	-0.130	-0.320	-0.002	0.307	0.002
3	SIQ□PV	0.600	13.140	0.071	0.001	0.529	0.006
4	RR□PV	0.290	6.180	-0.130	0.000	0.420	0.001
5	CU□PV	1.400	20.930	0.920	0.001	0.480	0.001
6	SQ□SA	-0.750	-6.490	0.940	0.006	-1.690	-0.010
7	IQ□SA	-0.079	-0.750	-0.110	-0.001	0.031	0.000
8	SIQ□SA	0.410	7.150	-0.083	-0.001	0.493	0.007
9	RR□SA	0.340	5.630	0.690	0.002	-0.350	-0.001
10	CU□SA	1.150	8.940	-0.630	-0.001	1.780	0.003
11	PV□CPI	0.026	0.660	0.850	3.800	-0.824	-3.688
12	PV□PE	-1.010	-2.930	0.380	0.570	-1.390	-1.872
13	PV□CE	-2.720	-12.200	-0.340	-0.071	-2.380	-0.502
14	SA□CPI	0.860	11.390	0.140	0.360	0.720	1.813
15	SA□PE	1.870	7.930	0.230	0.140	1.640	0.944
16	SA□CE	3.200	14.840	0.870	0.061	2.330	0.165

Source: Output Lisrel 8.72

Table 6 shows significant differences in the two structural model relationships based on gender. On the one hand, men have a more significant moderating influence on the relationship between research variables. On the other hand, women only show a significant moderating effect on the relationship between reward recognition variables on perceived value and customer satisfaction. The frequency of using the platform has a significant moderating effect on the relationship between several research variables. The use of food delivery applications with low frequency has a more significant moderating effect on the relationship between research variables. On the contrary, the use of high-frequency platforms only shows a significant moderating effect on the relationship between perceived value variables and continuous purchase intention. Consequently, the results do not allow us to reject hypotheses 17 and 18, because the gender and frequency of use variables significantly moderated several of both models' relationships.

V. DISCUSSION

The present study makes several contributions to mobile commerce research. First, the results allow us to better understand the role that customer perceived value and satisfaction play in the success of food delivery applications. The present study is the first to propose and empirically evaluate a behavioral model including features of food delivery applications as antecedents of perceived value, customer satisfaction, and response

variables, such as continuous purchase intention, positive e-WOM intention, and customer engagement behavior intention. This is a contribution to the growth in the scientific knowledge of and literature on consumer behavior.

Second, service quality does not have a significant positive effect on the perceived value and customer satisfaction of food delivery application users when shopping for culinary products at MSMEs. the results of this study are contradictory to previous studies, although in the context of a different platform. Suhartanto et al. (2019) mention that service quality is very important in determining food quality, perceived value, and satisfaction. The main purpose of using food delivery applications is the food, not the food service. When compared to other restaurant elements such as service quality and restaurant environment, food quality is the dominant factor in influencing customer interest in restaurants (Ha and Jang, 2010). The results of the study indicate that food delivery application service providers should emphasize both factors rather than focusing only on service quality or the quality of the food itself.

Third, the results show that information quality does not have a significant positive effect on the perceived value and customer satisfaction of food delivery application users when shopping for culinary products at MSMEs. The results of this study are contradictory to previous studies, although in the context of a different platform. According to Strauss and Frost (2012), in addition to social and cultural trends, individuals vary in their online behavior, which is partly based on individual differences, such as age, income, education, ethnicity, gender, positive attitudes towards technology, online abilities and experiences that playing an important role in the exchange process, making consumers more adept at finding information and products quickly. Further, Burke (2002) states that the person with higher education will prefer shopping through non-store channels such as the internet and catalogs to find more products, seek product information, and buy these products. Most of the respondents in this study were students with the last education level in primary school, secondary school, and high school. Burke (2002) states that consumers with low education are significantly more receptive to most forms of communication. In addition, the presence of other mediating variables that are not included in this study, such as rating or customer reviews can also give different results (Liu & Park, 2015).

Fourth, the results of this study indicate that there is a positive influence between system quality from Food delivery applications on customer perceived value and satisfaction. The results of this study are following previous studies on perceived value (Hsu et al., 2014; Lin, Li, and Guo, 2021) and customer satisfaction (Wang et al., 2016; Li et al., 2017).

Fifth, the results of the study show that reward recognition does not have a significant positive effect on the perceived value and customer satisfaction of food delivery application users when shopping for culinary products at MSMEs. Although there has been no previous research that looks at the effect of reward recognition on customer perceived value and customer satisfaction in the context of food delivery applications, the results of this study can contribute to the consumer behavior literature. Other studies in different contexts also show that reward recognition does not have a significant positive effect on customer perceived value in social commerce (Molinillo et al., 2021). Dowling and Uncles (1997) stated that satisfied and dissatisfied customers perceive reward program loyalty in different ways, and further studies are needed to verify this relationship. In this study 174 respondents or 63.04% were female. Burke (2002) stated that most women stated that they needed more personalized discounts according to the type of product and the intensity of shopping. Currently, the rewards given by the food delivery applications platform to customers are in the form of promos or discounts that apply equally to all customers so the award does not create satisfaction for the customer.

Sixth, the results of the study show that customization has a significant positive effect on the perceived value and customer satisfaction of food delivery application users when shopping for culinary products at MSMEs. Although there has been no previous research that looks at the effect of customization on customer perceived value and customer satisfaction in the context of food delivery applications, the results of this study can contribute to the consumer behavior literature. The results of this study are following previous studies. Although in different contexts, research proves that customization has a significant positive effect on customer perceived value (Lee J. et al., 2012; Srinivasan et al., 2002) and customer satisfaction (Huffman & Kahn, 1998; Kasiri et al., 2017).

Seventh, the results of the study show that perceived value has a significant positive effect on customer loyalty intention. The results of this study are following previous studies. When customers perceive a product or service to be valuable, they are more likely to purchase it (Khan and Mohsin, 2017). Consumers feel that the supplier has provided them with value that can develop an emotional commitment to the company, then will make them like it, which is reflected by positive WOM. Their motivational engagement with cellular technology can shape the influence of their attitudes on their overall value, ongoing engagement, and intention to continue engaging with their cellular activities (Kim et al., 2013).

Eighth, the results of the study show that customer satisfaction has a significant positive effect on customer loyalty intention. The results of this study are following previous studies. Research by Kim C. et al. (2012) also showed that customer satisfaction had a significant effect on repurchase intention on internet shopping sites. Satisfaction is the main aspect driving loyalty. If the customer is satisfied, then there are more possibilities for the client to have a positive perception of the organization, show loyalty to the company, and represent the company positively through WOM (García-Fernández et al., 2018). On the other hand, customer satisfaction does not have a significant positive effect on customer engagement behavior intention for food delivery applications. The demographics of the respondents in this study were mostly dominated by young students, namely 60%, or 165 respondents. Homburg and Giering (2001) also found a significant moderating effect of customer characteristics such as age, variety-seeking behavior, and income. Young customers tend to be less loyal, with behavior that likes to seek variety, so it is very related.

Ninth, the result shows the moderating effect of gender. Men have a more significant moderating influence on the relationship between research variables. On the other hand, women only show a significant moderating effect on the relationship between reward recognition variables on perceived value and customer satisfaction. This is in line with previous research which states that women are more motivated by emotional and social interactions while men prioritize comfort over social interaction (Hasan, 2010). Yang and Chen (2010) also mention that women prefer a variety of available information as a basis for making decisions. On the other hand, men do not like the use of comprehensive information for decision-making. Lee (2011) stated that female consumers are directly influenced by intangible attributes for post-adoption decisions. Female customers are motivated to form loyalty because of product delivery and price. In online and in-store shopping environments, women are consistently more focused on prices, promotions, and coupons than men (Burke, 2002).

Tenth, the frequency of using the platform has a significant moderating effect on the relationship between several research variables. The use of food delivery applications with low frequency has a more significant moderating effect on the relationship between research variables. On the contrary, the use of high-frequency platforms only shows a significant moderating effect on the relationship between perceived value variables and continuous purchase intention. The results of this study are following previous studies (Ajzen, 1991; Wang, 2010; Molinillo et al., 2021).

VI. CONCLUSION AND RECOMMENDATION

This research also has important implications for practitioners. First, ratings or customer reviews are very important in determining the quality of information on the food delivery application platform. If it is not accompanied by a rating or customer review, new customers in particular cannot physically inspect the product, so the buyer can only rely on the possibility of inaccurate or inadequate information provided by the seller.

Second, in the context of the food delivery application platform, service quality cannot stand alone in influencing customer satisfaction. Service quality must also be supported by food quality because the main purpose of customers using the food delivery application platform is to find qualified food. Third, companies can create attractive marketing programs to increase customer engagement, especially for young customers. This is because customer satisfaction has no significant effect on customer engagement behavior intention in young customers, according to the demographics of the respondents in this study.

Fourth, the food delivery application platform can provide a menu suggestion feature to customers according to their preferred purchase history so that customers have a customized experience that can increase perceived value and customer satisfaction. Fifth, rewards to customers can be given in the form of accumulated coupons to form the effect of reward recognition on the customer's perceived value rather than in the form of promos or shipping discounts because they are not proportional to the price difference that customers have to pay more for additional costs and taxes.

Sixth, MSME merchants need to pay attention to the quality of food advertised through the food delivery applications platform because it is the main factor that determines customer satisfaction apart from the quality of the service itself. Seventh, merchants need to provide a menu that can be customized according to the customer's wishes because the food delivery application platform greatly influences the perceived value and customer satisfaction. Eight, merchants can give rewards in the form of regular promos to increase the value felt by customers through the food delivery application platform with low frequency, because this customer segment uses applications only when there are attractive promo programs that meet the customer's wishes.

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The implementation of The Decoy Effect Marketing Strategy of PT Telkomsel on Purchase Decisions in Garut

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Abstract

This study investigates the differences in purchase decisions before and after the decoy effect marketing strategy is implemented. The decoy effect is a behavior of consumers who tend to change their choices when an unbalanced third option is available. The population in this study is the people of Garut Regency. The sampling technique used in this study is a non-probability sampling technique. The findings in this study are Target products are the part of the product that is most in demand or will be chosen by consumers, which is then followed by Competitor products and the last is the Decoy product. The purchase decision is influenced by the consumers' behaviors and unexpected situations. The decoy effect marketing strategy greatly affected consumers' purchase decisions in Indonesia (Siswanto, 2019). The process was not successfully implemented to improve the target product as it only affected millennial consumers. The consumer would purchase based on their interests (characters and satisfaction). The novelty of this study is discovering an appropriate decoy effect strategy for the Indonesian context. The study used questionnaires to obtain the data. Then, the data was tested by Wilcoxon Test to find the significance of the purchase decision before and after the decoy effect strategy was implemented. The study is in line with the previous studies that the decoy effect strategy significantly influenced purchase decisions. Although it only applied to some products, the decoy effect strategy changed the consumer's perception to determine the purchase decisions. It was suggested that Indonesian companies thoroughly comprehend the decoy affects marketing strategy.

Keyword— Marketing Strategy, The Decoy Effect, Purchase Decisions, and PT Telkomsel.

I. INTRODUCTION

Trading is an economic activity carried out between producers and consumers as a distribution activity that guarantees the circulation, distribution and supply of goods through a market mechanism. In this case, producers and consumers are the subjects who play essential roles in trading activities. Thus, the interests of both parties will always need to be considered to benefit the two parties. From the consumer's point of view, profit means buying an item at the lowest price with the possibly highest quality. Meanwhile, from the producer's point of view, profit means selling as many products as possible to get the highest profit. As a result, producers that sell similar products compete with each other to maintain and develop their existence by relying on the marketing department to realize their business plans by implementing marketing strategies.

According to (Sadeli, Utami, & Djuwendah, 2017), a marketing strategy is a mix consisting of a combination of factors that can maximize the success of a company's marketing activities, including products that have particular benefits, locations or other names of distribution that make a product easily accessible to consumers, promotion to provide information to consumers about the products they have, and price as the essential marketing strategy variable which influenced consumers to make decisions of purchasing goods or services. Companies need to determine their products' prices to get the maximum profit. Companies might apply a price psychology trick called the decoy effect to achieve this goal.

The decoy effect is a phenomenon in which consumers tend to change a particular preference between two options when a third option is also presented (Decoy), which is dominated asymmetrically (Huber, Payne, and Puto, 1982). In other words, the decoy effect is a behavior in which a consumer tends to change his choice when an unbalanced third option is given. According to Monk (2016), there are three divisions of product categories. The first is Competitor Products which are products that have standard prices. The second one is the target product which is the most economical and profitable from the consumer's point of view, and the last is the decoy product

(bait) that has the least effective price which serves as a comparison product. Through this strategy, companies provide bait or "lure" for consumers to change their purchase decisions towards products that are more profitable for the company. The examples of the case before and after the application of the decoy effect can be seen in Figure 1.1.
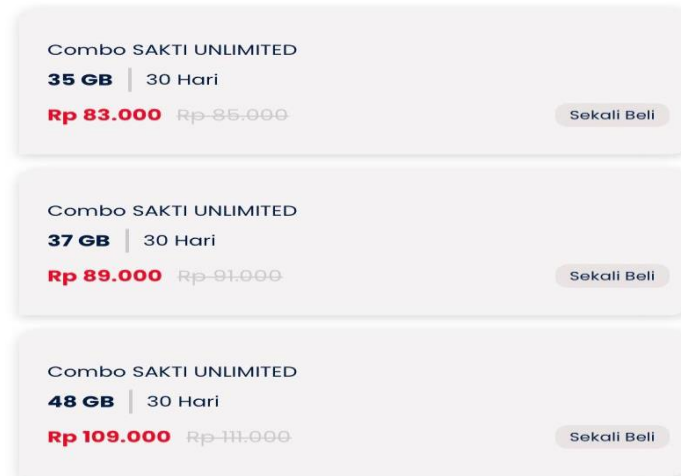

Fig 1. An Example Of The Case Before The Decoy Effect Strategy Implementation Kasus

Figure 1.1 shows an example of the application of the decoy effect available in My Telkomsel application which displays three options or alternative quota packages for the same or similar products. The first and second prices usually have a price increase that goes hand in hand with the corresponding number of products. However, the third price package, which basically just baits or decoy, tends to be slightly more expensive than the increase in the first and second price packages. Accordingly, it influences the purchase decisions made by consumers based on the consumer's own responses. This is supported by Djati (2020) in deciding to buy some products; consumers often have more than two choices involved in the buying process. Each producer carries out various ways or strategies so that consumers decide to buy their products. In addition, the study by Siswanto (2019) stated that the decoy effect strategy had an effect on consumers' purchase decisions, but the decoy effect strategy was not fully implemented to increase the target product because it only influenced the consumers of the X generation. Basically, every consumer who makes a purchase will first consider what is good in accordance with his interests before deciding what he wants to buy. Consumers will also choose according to the character and inner satisfaction that will be obtained later.

From the case above, it can be seen that the purchase decision is influenced by two factors that will determine consumer response. According to Kotler & Keller (2012), the purchase decision is the stage of the decision process in which consumers actually purchase a product with two factors that arise between purchasing tendencies and purchasing decisions, namely the attitude of other people and unexpected situation factors. This is supported by the result of research proposed by (Siswanto, 2019), who researched the decoy effect strategy and purchasing decisions in several segments based on demographics. The result stated that the decoy effect strategy affected consumers' purchase decisions in Indonesia. However, in this study, the decoy effect strategy was not fully implemented to increase the target product because only consumers with generation X were affected. Since every consumer who makes a purchase will first choose what is good in accordance with his interests before deciding what to buy, consumers will also choose according to the character and inner satisfaction that will be obtained later. Besides, this is also caused by the factor of pricing that is still poorly managed to increase consumer sensitivity to the decoy effect.

Based on the results of the observations made by the researchers through questionnaires via a google form, 57 people responded to these observations. This observation aimed to check the knowledge of people in Garut regarding the decoy effect strategy. 4 out of 57 people did not know and had never experienced the decoy effect. In contrast, the remaining 53 had experienced it but were not aware of the implementations of marketing strategies

or what is commonly called the decoy effect. Then the respondents were required to choose three types of products in maximum, in which the decoy effect strategy was implemented, from the five types of products available, as shown in Figure 1.2 below:
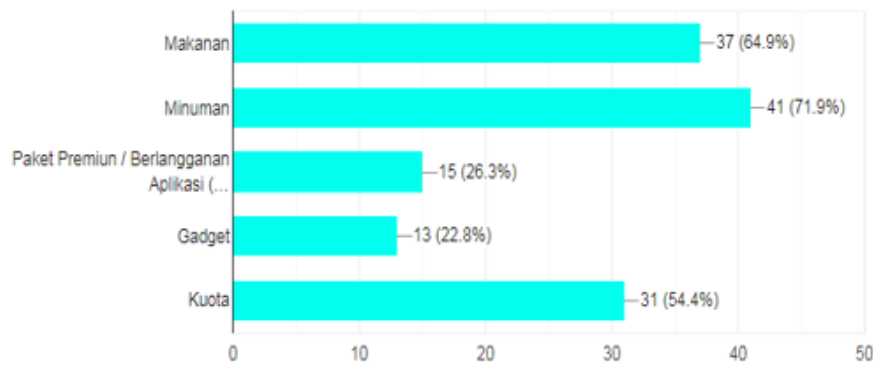

Fig 2. the result of preliminary research towards decoy effects products in Garut Source: the researchers observation in 2020)

According to the figure 2, from 57 respondents, drinks were in the first place, namely 39 respondents or equivalent to 72.2%, food was in the second place, namely 35 respondents or equivalent to 64.8%, then quota was in the third place with the acquisition of 30 respondents or equivalent to 55.6%, and in the fourth position at 27.8% or equivalent to 15 respondents chose premium packages/subscription to applications such as viu, Netflix and youtube. Lastly, the fifth position, gadgets, was occupied by 24.1% or equivalent to 12 respondents. From the observations above, the researcher concluded that people in Garut had experienced the decoy effect but were not aware that it was a marketing strategy.

II. LITERATURE REVIEW

A. Marketing Strategies

Marketing strategy is crucial for a company because a good marketing strategy can help the company to achieve its goals. According to Kotler (2011), marketing is a social process by which individuals or groups obtain their needs and wants by creating, offering, and exchanging valuable products and services and others freely. In a company, marketing provides customer satisfaction and welfare long-term to earn a profit. It pays attention to the dynamic interrelationships between the company's products and services, the customer wants and needs and the activities of competitors.

According to Tjiptono (2015), a marketing strategy is a fundamental tool to achieve the company goals by developing sustainable competitive advantages through the target market. It is a statement either implicitly or explicitly about how a brand or product line achieves its goals.

A marketing strategy provides direction related to market segmentation, target market identification, positioning, marketing mix elements, and marketing mix costs. According to Kotler & Keller (2012), all marketing strategies are constructed based on segmentation (market segmentation), targeting (setting targets), and positioning (positioning) or commonly abbreviated as STP.

In marketing, there is a marketing strategy called the marketing mix, which has an important role in influencing consumers to buy the products or services offered by the company. The marketing mix elements consist of all the variables the company can control to satisfy consumers. For the purpose of the company's establishment, the company needs to be able to grow and develop.

Companies blend a set of product, price, place, and promotional marketing tools to generate the desired responses in a defined target market. The concept of the marketing mix (Marketing Mix) consists of 4p, namely: product, price, place and promotion. Each element is interrelated and dependent on each other and becomes an optimal one according to the characteristics of the segment. (Kotler & Keller, Marketing Management, 15th Edition, 2016) reveals that the marketing mix includes the following 4p's:

a. Product

Products mean managing product elements including planning and developing the right product or service to be marketed. By changing an existing product or service, a company may add and take other actions that will affect the assortment of products or services.

b. Price

Price is a company management system that will determine the appropriate base price for a product or service and the strategy regarding price discounts, payment of transportation costs and various related variables.

c. Place

Place means how the company chooses the trade channel to distribute the products or services to the target market, and allows the company to develop a distribution system so that the delivery and commerce of physical products runs smoothly.

d. Promotion

Promotion is an element to inform and persuade the market about new products or services to the consumers through advertising, personal selling, sales promotions, and publications.

B. Decoy Effect

The decoy effect is a condition in which consumers have other preferences for existing products because of the emergence of bait products and provides new perceptions of the desired product. Another opinion suggests that the decoy effect strategy can introduce a relationship between higher prices for the same product or even lower quality products (Wu & Cosguner, 2020). The dimensions and indicators of the decoy effect, according to Wu & Cosguner (2020), explain that the decoy effect has three sub-systems that change consumer preferences, namely:

a. Target

The target is the product set by the company to be purchased by the consumers as it is the most expensive one.

b. Competitors

Competitors are the products with the lowest prices compared to the target product. If there are only competitor products and the target product, it will be dominated by the competitor one or the product with the lowest price.

c. Decoy

Decoy products are the least effective product because they are in the middle between the competitor products and the target product. To make the target product dominates the sale, the company makes the decoy product look very ineffective because it tends to compete with the price of the target product so that consumer preferences will judge that the target product is the most effective product than the competitor products and the decoy products.

C. Purchase Decisions

Alma (2012) argued that purchase decisions as a decision made by a consumer are influenced by the financial economy, technology, politics, culture, products, prices, locations, promotions, physical evidence, people and processes, thus, they form an attitude on consumers to process all information and the decision making on what products they will buy. The purchase decision is a process in which consumers go through five stages, namely problem recognition, information search, alternative evaluation, purchasing decisions, and post-purchase behavior, which begins long before the actual purchase is made and has an impact long after that.

a. The choice of the product is something that the company must pay attention to by focusing on consumer's interests and the advantages of products that emphasize the expected quality, the benefits of the product regarding the level of usability to meet consumer needs, and the selection of products according to the expected quality and benefits that consumers will get.

b. The choice of the brand should determine what brand to buy, so the company needs to know how consumers choose a brand, namely the interest in the brand that pays attention to the brand image stored in consumers' minds, brand habits are caused by the habit of buying the same product repeatedly, price suitability is considered by consumers to get a price that matches the quality and benefits of the product.

c. The number of purchases is determined by the consumer by taking into account the number of products that suit the wishes of different consumers.

d. The time of purchase adjusts to the needs when consumers feel the need to make a purchase, the benefits they feel after buying the product and have a reason to meet their needs.

The decoy effect is considered as something that is capable of changing consumer views in making purchase decisions. A good decoy is a bait that can change consumers' views and emerge a desire to buy a product. To creat a good decoy, the company needs to carry out various strategies to create new opportunities among the consumers by generating a decoy accepted by consumers and producing something positive in the consumers' minds in order to create a belief that the purchased product is at the lower price with a bigger size. If the decoy has a positive value in the consumers' minds, it will lead to high purchase decisions for the products desired by consumers.

III. RESEARCH METHODOLOGY

The research method used is quantitative research to test the predetermined hypothesis. In this study, the Wilcoxon Test was used to test the differences before and after the implementation of the Decoy Effect in the Purchase Decisions. The decoy effect on a marketing strategy is very appropriate if this phenomenon is studied in Indonesia, especially in Garut, considering the vast area and fairly rapid business development in various products. Researchers distributed questionnaires to the people in Garut to obtain the data. In this study, the Decoy Effect is the independent variable, and the Purchase Decision is the dependent variable. The operationalization of this research variable is explained in the following table:

Table 1. Variables

Research Variables	Dimensions	Indicators
Decoy Effect (X) (Wu & Cosguner, 2020)	1. Target	1. Gender
		2. Age
		3. Incomes
	2. Competitors	1. Product choice
		2. Positioning
		3. Brand choice
		4. Place
	3. Decoy (bait)	1. Price
		2. Benefits
		3. Quantity
The purchase decisions (Y) (Kotler & Keller, 2012)	1. Product choices	1. The excellence of the product
		2. The advances of the product
		3. The choice of the product
	2. Brand choices	1. The interest towards the brand
		2. The habit towards the brand
		3. The suitability of the price
	3. Number of sale	1. The number of purchase decisions
		2. The purchase decision for stockpiles

	4. Time	1. Based on the needs
		2. Benefits gained
		3. The rational of the purchase

IV. RESULT/FINDINGS

Validity test is a measure that shows the level of validity of an instrument or measuring instrument. The results of the validity test can be seen by comparing the r count > r table, while to obtain the r table, it can be seen from the rabel r and obtained a value of 0.195. In this study, the calculation is assisted by using SPSS 20. The following are the results of the validity test:

Table 2. Validity test of *Pre-Test*

No Item	*Correected Item Total Correlation* (r_{count})	r_{table} 5% (100)	Note
Item_1	0,716	0,195	Valid
Item_2	0,717	0,196	Valid
Item_3	0,639	0,197	Valid

The table above, it can be seen that the results of statistical testing show that rcount > rtable, then all question items for pre-test answers are declared valid.

Table 3. Validity test of *Post-Test*

No Item	*Correected Item Total Correlation* (r_{count})	r_{table} 5% (100)	Note
Item_4	0,723	0,195	Valid
Item_5	0,744	0,196	Valid
Item_6	0,466	0,197	Valid

The table above shows the validity of the post-test and revealed that rcount > rtable. This means that all question items for the Post-test answers are declared valid. Reliability test is used to determine whether the items to be tested are reliable in providing measurements before and after. The significance test was carried out at the level of $\alpha = 0.05$.

Table 4. Reliability test of Pre-Test

Cronbach's Alpha	**Number of Items**
0.451	3

From the table above, Cronbach Alpha is 0,451 > 0,195 (rtable). Thus, the table is considered reliable. It showed by the result of the rest in which Cronbach Alpha > rtabel, and considered the pre-test reliable.

Table 5. Reliability test of Post-Test

Cronbach's Alpha	**N of Items**
0.331	3

From the table above, Cronbach's Alpha is 0.331 > 0.195 (rtable). Thus the measuring instrument is considered reliable. This is based on the results of the reliability test which shows Cronbach Alpha > rtable, so that the post-test results are declared reliable. The normality test was used to test whether or not the data was normally distributed. Based on the histogram display in the attachment, it can be seen that the curve does not form a bell. The basis for decision making is based on probability. If the probability > 0.05, then the research data is normally distributed. Using the SPSS 20 Software Kolmogrov-Smirnov method, the following are the results of the calculation:

Table 6 Normal distribution test

		Unstandardized Residual
N		100
Normal Parametersa,b	Mean	.0000000
	Std. Deviation	.74196028
Most Extreme Differences	Absolute	.314
	Positive	.217

Negative		-.314
Kolmogorov-Smirnov Z		3.143
Asymp. Sig. (2-tailed)		0.000

a. Test distribution is Normal.

b. Calculated from data.

Based on the table, it shows that the value of Asymp.Sig. (2-tailed) of 0.000 <0.05 (alpha), then the data is not normally distributed.

Based on the previous test above, it can be said that one of the conditions for using parametric testing (Sample Paired T-Test) is not met, so that hypothesis testing utilized non-parametric testing, namely Wilcoxon test.

V. DISCUSSION

Wilcoxon test is a tool to test two pairs of populations. Wilcoxon test results can be seen by comparing Asymp. Sig > significance level (α). In this study, the calculations used SPSS 20 software. The following is the output of the Wilcoxon test.

Table 7 *Wilcoxon* test

Ranks

		N	Mean Rank	Sum of Ranks
Post Internet quota - Pre a Internet quota	Negative Ranks	32ᵃ	38.00	1216.00
	Positive Ranks	50ᵇ	43.74	2187.00
	Ties	18ᶜ		
	Total	100		

a. Post < Pre
b. Post > Pre
c. Post = Pre

The negative ranks or differences (negative) between Telkomsel products for pre-test and post-test are 32 for N value, 38.00 for Mean rank and 1216,00 for sum of rank. This value of 32 indicates a decrease (reduction) from the value of the pre-test to the post-test. The positive ranks or difference (positive) between Telkomsel products for pre-test and post-test are 50 positive data (N), which means that 50 respondents experienced an increase in their purchasing decisions from the pre-test to the post-test. The mean rank or average increase is 43.74, while the number of positive ranks or sum of rank is 2187.00. Ties is the similarity of pre-test and post-test scores. The ties value is 18, so it can be said that there is the same value between pre-test and post-test, which is 18.

Table 8 Wilcoxon test

Test Statistica

	Post Internet quota - Pre Internet quota
Z	-2.491ᵇ
Asymp. Sig. (2-tailed)	0.013

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Asymp significance results. Sig. (2-tailed) is 0.013 < 0.05, so H0 is rejected. Thus, the conclusion is that there is a significant difference between before and after the implementation of the decoy effect on the consumer's purchasing decisions for Telkomsel products in Garut.

From the results above, the value of each product has a significant effect on the purchase decisions between before and after the strategy implementation. The results of this study are consistent with the results of research conducted by Claudia Marchella Siswanto (2019) which stated that the decoy effect had a significant effect on the consumer purchase decisions. These results explain that consumers of the X generation were affected by the price and the size of the product when deciding to purchase a product that encouraged the purchase decisions. The same thing happened to the results of the research conducted by Wu & Cosguner (2020) stated that there was a significant increase, especially in the sale of engagement rings, when consumers were given different prices.

The target product was determined from a product that was considered to have a high value at the most reasonable price; the competitor's product was the product that had an appropriate value and product price (on average); the decoy product was the product that had low values with inappropriate prices. So it can be concluded

that the target product was the most demanded product or would highly be chosen by the consumers, which was then followed by the competitor product and the last is the decoy product.

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the research, the Decoy Effect influences the consumer's purchase decisions. However, not all products had a significant difference between before and after the implementation of the Decoy Effect. Nevertheless, the Decoy Effect was still able to change the consumer's point of view in determining the Purchase Decision. It is suggested that Telkomsel in Garut fully understand the Decoy Effect strategy. Practically, the strategy could be started by setting the price that influences consumer psychology more (according to the theory) so that the Decoy Effect strategy is successful and emerges with a positive impact, namely an increase in the company's higher income level.

From the results of 100 respondents regarding the implementation of the decoy effect strategy on Telkomsel products, in this illustration/case it can be seen between options 1 and 2 which apparently have prices that are not too much different. Then most people think they will definitely choose option 3 because there are many advantages there even though the price is more expensive. Therefore, choice 2 is called Decoy. Judging from the average choice before and after where there are 18 values which indicate that the value after is superior to the value before which means H0 is rejected. At the time of the pre-test respondents chose the 1st choice as many as 81 people and the 2nd choice as many as 19 people. Meanwhile, during the post-test, 18 people were given a third choice (decoy) to change their choice to a larger package size for reasons of a more affordable price and the many benefits offered. Thus, it can be concluded that based on testing of 100 respondents, it is proven by Ties of 18 and seen from the mean results so that the hypothesis decision H0 is rejected, which means that there is a significant difference between before and after the Decoy Effect is applied to purchasing decisions on Telkomsel products.

The failure of the Decoy Effect strategy might be caused by too many factors that influence a consumer (respondent) to make decisions, whether it's a factor of need, a number of family members, lifestyle, and much more. Thus, the Decoy Effect strategy is not successful in influencing the consumer's purchase decisions as the company wishes. For further research, it is expected to add other variables to be tested.

The researchers only conducted significance tests on the results of before and after the Decoy Effect. As the researchers used designed prices, further research may use different tests with prices that already exist in the products. In this study, it is not certain that the objects used are the products of the companies that set the Decoy Effect strategy's, so that the future research may add products from companies that have implemented the Decoy Effect strategy to ensure the Decoy Effect strategy success in Indonesia. In addition, the object of research may use products that are considered to have more emotional value for consumers.

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Impact Analysis of Government Debt Issuance on Corporate Debt in Emerging Countries from 2010 to 2019

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Abstract

Global financial crisis that started in the U.S. causes many economies suffered and experiencing a recession. Many governments around the world try to manage the crisis through expansionary fiscal policy. A report by the World Bank says that since the global financial crisis in 2008, there is an increase in debt and budget deficit among the emerging and developing countries. the objectives of this study is to analyze the impact of government debt to corporate debt, analyze if there is a different impact of government debt on the short-term and long-term debt of corporations, and to know what capital structure theory is followed by the firms. This study uses data from 117 firm in China, Colombia, Indonesia, Malaysia, and Mexico from 2009 to 2010. by using feasible generalize least square (FGLS) and Panel-Corrected Standard Error (PCSE), it is found that government debt has positive and significant effect on the corporate debt and leverage level. Moreover, there is a different impact of government debt on the firms' short-term and long-term debt. For the short-term debt, the firms follow the static trade-off theory, Meanwhile for the long-term and total debt, the firms follow the pecking order theory. The results of analysis done in this study show that government debt can significantly impact the corporate debt. There is also different impact of government debt between the firms' short-term debt and long-term debt.

Keywords—Capital structure; corporate debt; cost of capital; crowding-out; government bonds

I. INTRODUCTION

A report by the World Bank says that since the global financial crisis in 2008, there is an increase in debt and budget deficit among the emerging and developing countries. This increase in debt and budget deficit can give negative impact to the economy by affecting a rise in borrowing costs (World Bank, 2017). If the government is too aggressive in issuing bonds, there will be a crowding-out effect on the financial market. This can happen because funds from the public are used too much by the government, so it will be more difficult for the private sector to get financing from the capital market. Furthermore, data show that the government debt has increased to 47 percent of GDP in 2016 from previously 35 percent of GDP in 2007 among the developing countries. Meanwhile, budget deficit also increased from around 1 percent of GDP to around 5 percent of GDP in the same period from 2007 to 2016.

Several studies in the developed countries shows that government borrowing affect firms financing and capital structure. Elmendorf and Mankiw (1999) argue that an increase in government debt can increase the financing costs of companies. Friedman (1978) also found that government spending and financing through debt can cause crowding-out phenomena in corporate debt financing due to competition to get financing from investors. A similar statement was made by Graham et al. (2014), research confirmed that optimizing and adjusting investor portfolios is responsible for the crowd-out effect of government debt financing on corporate financing. But study around this issue is still rare on emerging and developing countries that is why this research try to capture the phenomenon. This research can be useful for public and fiscal policy makers in determining their decision to fund government spending. By knowing the impact of the issuance of government debt, policy makers can calculate the advantages and disadvantages of each decision to be taken. For investors, this research can be useful as a reference for choosing financial instruments and their choices in investing. And for financial managers in companies and companies in developing countries, this research can be a source of new knowledge in managing the company and determining the company's financial decisions and plans in the future.

II. LITERATURE REVIEW

A. Fiscal Policy

Government and policymakers can influence the economy by using monetary policy and fiscal policy. Central banks regulate this monetary policy through interest rates, money supply, and others open market operation. In the other hand, government control the economy through fiscal policy. The goal of fiscal policy is to achieve

economic growth, stability, reducing inequality, and pushing down poverty. Because of the market failure and arguments against the laissez-faire, government is pushed to take role in economic activity (Mankiw, 2016). Fiscal policy is divided into two categories, namely expansionary fiscal policy and contractionary fiscal policy.

B. Budget Deficit

The role of the government as a public policy maker is to encourage growth and create economic stability, one of them through contracyclical fiscal policy is one way that the government can do. In the classical economic theory proposed by Keynes, it is stated that economic growth is influenced by the role of the government. Governments can influence and manage how resources are used in the economy, both directly and indirectly (Horton and El-Ganainy, 2020). Looking at the GDP equation through expenditure that is GDP = C + I + G + (Export – Import), the government influence on the economy can be seen. This equation prove that governments can affect economic activity directly, that is GDP, by managing the G component from the equation. By doing so, the government can influence the C, I, and Net Export indirectly. Governments can manage the G component by changing the taxes, transfers, and spending.

C. Crowding-Out on Financial Market

Issuance of government bonds to finance the budget deficit can lead to the phenomenon of crowding-out effect on private investment. Because the issuance of government bonds leads to increase in demand for investment and capital, while the supply of money or capital in the market is limited. Therefore, the supply for private investment also decreases, as public and private sector compete to get source of financing. A phenomenon often referred to as crowd out of private sector borrowing (Friedman, 1978). In classical economic theory proposed by Keynes, a budget deficit and an increase in bonds issued by the government will increase interest rates and the cost of borrowing from the private sector.
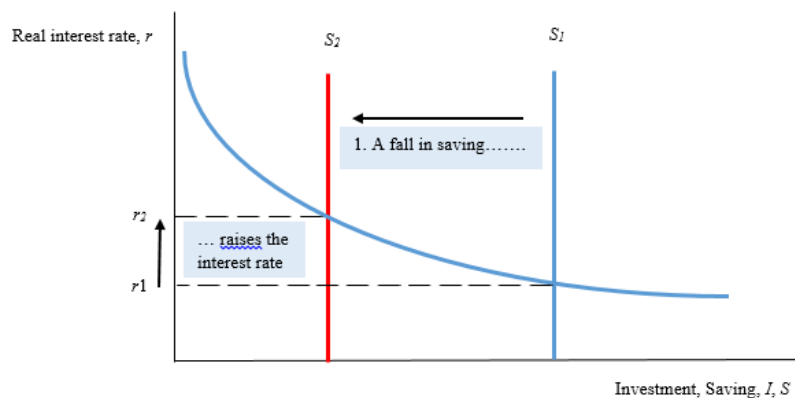
A Reduction in Saving

A reduction in saving, possibly the result of a change in fiscal policy, shifts the saving schedule to the left. The new equilibrium is the point at which the new saving schedule crosses the investment schedule. A reduction in saving lowers the amount of investment and raises the interest rate. Fiscal-policy actions that reduce saving are said to crowds out investment.

Fig. 1. Budget Deficit Effect (Mankiw, 2017)

D. Capital Structure

Capital structure is one of many core topics in corporate finance. According to the literature, there are two methods that can be use by company to finance its activities. The pie model explained that company can get their financing through debt and equity. The goal of managing this capital structure is to maximize the value of the company. When discussing about capital structure we also need to discuss the concept of the firm's weighted average cost of capital (WACC). The concept of WACC tells us about the firm's overall cost of capital is a weighted average of the costs of the various components of the firm's capital structure.

The function of the capital structure is to regulate and manage the capital owned by the company. The company uses several methods and various sources to obtain the capital or funding needed for its operational activities. The elements in the capital structure can be divided into equity shares, preference shares, short and long term loans, debt securities, retained earnings, and other sources of funding. The elements of this capital are arranged based on the proportion of the overall capital and combined in accordance with the company's strategy and objectives.

E. Trade-Off Theory

This theory argues that the decision to choose the form of financing is by comparing the benefits and costs of issuing debt. Through calculation of the benefits and costs of debt, then the firms choose the optimal amount of

debt and leverage needed. By issuing debt the firms can get benefit from tax deductibility or tax shield from the interest paid to bondholders and maintaining the free cash flow of the firms. While the costs of debt rise from the bankruptcy costs and agency problem that may happen between bondholders and stockholders (Frank and Goyal, 2009).

F. Pecking Order Theory

The pecking order theory first introduced and developed by Myers (1984). This theory argues that firms will look internally for its main source of funds. Firms will use their retained earnings to finance their investments to avoid the costs of issuing new securities. Problems arising from asymmetric information make issuing new equity becomes risky decision. Moreover because of this asymmetric information there is a serious adverse selection problem with equity. While debt has less adverse selection problem compared to equity. To avoid those problems and minimize the costs of financing, firms will use its retained earnings first to finance new investments. Debt financing will be used when retained earnings are insufficient. Financing through equity will be used as a last resort. According to the pecking order, there is no optimal level of leverage. Firms' decisions of its leverage are not influenced by the benefits and costs of debt and equity. The decisions is mainly influenced by the firm's net cash flows (Frank and Goyal, 2009).

G. Previous Empirical Studies

Studies and research on the effect of government debt on corporate debt and finance have been carried out in various countries and conditions. Especially in developed countries such as Europe and the United States. Based on this research, it was found that there was an influence from the issuance of government debt due to the budget deficit on the financial market and corporate finance, especially on corporate debt. Friedman (1986) states that changes in government debt will cause changes in the rate of return on investment assets (return on assets) of the investor's portfolio. In recent studies that focus more on developed countries, such as those conducted by Graham et al. (2014) in the United States. Through his study, Graham found that government debt has a significant influence on corporate financing, investment and prices of various assets in financial markets. The same thing also happened in European countries, Ayturk (2017) stated that there is significant statistical evidence that there is a relationship between government debt and financing decisions in corporations in 15 European countries. The findings of this study emphasize the negative relationship of government debt on corporate debt and corporate financial leverage. Meanwhile, in developing countries, Nasir et al. (2020) found a negative relationship between government debt and debt financing for companies listed on the Vietnamese financial market. In particular, the study states that government debt has a stronger influence on the company's short-term debt than its long-term debt. Recently Zhang, Brookins, and Huang (2022) also found that government debt, both local and central, affect the corporate debt negatively. In broader market Demirci, Huang, and Sialm (2019) investigate the same phenomenon, that crowding-out effect also happened and affect corporate debt in 40 countries from 1990 to 2014.

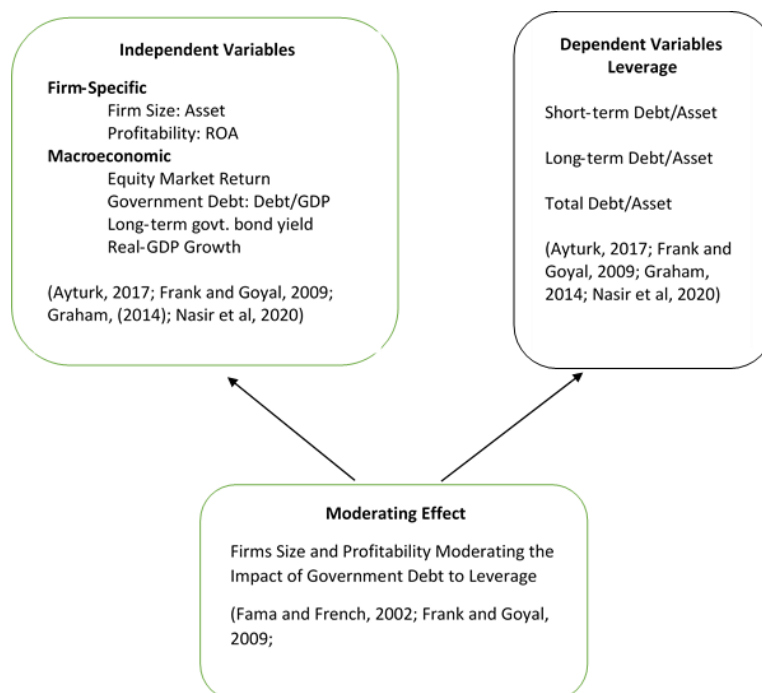*H. Research Framework and Hypothesis*

Fig 2. Research Framework (Processed by Author, 2022)

The purpose of this research is to investigate if there is crowding-out effect in the emerging countries. Data shows that since the global financial crisis 2008, the proportion of government debt to GDP is increasing. The hypothesis for this research is still the same with other previous studies. The government debt significantly affects the corporate debt. Since there is different nature in debt, this research will also investigate the different impact of government debt on the short-term and long-term corporate debt. Using firm-specific factors, this research also tries to investigate the influence of firms conditions to the choice of financing. The empirical result can show if the firm-specific factors can weaken or strengthen the impact of government debt to the capital structure. With firms' profitability and size moderated by the government debt, it can be analyzed if there is different effect of government to bigger and profitable firms. Looking at the research done by Frank and Goyal (2009) among publicly traded American firms, that becomes one of the foundations for capital structure analysis, profitability and firms' size have significant impact on leverage. Frank and Goyal (2009) conclude that firms with high profit tend to have less leverage and larger firms tend to have high leverage. The hypotheses on this research are:

H1: There is significant impact of government debt to corporate debt.

H2: There is different impact between the short-term debt and the long-term debt.

H3: The firms follow the pecking order theory

I. Controlling Variables

Many factors inside and outside of the firms can influence the choice for the capital structure. Research suggests that there are also macroeconomic conditions that have significant impact to capital structure. This macroeconomic factor becomes important because it can tell the aggregate demand, the level of price, and others condition in the market that for sure will affect the firms performance. It is important to include this variable into the model to avoid omitted variable bias. For the purpose of this research GDP growth, equity market return, and the long-term government bond yield are included as control variables.

III. RESEARCH METHODOLOGY

In this study, quantitative methods will be used in analyzing and drawing conclusions from the problems that have been described previously. This quantitative analysis method includes the process of mathematical modeling, statistical processing, and econometrics. This research method includes data collection, organization, tabulation, and finally the results and analysis of data processing.

A. Model Specification

The research is based on the framework and theoretical basis generated through research conducted by Frank and Goyal (2009); Graham et al. (2014). In the study, the model that was used try to capture the phenomenon of the company's finances, through financial leverage within the company. Included in the model as the suggested control variables (Xt) are macroeconomic factor in the form of long-term government bonds, equity market return, and real GDP growth rate. Based on the specifications, three analytical models can be formed to find out how the impact of government bonds on corporate debt which consists of short-term debt and long-term debt, as well as the total debt as a whole. Below are the three models that are constructed:

Model 1: The dependent variable in this model is the short-term financial leverage of the company, which is the ratio of company's short-term debt to its assets (Short-term Leverage) at book value in year t. The independent variable consists of the ratio of government debt to its assets (DTGDP) in year t, the company's asset (Assets) at book value in year t, the ratio of EBIT to total assets of the company's (ROA) in year t, and the moderating variables of company's assets and profitability to government debt. In addition, this model adds control variables or vectors of several variables depicted in Xt. This model is used to study the different impacts of government debt on short-term debt and long-term debt. The moderating variable is also helpful in analyzing what capital structure theory is followed by the firms.

$$Short-term\ Leverage_{it}$$
$$= \alpha + \beta 1 DTGDP_{it-1} + \beta 2\ Assets_{it-1} + \beta 3\ ROA_{it-1} + \beta 4 (DTGDP_{it-1})(Assets_{it-1})$$
$$+ \beta 5\ (DTGDP_{it-1})(ROA_{it-1}) + \beta 6\ x_{it-1} + \varepsilon_t \qquad (1)$$

Model 2: The dependent variable in this model is the long-term financial leverage of the company, which is the ratio of company's long-term debt to its assets (Long-term Leverage) at book value in year t. The independent variable consists of the ratio of government debt to its assets (DTGDP) in year t, the company's asset (Assets) at book value in year t, the ratio of EBIT to total assets of the company's (ROA) in year t, and the moderating variables of company's assets and profitability to government debt. In addition, this model adds control variables or vectors of several variables depicted in Xt. This model is used to study the different impacts of government debt on short-term debt and long-term debt. The moderating variable is also helpful in analyzing what capital structure theory is followed by the firms.

$$Long-term\ Leverage_{it}$$
$$= \alpha + \beta 1 DTGDP_{it-1} + \beta 2\ Assets_{it-1} + \beta 3\ ROA_{it-1} + \beta 4 (DTGDP_{it-1})(Assets_{it-1})$$
$$+ \beta 5\ (DTGDP_{it-1})(ROA_{it-1}) + \beta 6\ x_{it-1} + \varepsilon_t \qquad (2)$$

Model 3: The dependent variable in this model is the total financial leverage of the company, which is the ratio of company's total debt to its assets (Total Leverage) at book value in year t. The independent variable consists of the ratio of government debt to its assets (DTGDP) in year t-1, the company's asset (Assets) at book value in year t-1, the ratio of EBIT to total assets of the company's (ROA) in year t-1, and the moderating variables of company's assets and profitability to government debt. In addition, this model adds control variables or vectors of several variables depicted in Xt-1. This model is used to study government debt's impact on firm debt and capital structure. The moderating variable is also helpful in analyzing what capital structure theory is followed by the firms.

$$Total\ Leverage_{it} = \alpha + \beta 1 DTGDP_{it-1} + \beta 2\ Assets_{it-1} + \beta 3\ ROA_{it-1} + \beta 4 (DTGDP_{it-1})(Assets_{it-1})$$
$$+ \beta 5\ (DTGDP_{it-1})(ROA_{it-1}) + \beta 6\ x_{it-1} + \varepsilon_{it}$$
$$(3)$$

B. Data

The data to be used in this study comes from public companies listed on each country's stock exchange and the analysis is applied using the company's financial statements. However, the data taken does not include companies operating in the financial setor and companies with negative book value on its equity. Other supporting data will be taken from World Bank. Regression analysis with panel data will be used in the study. Top companies from each country's stock market index will be used as the subject of research. Therefore, the market price and liquidity of the company's stock become the important aspect of choosing the sample. The time-series period is from 2009 to 2019. The reason for the selection of the research periods is because there is evidence that since global financial crisis in 2008, many countries running budget deficit in order to recover from the crisis.

The selection of the countries that will be used in the research is based on the report published in 2018 and 2020 by International Monetary Fund. The data that will be used is from the emerging market and middle-income economies. Since this research is trying to find out the impact of the issuance of government debt, countries that show significant increase in debt will be taken as the subject of the research. Purposive sampling will be used in this research. According to IMF working paper, the optimal debt to GDP ratio on economic growth for developing countries is between 30 – 60 percent (Chudik, et al, 2015). Using this evidence, the countries that are chosen for this research are countries that have debt to GDP ratio between 30 – 60 percent in 2019. Moreover to get countries with similar government debt condition, countries that are chosen are the ones with 1 – 10 percent average growth on its debt to GDP ratio from 2009 to 2019. Only top companies in each country are included in this research. Looking from the top stock index from each country's stock exchange. This index is measured by the biggest market capitalization and most liquid company in the stock exchange. Due to limited data, both at company's financial statement and macroeconomic data, five countries are chosen to be analyzed. For China, 28 non financial firms are selected from the SSE 50 Index. For Colombia, 11 non financial firms are selected from the COLCAP Index For Indonesia, 36 non financial firms are selected from the LQ45 Index. This index measures the price performance of 45 stocks in Indonesia Stock Exchange that have high liquidity, large market capitalization, and are supported by good company fundamentals. For Malaysia, 20 non financial firm are selected from the FTSE

Bursa Malaysia KLCI Index. At last for Mexico, 22 non financial firms are selected from the Mexican IPC Index. In total there are 117 firms for the observation coming from China, Colombia, Indonesia, Malaysia, and Mexico.

C. Moderated Regression

To know if there is a different effect of government debt across companies with different characteristics, this research adds interaction effects in the model. Moderation occurs when the effect of an independent variable on a dependent variable varies according to the level of a third variable, termed a moderator variable, which interacts with the independent variable (Edwards and Lambert, 2007). It is to be said that when there is interaction effect the effect of independent variable can be vary across levels of a moderating variables. The purpose of adding moderating variables is to analyze interaction effects of government debt across firms' size and profitability.

D. Panel Data Analysis

This research using panel data analysis for the estimation method. Combining time series and cross sectional data. For the cross sectional this research using data from firms financial statement. The data collected from the balance sheet and income statement firms in countries. For the time series this research using firms financial statement data from 2009 to 2019. Panel data analysis is chosen because this research try to analyze the impact of government debt not only in firm-level but for all the firms. To get the most appropriate estimation method, three methods are used for the study. They are Fixed-Effect, Panel-Corrected, Standard Error, and Feasible Generalized Least Squares.

E. Fixed-Effect Model

Fixed-effects models are a class of statistical models in which the levels (i.e., values) of independent variables are assumed to be fixed (i.e., constant), and only the dependent variable changes in response to the levels of independent variables. Fixed-Effect estimation is useful when there are variation across subjects of the research but constant overtime. The purpose of the method is to focus with subject-specific fixed-efects. In this case, firm-specific variables and country-specific variables become the control for omitted variables that vary across firms and countries but not overtime. The inclusion of this control variables, fixed-effect variables, will allows the regression model to have a firm-specific intercepts. The intercept represents the unique fixed-effect for each firm.

F. Feasible Generalized Least Squares

The Feasible Generalized Least Square (FGLS) method is one of the developments of the least square method which is used to estimate the regression coefficient. The FGLS method can handle OLS problems when there is a violation of classical assumptions such as heteroskedasticity and autocorrelation (Dougherty, 2013). Using the estimated residual, the objective of the model is to transform the equation into a generalized differential equation. When heteroskedasticy problem occurred, the FGLS method can correct the panel data analysis by using weights on the observations according to the square root of the variances and making the model robust to heteroskedasticity problem. Hence, the FGLS method can predicts the regression coefficient if the variance of the error is unknown in the regression model, and is able to produce an estimator that is BLUE.

G. Panel-Corrected Standard Error with Panel-Level Heteroskedasticity

Generalized Least Square (GLS) proposed by Park is designed to manage problems in panel data. The temporal and spatial properties of panel data can be problematic when using OLS estimation. Serial correlation and heteroskedastic problem in the model errors often happen in panel data analysis. Beck and Katz (1995) argue that the improvement in power using FGLS with such data is small and that the standard error estimates from FGLS are unacceptably optimistic (anticonservative). Beck and Katz (1995) propose another method by retaining the OLS estimates but then replace the original standard errors with the panel-corrected standar errors (PCSE). Furthermore, study using Monte Carlo analysis shows that the new proposed estimations can be very accurate even in the presence of complicated panel error structures. Because OLS estimation in panel data is not the best method when autocorrelation occurred. The PCSE model introduced Prais-Winsten specification to be included in the estimation. The Prais-Winsten estimator takes into account AR(1) serial correlation of the errors in a linear regression (Judge et al. 1985). To manage the heteroskedasticity problem, the estimation can be diverge a little bit from the usual PCSEs to estimate standard errors that are panel-corrected. This estimation method is used only for panel-level heteroskedasticity.

IV.RESULT/FINDING

A. *Descriptive Analysis*

Table 1. Data Summary from 2009 to 2019

Variable	Obs	Mean	Std. Dev.	Min	Max
Short-Term Leverage	1287	0.074	0.077	0	0.406
Long-Term Leverage	1287	0.168	0.147	0	0.796
Total Leverage	1287	0.242	0.159	0	0.811
Debt to GDP Ratio	1287	0.405	0.115	0.23	0.572
ROA	1287	0.118	0.1	-0.528	0.66
Assets_Log	1287	15.207	1.457	11.603	19.788
Equity Return	1287	0.034	0.111	-0.161	0.558
Govt. Bonds 10 Yield	1287	0.058	0.019	0.035	0.1
GDP Growth	1287	0.05	0.026	-0.053	0.106
ROA-Debt to GDP Moderation	1287	0.046	0.039	-0.122	0.344
Assets-Debt to GDP Moderation	1287	14.259	1.561	10.463	19.179

IMF, Thomson Reuters, and World Bank

To begin the analysis, this part of the chapter shows the descriptive analysis of the data before diving to the empirical results. This descriptive analysis act as a preliminary condition check and to see the trend on the data. As mentioned before in chapter 3, the data that will be use in this research is the corporate debt and leverage, debt to GDP ratio, the size of the firms, firms' return on assets, stock market return, government long term debt yield (10 Year), and GDP growth. Here below shows the summary from all variables use in the research. The number of observations used in this research is 1.170 observations. The sample for observations is 117 blue chip companies in China, Colombia, Indonesia, Malaysia, and Mexico. The periods of observation is from 2009 to 2019.

Government Debt to GDP Ratio
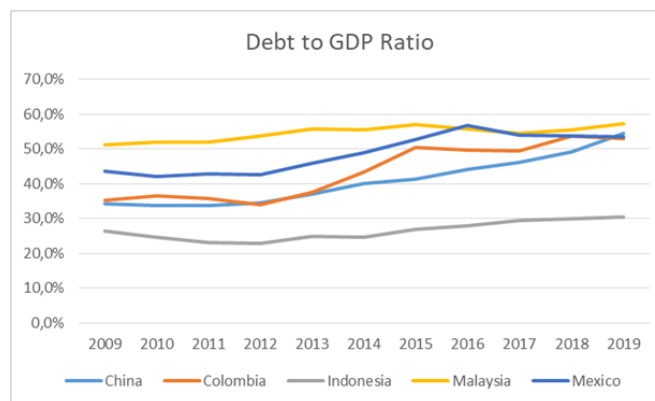
Fig 3. Debt to GDP Trend (IMF, Fiscal Monitor)

Since the global financial crisis, government all around the world try to stabilize and boost economic growth. Data shows that government debt increases in emerging and middle income countries to counter the economic recession and downturn. From the data summary above, the average debt to GDP ratio in this 5 countries are 40,5 percent with standard deviation 11,5 percent. The minimum value is 22,9 percent and the maximum value is 57,2 percent. The lowest value is from Indonesia in 2012 and the highest is coming from Malaysia in 2019.

Looking from the data at 2019, Malaysia has the highest debt to GDP ratio and China as the second largest followed by Mexico, Colombia, and Indonesia as the country with the lowest debt to GDP ratio. Despite there is difference value of this ratio, one condition remain the same that is the upward tren of government debt. Below are the graphical trend of debt to GDP ratio from each country start from 2009 to 2019. In 2009 China has 34,3 percent debt ratio and by 2019 the debt ratio increases to 54,5 percent. Colombia has 35,4 percent debt ratio in 2009 and by 2019 the debt ratio increases to 52,9 percent. Indonesia has 26,5 percent debt ratio in 2009 and by 2019 the debt ratio increases to 30,4 percent. Malaysia has 51,1 percent debt ratio in 2009 and by 2019 the debt

ratio increases to 57,2 percent. Mexico has 43,7 percent debt ratio in 2009 and by 2019 the debt ratio increases to 53,4 percent. Below can be seen the graphical trend of debt to GDP ratio in each country. Data shows that there is an upward trend of government debt.

Corporate Capital Structure

Fig 4. Level of leverage in China (Thomson Reuters)
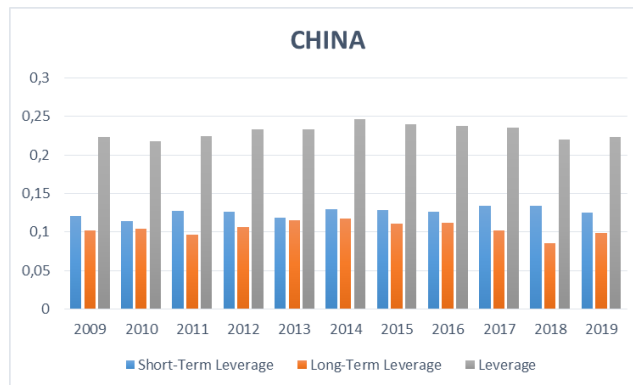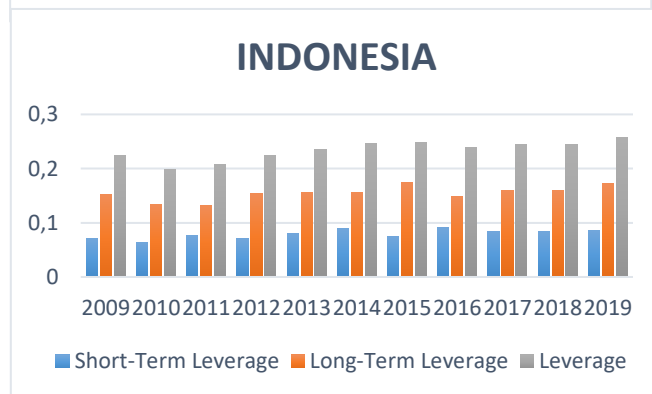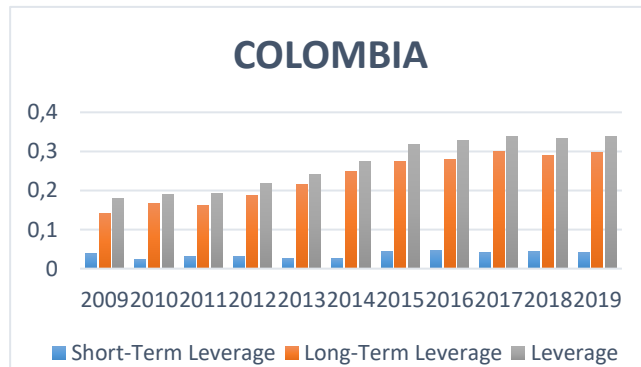

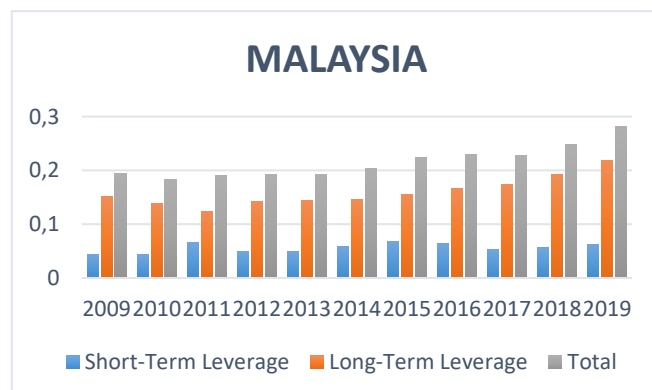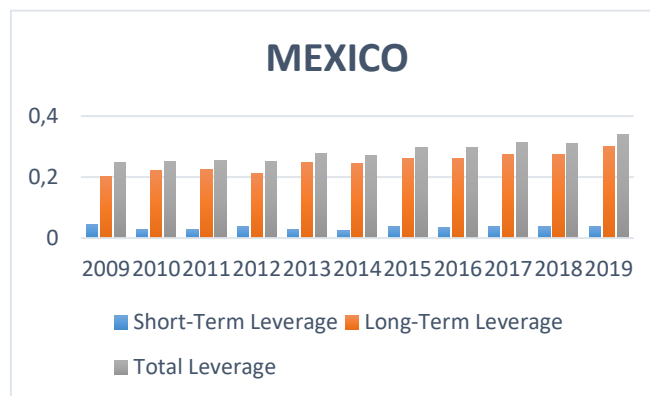Fig 6. Level of leverage in Indonesia (Thomson Reuters)

Fig 7. Level of leverage in Malaysia (Thomson Reuters)

For the firms capital structure the range of leverage level, on average, is around 22 percent up to 34 percent in 2019. With firms in Colombia and Mexico being the highest ones. The average of total leverage in Colombia is 33,7 percent and in Mexico is 33,8 percent. In the second place is Malaysia, followed by Indonesia and China. The respective level of total average on these countries are 28 percent, 26 percent, and 22 percent in that order. As for the capital structure of short-term debt and long-term debt, the proportion of long-term debt or leverage is higher than the short-term debt in all countries except for China. In China, the short-term rate proportion is higher but not by much. Meanwhile in all others country, the difference proportion of short-term leverage and long-term leverage is quite high. Especially for Mexico, in 2019 itself the short-term leverage is only 3,8 percent and the long-term leverage is around 30 percent.

There is an upward trend of using debt on all the countries is, the graphs shows that the level of total leverage increase from 20009 to 2019 except for China. It can be said that the level of leverage in China is quite stable. Meanwhile for all the other country, the level of total leverage is increasing. Increase in long-term leverage give contribution for the increase of firms' leverage. Because the level of short-term leverage remains stable for all the country.

B. Regression Analysis

The methods for analysis used in the research and for all model are Fixed-Effect, Feasible Generalized Least Square, and Panel-Corrected Standard Error for Panel-Level Heteroskedasticity. The Hausman test shows that Fixed-Effect method needs to be taken for the analysis. To get the best and unbiased results, specification tests are conducted in the model. The results shows that autocorrelation and heteroskedasticity problems appeared in the estimation. This misspecfiation problems can invalidate the usual standard error created in the Fixed-Effect model. Therefore, robust standard error is introduced in the model. The purpose of this method is to get unbiased and robust standard errors of the model coefficients.

Added to the research model is another two estimation methods that are used to address the problems. According to literature, the FGLS model can give correction for the autocorrelation and heteroskedasticity problem. The model is more efficient and less biased than the previous model. Furthermore, the FGLS model can gives more power to the estimation compared to the Fixed-Effect model (Brewer, et al, 2013). The PCSE model introduced by Beck and Katz (1995) can solve this problem and more appropriate to be used in short panel data with small T and large N (Hoechle, 2007).

Short-term Debt and Government Debt

Result shows that there is negative relationship between debt to GDP ratio and the short-term debt on the Panel-Corrected Standard Error model (PCSE) and the FGLS model although it is statistically insignificant. The impact of increase in government debt will reduce the amount of short-term debt in the form of reduction in firms' short-term leverage. Other variables for control, which is firm-specific and macroeconomic condition, also significant for influencing the short-term leverage except stock market return and firms' return on assets (ROA). Especially for GDP growth that is statistically significant in both the FGLS and PCSE models.

Long-term Debt and Government Debt

Result shows that debt to GDP ratio is significantly affects the long-term debt on the Fixed-Effect model with robust standard error, the FGLS model, and the Panel-Corrected Standard Error model (PCSE). But the coefficient of government debt on long-term debt is positive. It can be said that the impact of increase in government debt will also increase the amount of long-term debt in the form of a raise in firms' long-term leverage. Other variables for control, which is firm-specific and macroeconomic condition, also significant for influencing the long-term leverage except stock market return and firms' return on assets (ROA).

Total Debt and Government Debt

The result shows that debt to GDP ratio is significantly affect the total debt on the Fixed-Effect model with robust standard error, the FGLS model, and the Panel-Corrected Standard Error model (PCSE). Same as the long-term debt, the coefficient for the total debt is also positive. Therefore there is crowding in effect as opposed to crowding-out effect of the government debt. The argument of the logical reasons behind this effect is relatively the same with the long-term debt and leverage. Other variables for control, which is firm-specific and macroeconomic condition, also significant for influencing the total leverage except stock market return, firms' return on assets (ROA), and the GDP growth. This gives slightly different results than the long-term debt, where the growth of GDP affect the long-term leverage level. But when combined with the short-term leverage it shows that GDP is not a significant factor to choice the form of financing.

Table 2. Regression Summary of Short-Term Debt

VARIABLES	(Fixed-Effect Robust) Short-Term Leverage	(FGLS) Short-Term Leverage	(Panel-Corrected SE) Short-Term Leverage
Debt to GDP Ratio $_{t-1}$	0.00424	-0.0969	-0.518**
	(0.202)	(0.145)	(0.211)
ROA $_{t-1}$	0.0327	0.0250	0.00445
	(0.137)	(0.0494)	(0.0682)
Log_Assets $_{t-1}$	-0.0108	-0.0259	-0.175**
	(0.0877)	(0.0565)	(0.0826)
Government 10Y $_{t-1}$	0.118	-0.0481	-0.254*
	(0.148)	(0.0924)	(0.138)
Equity Return $_{t-1}$	-0.0111	-0.0117	-0.0168
	(0.0140)	(0.00780)	(0.0113)
GDP Growth $_{t-1}$	0.0925	0.209***	0.301***
	(0.0746)	(0.0466)	(0.0669)
ROA-Debt to GDP Moderation $_{t-1}$	-0.176	-0.206	-0.165
	(0.483)	(0.140)	(0.208)
Log_Assets-Debt to GDP Moderation $_{t-1}$	0.0197	0.0290	0.176**
	(0.0868)	(0.0561)	(0.0822)
Constant	-0.0499	0.0669	0.437**
	(0.191)	(0.119)	(0.175)
Observations	1,170	1,170	1,170
R-squared	0.019		0.058
Number of firms	117	117	117

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Source: Author's calculation

Table 3. Regression Summary of Long-Term Debt

VARIABLES	(Fixed-Effect Robust) Long-Term Leverage	(FGLS) Long-Term Leverage	(Panel-Corrected SE) Long-Term Leverage
Debt to GDP Ratio $_{t-1}$	0.778**	1.097***	1.329***
	(0.384)	(0.247)	(0.355)
ROA $_{t-1}$	0.148	-0.0351	-0.160
	(0.135)	(0.0805)	(0.112)
Log_Assets $_{t-1}$	0.237	0.362***	0.486***

	(0.154)	(0.0959)	(0.140)
Government 10Y $_{t-1}$	-0.140	0.359***	0.562***
	(0.234)	(0.137)	(0.205)
Equity Return $_{t-1}$	-0.0162	0.00208	0.0115
	(0.0259)	(0.0122)	(0.0173)
GDP Growth $_{t-1}$	0.0479	-0.272***	-0.198*
	(0.0963)	(0.0761)	(0.105)
ROA-Debt to GDP	-0.639	-0.191	0.134
Moderation $_{t-1}$	(0.436)	(0.245)	(0.363)
Log_Assets-Debt to GDP	-0.218	-0.344***	-0.469***
Moderation $_{t-1}$	(0.153)	(0.0953)	(0.139)
Constant	-0.627*	-0.907***	-1.081***
	(0.343)	(0.204)	(0.294)
Observations	1,170	1,170	1,170
R-squared	0.070		0.090
Number of firms	117	117	117

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Author's calculation

Table 4. Regression Summary of Total Debt

VARIABLES	(Fixed-Effect Robust) Total Leverage	(FGLS) Total Leverage	(Panel-Corrected SE) Total Leverage
Debt/GDP Ratio $_{t-1}$	0.782*	1.288***	0.891**
	(0.431)	(0.251)	(0.367)
ROA $_{t-1}$	0.181	0.106	-0.0694
	(0.152)	(0.0930)	(0.114)
Log_Assets $_{t-1}$	0.226	0.445***	0.325**
	(0.174)	(0.0951)	(0.144)
Government 10Y $_{t-1}$	-0.0219	0.495***	0.442**
	(0.268)	(0.129)	(0.210)
Equity Return $_{t-1}$	-0.0273	-0.0121	-0.00414
	(0.0289)	(0.0119)	(0.0163)
GDP Growth $_{t-1}$	0.140	-0.0137	0.0505
	(0.115)	(0.0746)	(0.101)
ROA-Debt to GDP	-0.814*	-0.633**	-0.131
Moderation $_{t-1}$	(0.483)	(0.271)	(0.348)
Log_Assets-Debt to GDP	-0.198	-0.424***	-0.305**
Moderation $_{t-1}$	(0.173)	(0.0947)	(0.143)
Constant	-0.676*	-1.037***	-0.716**
	(0.386)	(0.205)	(0.304)
Observations	1,170	1,170	1,170
R-squared	0.097		117
Number of firms	117	117	0.110

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Author's calculation

V. DISCUSSION

A. Short-term Debt and Government Debt

Based on the results, it can be concluded that the government debt significantly impact the choice of capital structure. Moreoever, it shows that the size of the firms in term of assets have negative effect on the short-term leverage. This indicate that the firms' behaviour follow the trade-of theory and not the pecking order theory for its short-term debt. It can be said that firms is sensitive to the demand and supply of funds, a slight change of cost of funds will deviate firms to use internal source with slightly less cost. Therefore, firms will rely on its investor(s) or owner(s) money and the long-term debt to acquire assets. This can be true remembering the nature of an asset is as a long-term investment. Using short-term debt for long-term investment can creates maturity mismatch and

affects the firms in a negative way. The macroeconomic factors also influenced the choice for capital structure. The coefficient of the GDP growth indicates that the economic growth will gives incentive for firms to take on more debt. While increase in government 10 year bonds yield will reduce the firms' short-term leverage.

The interaction effect, through moderating variables, also significant for the assets and its relations with government debt to GDP ratio. The coefficient of the moderating variable of assets is positive, this means that the effect of government debt to firms short-term leverage increases as the firms' assets grow bigger or for firms with bigger assets compared to firms with less assets on their hand. In this case the crowding-out effect is stronger in larger firms. The possible logical reason behind this, bigger firms tend to have better credit rating and cheaper borrowing costs. Frank and Goyal (2009) stated that large and more diversified firms face lower default risk. Older firms with good reputations in the financial market will face a lower debt-related agency costs. The trade-off theory predicts larger firms to have relatively more debt. The impact of government issuance and the possibility of increasing interest rate will be less severe for the smaller firms because they use relatively smaller leverage compared to the bigger firms.

B. Long-term Debt and Government Debt

There is no crowding-out phenomenon happening for the long-term debt. There is different result from previous studies, where the government debt will reduce the amount of debt financing by the firms. Further research regarding the positive impact of the government debt and government expenditure on the economy, such as crowding in and multiplier effect, needed to be done. Past studies show that government spending and private sector spending can affect private sector investments. A study done based on the real business-cycle theory found that government expenditure can enhances private sector investment expenditures but at the same time reducing the consumption expenditures (Lawrence and Eichenbaum, 1992). Furthermore, recent study by Bal (2014) confirmed that there is crowding in effect as proposed in Keynesian perspective. Using data from 1998-2012 in India, Bal (2014) found out that public debt has significant effect on interest rate, output, and gross fixed capital formation. The empirical evidence from the study conclude that government debt has a positive impact on gross fixed capital formation and output.

The coefficient of the GDP growth indicates that positive economic growth will encourage firms to take less debt. This can mean that the firms are confident with the economic condition ahead and have positive projection going forward. According to Frank and Goyal (2009), during expansions leverage should decline if the pecking order theory holds with assumption all else equal. While increase in government 10 year bonds yield will increase the firms' long-term leverage. Research shows that monetary contractions will increase net debt issues for large firms but for smaller firms will remain stable (Gertler and Gilchrist, 1993). For the firm-specific variables, the size of the firms in term of assets have positive effect on the long-term leverage. This indicates that the firms' will use external funds to acquire new assets. This can be true because acquiring new assets can be said as a long-term investment and will not give cash inflow immediately. To manage its cash flow firms' will use the mix of internal and external funds. This behaviour follows the pecking order theory and not the trade-of theory for its long-term debt

The interaction effect, through moderating variables, also significant for the assets and its relations with government debt to GDP ratio. The coefficient of the moderating variable of assets is negative, this means that the effect of government debt to firms long-term leverage decreases as the firms' assets grow bigger or for firms with bigger assets compared to firms with less assets on their hand. In this case the crowding in effect is weaker in bigger firms. The possible logical reason behind this, bigger firms tend to have more cash compared to smaller and less established firms. Firms that have cash generating capability through its assets will reduce the use of the long-term debt as the form of financing. The pecking order theory predict that there is an inverse relation between leverage and firm size and age. Larger firms with relatively bigger assets have more ability to generate profits because its assets can generate more sales and revenues. Moreover, as firms get older they have more opportunity to retain its earnings.

C. Total Debt and Government Debt

As stated in the previous section the result for the total debt is similar with the long-term debt, with only a slight different result. There is also different result for the moderating effect in total debt compared to the short-term and long-term leverage. For the total leverage the ability of the firms to generate profits efficiently will moderate the effect of government debt, besides the level of assets. The coefficient for the moderating variables are negative, this means that the effect of government debt to firms total leverage decreases as the firms' assets grow bigger or for firms with bigger assets compared to firms with less assets on their hand and for firms with

higher profit margin. The regressions show that the moderate effect of return on assets (ROA) on government debt to total leverage is significant in the Fixed-Effect and the FGLS model. The coefficient of regressions show that the crowding in effect is smaller on firms with higher ROA. The regressions shows that the moderate effect of assets on government debt to total leverage is significant in the FGLS and the PCSE model. The coefficient of regressions show that the crowding in effect is smaller on firms that have more assets.

Looking from the interaction effect it can be concluded that the pattern of financing taken by the blue chip companies in China, Colombia, Indonesia, Malaysia, and Mexico is following the pecking order theory. The companies will use its internal funds first and they use external funding strategically to manage their cash flows or when there is no sufficient internal funds.

VI. Conclusion And Recommendation

The results of analysis done in this study show that government debt can significantly impact the corporate debt. It can be said that there is crowding in effect happened for top firms in China, Colombia, Indonesia, Malaysia, and, Mexico. As the government increase the debt, the leverage level of the firms also increases. The supporting theory behind this effect is the macroeconomic theory introduced by Keynes. The theory stated that expansionary fiscal policies can raise the level of output and positively can impact investments (Motlaleng et al., 2011; Traum and Yang, 2010; Bahmani-Oskooee, 1999).

Another finding from this study is that there is different impact of government debt between the firms' short-term debt and long-term debt. This means that for there is different effect of fiscal policy in the short-run and the long-run. Despite there is negative shock in the short-run, but the impact of the policy will be good for the economy in the long-run. And also the pattern for financing can differ from time to time. Firms and financial managers will analyze the best and efficient option to support the firms' objectives. Therefore, there is no one best option and one fit for all solution to achieve good performance.

There are some implications and suggestions for business owners, investors, managers, and public policy maker. For people conducting a business and managing company, the results show that expansionary fiscal policy can be an opportunity for firms and businesses to grow. To capture gain from the situation, businesses need to monitor the changes in macroeconomy conditions. For public policy maker, it is necessary to evaluate the impact of their policies. Government can learn every actions made and gain knowledge from it to make better policies in the future. For investors it can be opportunity to invest on financial asset that can give higher return.

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Optimalization of Digital Marketing Channels and Online Sales Channels To Increase MSME's Brand Exposure

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Abstract

COVID-19 pandemic that had hit Indonesia since March 2020 has caused an economic crisis as indicated by the Indonesian economy declining by 2.07%. As with previous economic crises that Indonesia had experienced, Micro, Small, and Medium Enterprises (MSME) play an important role in saving Indonesia from an economic recession. A study conducted qualitative research on Indonesian food and beverage MSMEs, with the descriptive analysis used primary data collected through interviews the owners, observations the conditions, survey to existing customers, and literature studies to map MSME's conditions and problems. Afterward, the problems found were that the sales method was still conventional and did not optimize their resources such as digital marketing channels and online sales channels so that sales cannot grow, and the brand's exposure was low. It happened because the owners did not know the optimal strategy for their digital marketing using social media. So, this study aims to assist the owner to make optimal strategy for digital marketing on social media by providing suggestions digital marketing strategy which will be focused on optimizing their existing digital marketing and online sales channels. As known that if digital marketing through social media and online sales through e-commerce optimally deployed can be disruptive tools for MSME to build brand awareness and compete with larger competitors.

Keywords— Brand Exposure; Business Coaching; Digital Marketing; Food and Beverage; MSME

I. INTRODUCTION

Indonesia is one of the countries with the largest economy on the Asian continent. Reported by Official News of Statistics published by the Indonesian Central Bureau of Statistics in February 2020, Indonesian economy showed continued to grow by 5.03% in 2016, 5.07% in 2017, 5.17% in 2018, and 5.02% in 2018. in 2019. But in 2020, the Indonesian economy fell by 2.07%. This is measured by Gross Domestic Product (GDP) at current prices reaching Rp. 15,434.2 trillion and GDP per capita reaching Rp. 56.9 million or US$ 3,911.7 (Herlando & Kurniawan, 2021).

The decline in the Indonesian economy that occurred due to Covid-19 became the third economic crisis experienced by Indonesia. Where the first economic crisis occurred in 1998. Then the next economic crisis occurred in 2008. Based on the experiences of the two previous economic crises, there is a big role for MSMEs (Micro, Small and Medium Enterprises) which have become government instruments in saving Indonesia from economic recession due to the economic crisis. Bahlil Lahadalia, Head of the Investment Coordinating Board (BKPM) said that during the (Indonesian) economic crisis, it was MSMEs that saved our economy, not conglomerates or large corporations. This was because MSMEs can be established with not too large a capital (*Ingat Krisis 1998, UMKM Penyelamat Ekonomi RI Bukan Konglomerat : Okezone Economy*, 2020). In addition, because it is flexible, this business can also be used as an alternative to have a side income, even in difficult situations.

Without large capital, MSMEs can become an important wheel of the country's economy with a crucial role and function for the country's economy, MSMEs can be established with not large a capital. In addition, because it is flexible, this business can also be used as an alternative to have a side income, even in difficult situations. Reported by Official News of Statistics published by the Indonesian Central Bureau of Statistics on March 2022, there were more than 1.52 million MSMEs businesses in the food and beverage sector in 2020, which this sector was the highest number (Sukamto et al., 2022).

Starv.inc group is an MSME in the food and beverage sector which was founded since 2018 with the vision of "One-stop tummy solution". This business is based on the owner's hobby in exploring and tasting Indonesian and foreign cuisines, both food and drinks. Starv.inc has 2 subsidiaries, Coffeebreak0930 whose products are bottled milk and coffee-based drinks and Ricers Club which serves food products packaged in the form of rice bowls. Starv.inc group is selling the products through online and offline. Where offline sales are carried out only in the owner's office area, while online sales are carried out by Grab Food and GoFood. Online sales through Grab Food and GoFood have only been done in the last 6 months. To increase online and offline sales outside the owner's office area, a strategy needs to be carried out by referring to existing consumers in the existing market,

owner's office. Based on that data, the marketing strategy can be made so it will be able develop sales outside the owner's office.

Based on the interviews the owners, observations the conditions, and survey to existing customers, can be concluded that Starv.inc have not used online sales channels and online marketing channels resources optimally. This can be seen from the menu that posted in the online sales channel is less informative and less attractive. Then the online marketing channel, the posts, feeds, and story, in the Starv.inc Instagram account is irregular and unplanned. Also, the caption used in the feeds is considered less informative and less interesting. This can make Starv.inc difficult to gain brand awareness from potential customers. It happened because the owner did not know the optimize strategy for their digital marketing on social media.

In the Customer Decision Journey theory, awareness is the initial stage for consumers before deciding to buy or use a product (Court et al., 2009). Based on this theory, it is important for Starv.inc to create a marketing strategy with the aim of increasing awareness for its products. Marketing strategies must also be adapted to the conditions of MSMEs and their environment to produce optimal results.

II. LITERATURE REWIEW

A. Brand Exposure and Brand Awareness

During building a brand process, after found the target market / customer, the brand should start to expose itself using some strategies, this process is called Brand Exposure (Shojaee & bin Azman, 2013). Brand exposure is closely related to brand awareness, which those are describing consumer recognition of products with their brand names. This recognition level refers to the consumer's familiarity with certain products or services (*Brand Awareness Definition*, 2022). Brand exposure can be measured by assessing the ability of consumers to identify brands under different conditions.

Brand Exposure and brand awareness can be built with brand recognition and brand recall. Brand recognition is the ability of consumers to confirm previous brand knowledge by providing keywords related to the brand as a signal. This can show whether consumers know the brand as a brand they already know. Meanwhile, brand recall is the ability of consumers to recall the brand when given a product category, a need that is satisfied by the category, or a purchase or use situation as a signal (Keller & Swaminathan, 2019).

There are several cases told success in building brand exposure and brand awareness through social media, one of them is the sales of Ford Fiesta in 2010. One-half years before Ford launched a sub-compact car called Ford Fiesta, Ford began a broad promotion using a buzz strategy called with Fiesta Movement. This buzz involved 100 more social media influencers by giving them the Ford Fiesta, they were asked to complete different missions every month using that car. With the direction of Ford and using their own imagination, the influencers became agents of Ford that had various missions to complete, such as delivering food, sending a package, and even going on wild adventures. All these stories were documented and posted to social media. As the result, the videos related to the Ford Fiesta campaign generated 6.5 million views on YouTube and Ford got 50,000 requests about the car which were mostly from non-Ford drivers. Then when the car was launched, Ford Fiesta sold 10,000 units within the first six days of launching (*How Ford Got Social Marketing Right*, 2010; Saravanakumar & Suganthalakshmi, 2012).

B. Integrated Marketing Communication (IMC) in MSME

Integrated Marketing Communication (IMC) is a marketing strategy with an integrated approach to communication elements. Where each promotional element affects other elements, with the aim of communicating the resulting product or service to consumers. The elements used in IMC are called promotion mix decisions. An integrated marketing communication uses elements called promotion mix decisions consisting of advertising, sales promotion, public relations, personal selling, and direct and interactive marketing (Marshall & Johnston, 2019).

MSME as a small business organization, in the initial step of existence may have less managerial experience talent to build and deploy dynamic capabilities. Moreover, the cost to transform the capabilities does become disadvantage for new MSMEs that have to focus on the short-term, to address the liabilities of newness and smallness (Butkouskaya et al., 2020). This may prevent the effectiveness of IMC implementation as dynamic capabilities in the MSME. On the other side, some study suggested for MSME to apply cross-functional coordination and have certain level of flexibility to success implementing the IMC (Butkouskaya et al., 2021;

Luxton et al., 2017). The other study showed that MSMEs with flexible and simpler structure organization are having better cross-functional coordination and sharing information inside it. Simpler coordination and less formal structure organization in MSME will result in faster response to adapt in the dynamic market environment. (Bouchard & Basso, 2011; Carrier, 1994). Furthermore, study suggest that MSMEs may also be successful in integration due to the simplicity of their communications. Thus, the MSMEs could grow and compete with the larger competitor in IMC effectiveness (Darcy et al., 2013).

C. Social Media Marketing

On the last decade, social media marketing has become an important tool for marketing of brands and businesses, with opportunities to build relationships, engage with customers, and increase sales. The previous study proved that social media has more influential than the traditional marketing communication strategies (Lepkowska-White et al., 2019; Macarthy, 2017). This happens because people are using social media to get information and reviews of product. Also, some social media provides customized marketing program for marketers to promote and offers their brands and products not only to consumers but also to other businesses which these results in brand building. The fact, more than 90% of businesses and marketers are using social media platforms, like Instagram and others to build awareness and exposure so it can attract new customers (Yurdakul & Bozdağ, 2018).

Instagram, one of many social media platforms, was founded in 2010. Instagram was founded initially for users to share their photos, search other people information, document their life moments, and show their coolness and creativity (Xin Teo et al., 2019). The number of Instagram's users has grown drastically, in 2019 there were almost 815 million registered users who accessed photo-sharing platform Instagram monthly around the world. Reported in Quarter 4 of 2021, Instagram was the most downloaded phone apps world-wide, and it expected to grow to reach nearly 1.2 billion users in 2023 (*Instagram Statistics You Need to Know for 2022 | Sprout Social*, 2022; *Instagram Users Worldwide 2023 | Statista*, 2022). As the growth of Instagram, it attracted the attention of businesses and organizations to use it as their commercial and marketing campaigns. According to Instagram's internal data in 2016, 50% of Instagram users follow at least one business account, then 60% claim that they learn about product or service from it, and 75% visit the product's website to get more product's information or tell their friends about the the product after looking an Instagram advertising post (*Hitting 500,000 Advertisers | Instagram Business Blog | Instagram for Business*, 2016).

III. RESEARCH METHODOLOGY

This study was using qualitative research method which supported using primary data and secondary resources. Primary data was a data source that can directly provide data during the data collection process.

The data collection method for primary data and secondary resources were carried out in different steps. For primary data, it was obtained through a direct observation process to the Starv.inc operations centre so that discussions and interviews with the owners and employees of Starv.inc could be conducted. In addition, surveys were also conducted on current consumers and markets. Meanwhile, secondary resource for this business coaching was conducted through literature studies from existing research journals, articles, related books, and documents owned by Starv.inc and its subsidiaries.
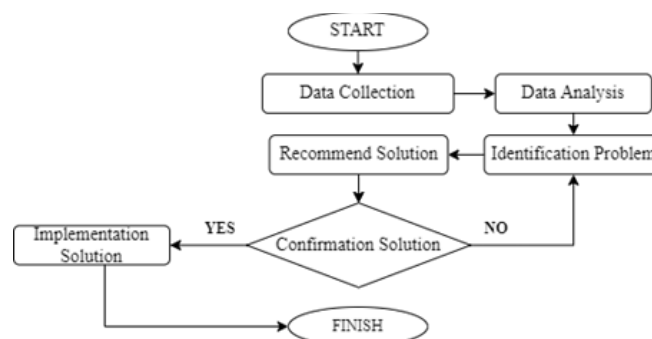

Fig. 1. Business coaching flow chart.

The retrieved data will be analyzed to understand the current conditions and problems of the MSME using several analytical methods and tools. The methods and tools used were business model canvas (BMC) analysis, external analysis with analytic tools Politics, Economics, Socials, Technology, Environment, and Legal (PESTEL) and the Five-Forces Model of Competition, then internal analysis using analytic tools Segmenting, Targeting, and Positioning (STP), and Product Marketing Mix, as well as SWOT and TOWS analysis. Furthermore, the results of each analysis will be summarized and evaluated together with a gap analysis (GAP analysis). These analyses result will be used to identify the MSME's problem.

After data analysis conducted and MSME's problem found, then MSME's owner would be proposed the solution by researcher as business coach. Then, if the proposed solution approved and verified by the owner, the business coach will assist the owner to implement the solution.

IV. RESULT / FINDING

Result section presents the results of the study. Research results can be supplemented with tables, graphs (pictures), and / or charts.

A. BMC analysis, internal analysis, and external analysis

Based on the data collected that had been evaluated using BMC analysis, external analysis, and internal analysis, it can be summarized as follows:

Table 1. Matrix brand knowledge.

ANALYSIS METHOD	IDEAL CONDITION	ACTUAL CONDITION	GAP	CODE
Business process	Carry out promotional activities on Instagram social media by regularly uploading updated product information and promotional programs to increase product and brand awareness.	Starv.inc owners often forget to upload updated information on Instagram social media.	Update information related to products and promotional programs can be an influence and attract people's attention so that they become consumers.	*Marketing communication* *Digital Marketing* *Channel Distribution*
BMC	Using social media Instagram to market products and find new consumers.	Social media is not used routinely to upload updated information	Instagram is not regularly updated regarding product information and promotional programs	*Marketing communication* *Digital Marketing*
	Develop sales channels to increase product sales.	Not adding resellers to develop sales channels.	Programs / packages for resellers are not generally informed.	*Marketing communication* *Digital Marketing*
	Using Go-Food and Grab-Food marketplace partners to make sales.	Starv.inc group has registered and has Go-Food and Grab-Food merchant accounts, but sales are still not that many.	Sales information through Go-Food and Grab-Food is lacking, this information is not listed on Instagram social media accounts.	*Marketing communication*
Porter's Five Force	Have a good marketing strategy to increase product and brand awareness.	There is no marketing strategy and marketing activities are still lacking.	Tend to be passive in marketing activities so it is difficult to compete with other businesses.	*Marketing communication*
STP	Take advantage of every opportunity that exists to get new target consumers.	Do not take advantage of existing opportunities.	Starv.inc group consumers tend to be people around the owner.	*Marketing communication*
Product Marketing Mix	Promoting through Instagram social media, so that the public knows information related to products and promotional programs.	Not maximally promoting on Instagram social media.	Lack of promotion through social media Instagram	*Marketing communication*

Based on the summary analysis described above, there are differences between ideal conditions and actual conditions as well as problems that occurred. To determine the priority of the problems that must be solved, it is necessary to calculate using the weights and values for each problem. Then the problem with the largest distribution will be the main priority to be solved using pareto analysis. Here the calculation of weight and values of.

Table 2. Pareto analysis.

NO	GAP	VALUES	WEIGHT	CONTRIBUTION	DISTRIBUTION
1.	Marketing communication	9	10	90	48,4%
2.	Digital Marketing	9	8	72	38,7%
3.	Channel Distribution	4	6	24	12,9%
TOTAL				186	100%

Based on the Pareto analysis above, there are two things that will be prioritized in this business coaching are marketing communication and digital marketing. These analysis results are also strengthened by the results of a survey conducted, which the survey result will be explained below.

B. *Survey analysis*

The survey was conducted to current existing consumers and market of Starv.inc. It was conducted to find out the comparison between consumers and those who have never bought, the reasons for buying, the experience of buying and enjoying MSME products, as well as knowing the competitors in the area. The distributed questionnaire has the following flow:
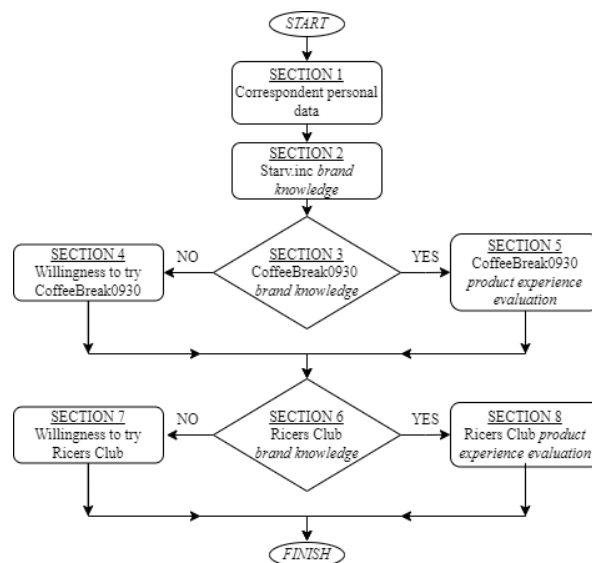
Fig. 2. Survey questionnaires flow chart.

Based on the questionnaires survey answers, it can be concluded several things as follows:

a. Based on section 1 of the correspondent's personal data, it is known that the correspondents consist of 79 (70.5%) men and 33 (29.5%) women with most of the age range from 28 to 33 years (60 people: 53.6%). In addition, it is also known that most correspondents have an income of Rp. 6,000,001 to Rp. 9,000,000 in a month and the majority of correspondents budget from Rp. 30,001 to Rp. 50,000 to buy food and drinks or snacks in one day.
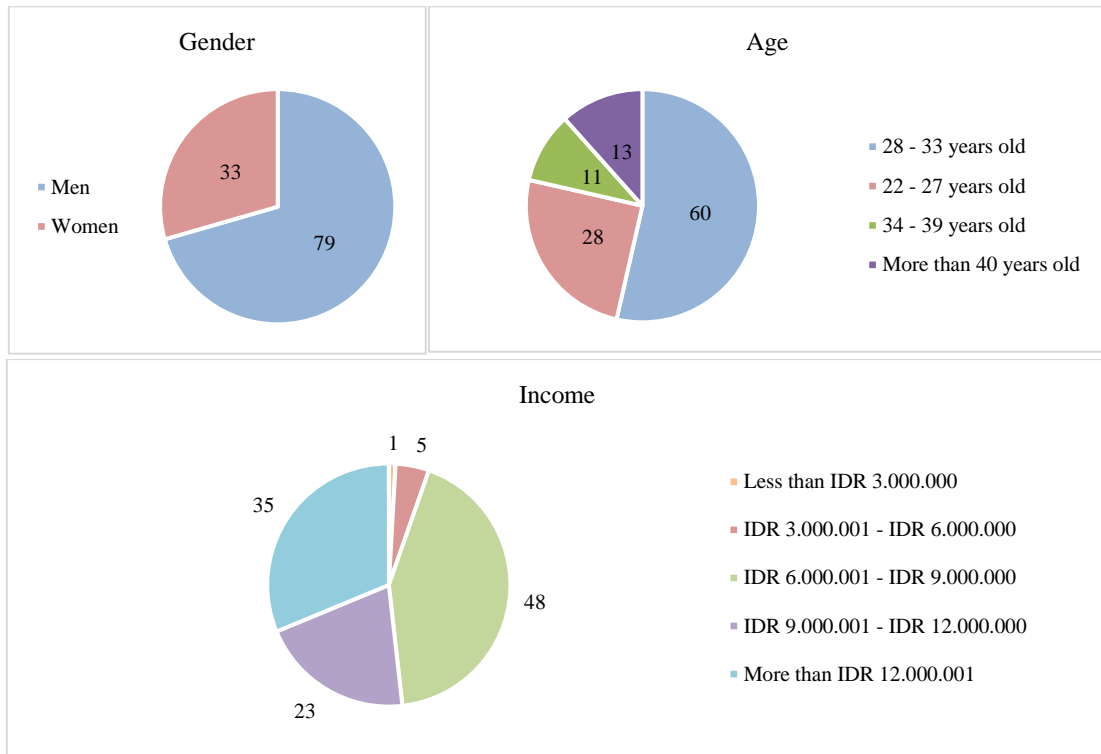
Fig. 3. Correspondent data.

b. Based on sections 2, 3, and 6 regarding brand knowledge, it is known that 62 people (55.4%) know Starv.inc and 50 people (44.6%) do not know Starv.inc. Then for CoffeeBreak0930 brand knowledge 81 people (55.4%) know CoffeeBreak0930 and 31 people (27.7%) don't know CoffeeBreak 0930. And for Ricer Club, 78 people (69.6%) know Ricers Club and 34 people (30 ,4%) do not know the Ricers Club. If the brand knowledge of Starv.inc, CoffeeBreak0930, and Ricers Club is combined and analyzed into a matrix in Table 4.3, it is known that 50 people (44.6%) know Starv.inc, CoffeeBreak0930, and Ricers Club. Then 22 people (19.6%) did not know about Starv.inc, CoffeeBreak0930, and Ricers Club. And 19 people (17.0%) did not know Starv.inc but knew CoffeeBreak0930 and Ricers Club. So, it can be concluded that the brand knowledge of Starv.inc as the parent brand is smaller than CoffeeBreak0930 and Ricers Club.

Table 3. Matrix brand knowledge.

CONDITION	BRAND KNOWLEDGE			SCORE	PERCENTAGE
	STARV.INC	CB0930	RC		
CONDITION 1	Yes	Yes	Yes	50	44,6%
CONDITION 2	Yes	Yes	No	7	6,3%
CONDITION 3	Yes	No	Yes	5	4,5%
CONDITION 4	Yes	No	No	0	0,0%
CONDITION 5	No	Yes	Yes	19	17,0%
CONDITION 6	No	Yes	No	5	4,5%

CONDITION 7	No	No	Yes	4	3,6%
CONDITION 8	No	No	No	22	19,6%

c. Based on section 4, it is known that from 31 people who do not know CoffeeBreak0930, 27 people (87.1%) of them want to try CoffeeBreak0930 products with the majority choosing the Golden Caramel menu as the menu they want to try.

Fig. 4. CoffeeBreak0930 menu graphic that correspondent want to try.

d. Based on section 5, it is known that out of 81 people who know about CoffeeBreak0930, 80 people (98.8%) of them have bought CoffeeBreak0930 products. And in the last 1 week of this questionnaire distributed 73 people (90.1%) bought 1 to 2 times. Meanwhile, the most correspondents who bought CoffeeBreak0930 in the last 1 week, 5 to 6 times, were 3 people (3.7%). And the CoffeeBreak0930 menu which is the correspondent's favorite is Uppercut Aren with 35 people (38.0%) for the type of drink with coffee, while for the type of drink without coffee the favorite is Cereal Mylk which is shown by 16 people (17.4%) choosing the menu.

e. From this section, it can also be seen that the reasons for buying most correspondents are to have good taste, have a preferred flavor variant, and get to know the owner of Starv.inc. As for product experience, CoffeeBreak0930 products can be categorized as providing a good experience for consumers, this is proven by the average value or product experience rating of this questionnaire of 3.5 out of 4.0.

Table 4. CoffeeBreak0930 product experience.

CRITERIA	SCORE
Price information for CoffeeBreak0930 products can be found by me	3,7
CoffeeBreak0930 product price information is understandable and clear to me	3,7
CoffeeBreak0930 price is affordable for me	3,4
CoffeeBreak0930 products are useful for me	3,3
CoffeeBreak0930 products are guaranteed quality	3,5
CoffeeBreak0930 has innovative product variants	3,5
CoffeeBreak0930 has a variety of products that I like	3,6
The CoffeeBreak0930 brand provides good quality	3,6
The CoffeeBreak0930 brand has a selection of products that match my expectations	3,5
AVERAGE SCORE	**3,5**

Then from this section, it can also be seen that the competitors are CoffeeBreak0930, where the biggest competitor is the coffee vending machine. And based on the answers to this questionnaire, most

correspondents chose CoffeeBreak0930 over other competitors because of the easy-to-reach and known sales location, and good taste.

f.   Based on section 7, it is known that of 34 people who do not know Ricers Club, 30 people (88.2%) of them want to try Ricers Club products with the majority choosing the Chicken Salted Egg menu as the menu they want to try.
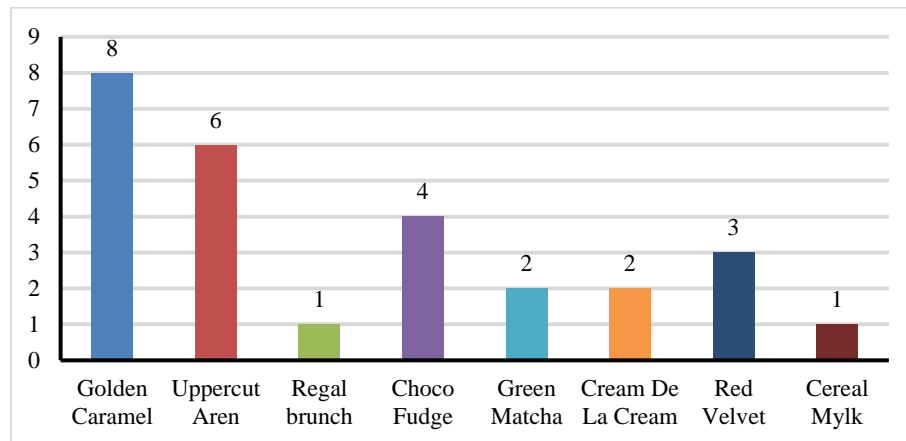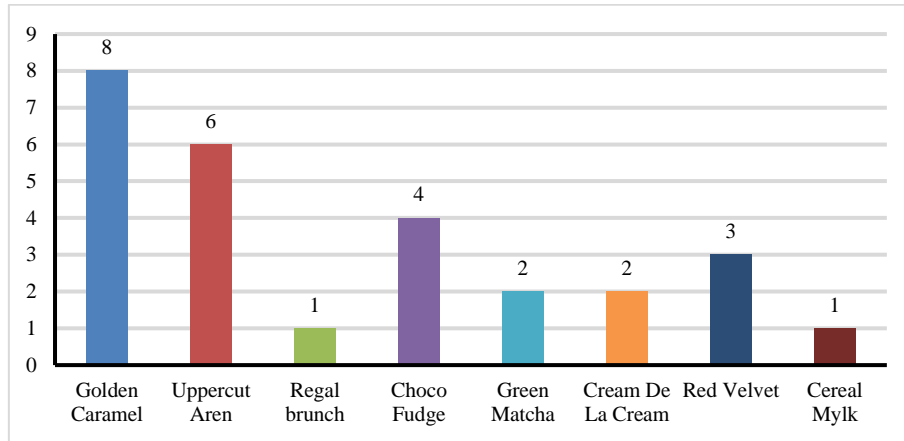

Fig. 5. CoffeeBreak0930 menu graphic that correspondent want to try.

g.   Based on section 8, it is known that out of 78 people who know about Ricers Club, 69 people (88.5%) of them have bought Ricers Club products. And in the last 1 week of this questionnaire distributed 71 people (91.0%) bought 1 to 2 times. While the correspondents who bought the most Ricers Club in the last 1 week, 5 to 6 times, were 1 person (1.3%). And the Ricers Club menu which is the correspondent's favorite is Chicken Salted Egg with 31 people (34.4%) for the type of chicken side dish, while the favorite type of beef side dish is Beef Cheese Creamy Mushroom and Beef Cheese Black Pepper Sauce which are both indicated by 7 people (7.8%) chose each of the menus.

Table 5. Ricers Club product experience.

CRITERIA	SCORE
Price information for Ricers Club products can be found by me	3,6
Ricers Club product price information is understandable and clear to me	3,7
Ricers Club price is affordable for me	3,3
Ricers Club products are useful for me	3,5
Ricers Club products are guaranteed quality	3,6
Ricers Club has innovative product variants	3,6
Ricers Club has a variety of products that I like	3,6
The Ricers Club brand provides good quality	3,5
The Ricers Club brand has a selection of products that match my expectations	3,5
AVERAGE SCORE	**3,6**

From this section, it can also be seen that the reasons for buying most correspondents are to have good taste, have a preferred flavor variant, and get to know the owner of Starv.inc. As for product experience, Ricers Club products can be categorized as providing a good experience for consumers, this is proven by the average value or product experience rating of this questionnaire of 3.6 out of 4.0.

Then from this section it can also be seen the competitors of the Ricers Club, where the biggest competitor is the canteen available at the owner's office. And based on the answers to this questionnaire, most correspondents chose to buy food at the office canteen rather than the Ricers Club for reasons of a centralized location with a wide variety of choices of side dishes and prices.

V. DISCUSSION

Based on the analysis, found that the problem occurred were marketing communication, digital marketing, and channel distribution selling. To solve that problems coach proposed 2 solutions, optimize the digital marketing channels on the Instagram and optimize online sales channels on GoFood and Grab Food. Since the solutions of business coaching will focus on digital marketing channels and online sales channels, it is necessary to make a digital marketing guidance which will be explained with the digital marketing canvas.

The digital marketing canvas is a tool that can be used to describe the digital marketing strategy planning that will be carried out. This will be explained by showing the value proposition, channel, target audience, customer journey, objectives, key performance indicators, tactics, and metrics (Khalkhali, 2017). The digital marketing canvas for the implementation of business coaching can be seen in Table 6.

a. Value proposition

Value proposition is the value possessed by MSMEs that consumers and potential customers want to convey and feel. The value proposition from Starv.inc includes hit foods and drinks that are made with selected ingredients and processed properly to produce good taste and are sold at affordable prices.

b. Channel

Channel is where this digital marketing strategy will be carried out. For business coaching, we will use Instagram, GoFood, and Grab Food as digital marketing channels.

c. Target audience

The target audience is the object of the digital marketing strategy that will be carried out. For this business coaching, the target audience is divided into 2, namely men and women who want to eat food that is packaged practically for the Jakarta and Bekasi areas, as well as men and women who like sweet and refreshing drinks with milk and coffee base located in Jakarta, Bogor. , Depok, Tangerang, and Bekasi.

d. Customer Journey

The customer journey is the stage where the target audience is. For business coaching, those who become customer journalists are divided into 2, namely existing customers and new customers. The customer journey for existing customers focuses on the action and post-action stages. Where the strategy will be to invite existing customers to continue to buy and share the experience of enjoying their products to the people around them through social media. As for new customers, it focuses on the awareness and interest stages. Where the strategy will show Starv.inc's value proposition to potential customers.

e. Objective

Objective is the purpose of this digital marketing strategy. For business coaching, the goal is to increase brand awareness on social media, Instagram and increase sales through online sales channels, GoFood and Grab Food.

f. Key performance indicators

Key performance indicators are a measure of the success of the digital marketing strategy carried out. For business coaching, the benchmark is increasing brand awareness through social media Instagram and increasing sales on online sales channels, GoFood and Grab Food.

g. Tactics

Tactics are steps that will be taken to achieve the goals (objectives) that have been determined. For this business coaching, the steps taken are optimizing the digital marketing channel, Instagram and optimizing the digital sales channel, GoFood and Grab Food.

h. Metrics

Metrics is a measure that becomes a reference in describing the key performance indicators of the digital marketing strategy carried out. For business coaching, the metrics are the number of account followers as well as likes and comments on uploads as well as views, reacts, and programs from Instagram stories uploaded on Instagram. As well as the number of products sold on digital sales channels, GoFood and Grab Food.

Table 6. Digital Marketing Canvas (DMV).

TACTICS	• Optimizing digital marketing channels on the Instagram platform. • Optimizing digital sales channels on the GoFood and Grab Food platforms.		
VALUE PROPOSITIONS	**CHANNEL**	**TARGET AUDIENCE**	**CUSTOMER JOURNEY**
• Drinks & food produced through the development of recipes from well-known shop menu mainstays in the market so as to produce a delicious taste. • Beverages & food are produced using selected ingredients from the basic ingredients to the packaging. • Selling drinks & food at affordable prices	• Grab Food & GoFood • Instagram	• For Coffeebreak0930 : Men & women who like sweet & refreshing drinks with milk & coffee base located in Jakarta, Bogor, Depok, Tangerang, & Bekasi • For Ricers Club: Men & women who are hungry & want practical packaged food located in Jakarta and Bekasi	• The customer journey for existing customers focuses on the action and post-action stages • The customer journey for new customers focuses on the awareness and interest stages
OBJECTIVES	• Increase brand awareness on social media, Instagram • Increase sales through online sales channels, GoFood and Grab Food		
KEY PERFORMANCE INDICATOR (KPI)	• Brand awareness increases through social media Instagram • Sales increased on online sales channels, GoFood and Grab Food		
METRICS	• Increased brand awareness through social media is proportional to the increase in engagement. Where engagement increases will be shown by the number of likes and comments on uploads as well as views, reacts, and regrams from uploaded Instagram stories. • Increased sales on online sales channels will be indicated by the number of products sold.		

Based on the digital marketing canvas above and the condition of existing Instagram accounnt and online sales channels, the solutions proposed is optimizing Instagram as digital marketing channel and optimizing GoFood and Grab Food as online sales channels. The optimization will be referred to the book written by Macarthy (2017).

The optimization in digital marketing channels using the Instagram platform, there are several things that need to be improved, @coffeebreak0930 and @ricersclub as follows:

a. Merging two Instagram accounts @coffeebreak0930 and @ricersclub into one @starvinc account. This is done because there are not many content materials owned and Instagram is directly owned by the owner who has limited time so it is better to combine them so that the exposure obtained from the two accounts can focus on one @starv_inc account.

b. Optimizing the Instagram bio which is on the top side under the profile photo on the account page. There is a limit of 150 characters for the Instagram bio so it must be optimized, such as by mentioning the vision to explain the uniqueness of the product and include a purchase link.
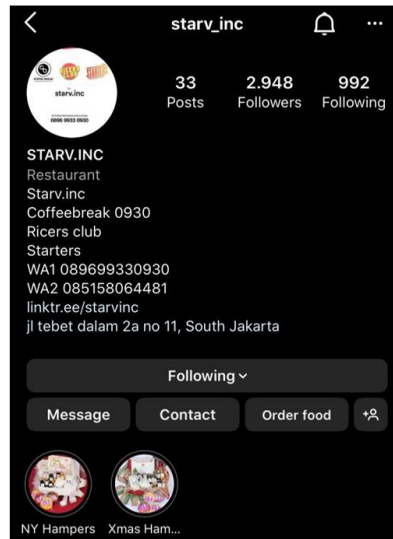
Fig. 6. New look Starv.inc's Instagram bio.

   c. Upload photos with sharp resolutions and use the rule of thirds for product photos. And for the photo editing process, it is recommended to always use the same filter and brightness level consistently.

Fig. 7. Ricers Club photo product for content.

   d. For content feeds, captions must be used, this aims to strengthen the image content and to reflect brand identity. Captions can contain product descriptions which can then be added something that can provoke discussion in the comment's column. And in the caption, it is necessary to include a hashtag because this hashtag will be a link between the uploaded photo and the photos uploaded by other accounts. In addition, it can also appear when someone searches for things related to the hashtag.

   e. Upload feeds and posts at the best time of Monday, Wednesday, and Friday at 11.00. This is in accordance with the results of research by Elizabeth Arens (2021).

   f. Using the geotagging feature found on Instagram, so that users who see the upload can find out the location of the store.

   g. Re-upload (repost / regram) other account story uploads that mention the brand in their story.

And for optimization in online sales channels on the GoFood and Grab Food platforms, there are several things that need to be improved from the existing online sales channels, GoFood and Grab Food, with reference to secondary resources, as follows:

a.   Using new product photos for photos posted on the GoFood and Grab Food menus. This product photo is done by adjusting the focus value (aperture), the speed of the lens opening (shutter speed), and the level of light sensitivity (ISO) and focusing on the product presentation so that the photos will be sharp and focus on the products offered. This is because a higher and sharper image quality with a larger image size results in a higher level of perceived quality and purchase intention (Xin Teo et al., 2019).

b.   Improve the product description content on the GoFood and Grab Food menus. This product description is structured to describe the product in detail and attractively so that it can provide clear information to prospective buyers and then potential buyers can imagine the taste of the drinks and food to be ordered.
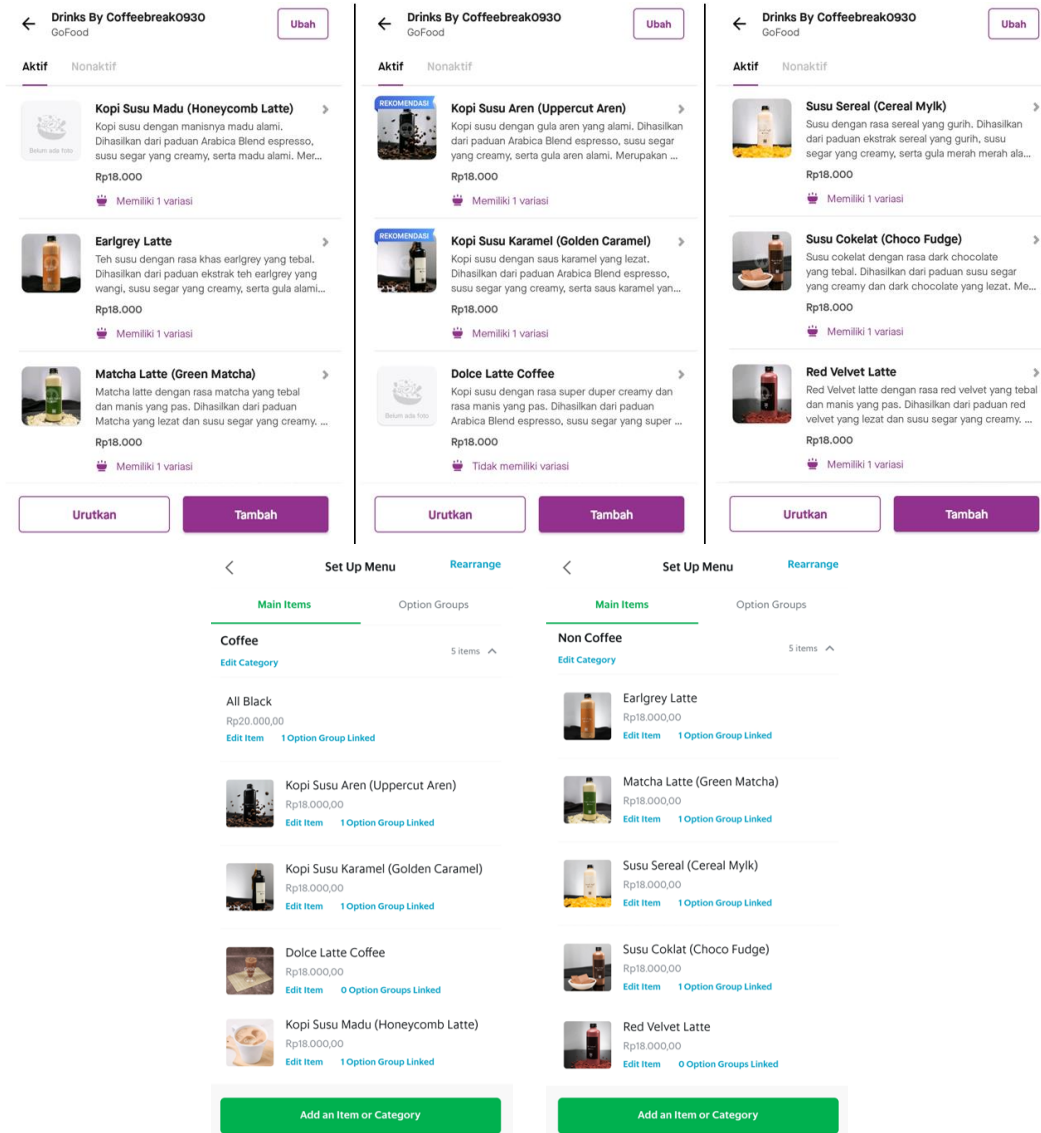
Fig. 8. Starv.inc's menu on GoFood and Grab Food.

c.   Develop promotional strategies and bundling packages as attractive sales promotions. With this, it is hoped that it will attract potential buyers to buy and maintain consumer loyalty. As it is known that sales promotion is a short-term incentive carried out to encourage people to try to buy goods or use service products by targeting traders and end consumers (Keller & Swaminathan, 2019).

VI. Conclusion and Recommendation

Based on the results of the analysis that has been carried out through business coaching activities, it can be concluded that the main problem that is being helped to improve is the optimization of digital marketing channels on Instagram and online sales channels on GoFood and Grab Food. Where several considerations are made in accordance with the conditions of the Starv.inc SMEs.

Based on the implementation of business coaching that has been carried out by the author, there are implementations that have been carried out and those that have not. The implementations that have been carried out on social media digital marketing channels include merging 2 Instagram accounts into @starv_inc, optimizing Instagram Bio by adding contacts in the form of phone numbers and addresses, linktree, and activating the action button. Then the implementation that has been done on the online sales channel is to improve the product description content on the GoFood and GrabFood menus. While the implementations that have not been carried out include updating product photos for catalogs on the GoFood and Grab Food menus as well as Instagram content, planning content schedules on Instagram, and planning promotional strategies in the form of price discounts and bundling packages.

The implementation of business coaching that has not been implemented has caused the objectives of business coaching, to increase brand awareness on social media and increase sales in E-commerce, cannot be achieved.

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The Effect of Family Ownership On Tax Aggressiveness With Political Connections As A Moderation

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Abstract
The study aims to prove how family ownership effects the corporate tax aggressiveness and political connection as a moderating variable. Tax amnesty on 2017 reached 40% of Indonesia's GDP, that proves many Indonesian companies taking advantage of existing tax regulatory loopholes. 50% of Indonesian companies have a family ownership structure. That should be minimized tax aggressiveness because family companies more conservative and see long-term effects. This research contributed by developing proxy of Chen et al. (2017). Their focuses on looking at the magnitude of political connection that each level of government. So it will be known at which level of government this political connection variable has a greater effect. This research contains all non-financial listed companies on Indonesia Stock Exchange from 2017 to 2019 by using purposive sampling method and regression for data analysis. Tax aggressiveness is measured through Current Effective Tax Rate (CETR). The results show that family ownership negatively affects corporate tax aggressiveness and moderation of political connections will weaken the negative effects of family ownership. Due to the presence of unique features of the family as in Puji et al. (2014) which most Indonesian companies have family ownership in their capital structure and company owners have political connection, so they use their power to manage tax planning activities. The result of this study proven that Directory of General Tax (DGT) should more attention to political members who have influence in the company.

Keywords— Family Ownership ; Tax Agressiveness ; Political Connection

I. INTRODUCTION

Taxes obtained and collected from tax objects in accordance with the amount of the specified amount are the largest source of income for the Indonesian state. This large tax role is still not in accordance with its achievement and realization because there is still a tendency for taxpayers to carry out *tax avoidance* practices to reduce the tax burden paid. The Minister of Finance emphasized that tax revenues have never reached the target and are getting worse in 2020 due to the Covid-19 pandemic (kemenkeu.go.id, 2020). Revenue through 2017 *tax amnesty* which reached 40% of Indonesia's GDP (CNN Indonesia, 2021) proves that many Indonesian companies are tax avoidance by taking advantage of existing tax regulatory loopholes. With more than 50% of family ownership companies, Indonesia is one of the developing countries that has a fairly concentrated family ownership structure (Ying et al., 2017). A family-owned company will significantly reduce its agency costs compared to a company not owned by a family (Kovermann & Wendt, 2019). Family-owned companies will be more conservative and look more at long-term effects, so companies will tend to avoid bad behaviors such as doing tax avoidance. Overly aggressive tax avoidance will create managerial incentives resulting in a large amount of information asymmetry that can harm governments and companies (Moore, 2012). This behavior indicates a lack of financial transparency between companies and the government (Ying et al., 2017) as a result of weak supervision (Desai & Dharmapala, 2009). Previous research suggests that family-owned companies will be willing to pay higher taxes than to accept the risk of a bad reputation due to tax avoidance (Ying et al., 2017). However, the results of research by Sucahyo et al., (2020) explained that family-owned companies have the option of engaging in greater tax avoidance if the company has political connections with the government compared to family-owned companies that do not have political connections.

Political connections are important that can facilitate companies to connect with the government so as to get more information on economic resources from the government (Shen et al, 2019). The company considers political connections as a valuable resource and can influence corporate decision-making, one of which is getting protection against the rule of law (Ferdiawan & Firmansyah, 2017) and reducing market pressure for public transparency

(Kim & Zhang, 2016). Political connections will look more favorable for countries with high levels of corruption (Faccio, 2006). Indonesia's increasing CPI index can be ascertained that corrupt practices in the field of politics and licensing continue to develop and are perceived as ordinary by the government (Ferdiawan & Firmansyah, 2017). This research develops the research of Ying et al., (2017) on the impact of ownership structures on tax aggressiveness in China and similar research by Hidayati & Diyanti (2018). This research develops another driving factor, namely political connections that match the level of developing countries such as Indonesia. This is supported by Faccio's (2006) research that political connections can change the allocation of investment costs for companies that lack a competitive desire. Other literature also supports that political connections will encourage companies to pay lower taxes than companies that do not have political connections (Wahab et al., 2017). The existence of potential political connections that companies have can affect family ownership and corporate tax aggressiveness. Based on previous similar research, political connections were measured by dummy variables (Harymawan et al., 2020; Rahmasari et al., 2020; Wahab et al., 2017).

This research contributed by developing proxies in the research of Chen et al., (2017). It aims to capture important information that is how strong each level of political connection is. The level or hierarchy of political connections in question is the level of connection of the board of directors and the board of commissioners at the central, provincial, or municipal level. Research by Chen et al., (2017) focuses on looking at the magnitude of political connections that each level of government has. Where this is in accordance with the tiered structure of the Indonesian government. So that in addition to knowing the impact of political connections owned by companies on tax aggressiveness, it will also be known at which level of government this political connection variable has a greater effect. The higher the power of political connections that the company has, the greater the special treatment of obtained by the company from the government (Faccio, 2006) then this can weaken (strengthen) the family ownership company in carrying out tax avoidance. This factor is not illustrated if measured by a dummy variable.

II. Literature Review

The dominant family ownership of companies in Indonesia has an impact on tax avoidance practices by companies. The results of research by Rahmasari et al (2020), Sucahyo et al (2020) and Nuritomo et al (2020) show that companies with family ownership tend to engage in greater tax avoidance than companies that are not owned by the family. Although family-owned companies exhibited responsible behavior to the public, management's desire to save the costs incurred by the company on tax expenditures encouraged the company to carry out tax avoidance. But the research of Chen et al., (2010); Shen et al., (2019) and Zhang et al., (2012) assert that gaps do occur in family ownership and non-family ownership companies. A company with a larger family ownership than a non-family CEO shareholding will limit the plans of CEOs who want to carry out company renewal (Mitchell et al., 2009). This is because the founders of family ownership companies will always prioritize the *socio-emotional* wealth they have so that they will avoid business decisions that can threaten the company's continuity in the long term. The family company will maintain non-financial wealth such as maintaining the identity or good name of the family in running the business so that the continuity of the family dynasty can continue (Gomez-Mejia et al., 2003). Hidayati and Diyanti (2018) found that investments in family ownership companies are not diversified with a long time horizon and avoid long-term risk activities. This is because family members consider investment as a wealth inheritance for the next generation, so that all company activities will avoid the risk of subduing company prices (Casson, 1999). In line with previous research, it can be concluded that companies with family ownership will avoid risky behaviors such as tax avoidance for the company's long-term goals. Then the hypothesis in the study is:

H1: Family ownership negatively affects the aggressiveness of taxation.

A public company is a company that has a tendency to have political connections in its ownership structure. Managers in family-owned companies can reduce the burden associated with government rules and supervision by the competent authorities through their political connections, be protected against the risks of future litigation and have direct access to special information (Ajili & Khlif, 2020). As a result of the privileges obtained, companies that have political connections will get more attention by the government and the public. They expect companies to have higher moral standards than companies that have no political connections (Zhang, 2017), so that companies will comply as much as possible and avoid aggressive taxation behavior. The existence of political connections causes companies to be more likely to take higher risks. This finding is supported by the research of Ferdiawan & Firmansyah (2017) and Wahab et al., (2017) where political relations have an impact on tax

avoidance, this is characterized by the average company using its political connections to obtain lower tax payments through branch companies, subsidiaries or foreign activities attached to companies with *profit shifting* schemes and *profit holding*. A company with political connections will take advantage of the convenience gained from the political connections it has to carry out aggressive tax actions. This is done to increase the value of the company in the form of large assets or low debt (Thiele & Wendt, 2017), so that this family company tends to have a good reputation. A good company reputation will have an impact on the image of politicians who play a role in the company. The benefits of political connections are also used by companies to avoid the possibility of being entangled in punishment due to expropriation and poor management (Hidayati &diyanti, 2018). The vice nature of this political connection affects the true nature of family ownership (wanting to protect the family's reputation) so that it will have an effect in making tax avoidance decisions. In accordance with this explanation, the hypotheses in this study are:

H2: Political connections weaken the negative influence of family ownership on the aggressiveness of taxation.

III. RESEARCH METHODOLOGY

A. *Population and Research Samples*

This study will use quantitative methods with a sample of all companies on the Indonesia Stock Exchange for the period January 1, 2017 – December 31, 2019 except financial sector and real estate sector companies. The final sample from this study are 542 companies. The data used are secondary data derived from financial statements and annual reports accessed through IDX, the company's official website and eikon's Thomson Reuters database as well as other publications related to the study.

B. *Operationalization of Variables*

In accordance with the purpose of this study, which is to look at the influence of family ownership on the aggressiveness of corporate taxation in Indonesia and how the influence of political connections owned by each company moderates the relationship of family ownership to tax aggressiveness, the model that can describe the relationship is:

$$TAg = \beta_0 + \beta_1 FO_{it} + \beta_2 PC_{it} + \beta_3 FO*PC + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 PPE_{it} + \varepsilon_i$$

Where:
TAg = Tax aggressiveness measured by CETR.
FO   = Family ownership will use *dummy variable*
PC   = Political connections using measurements developed by Chen et al (2017).
FO*PC = interaction between family ownership and political connections
ROA   = The company's profitability ratio as measured by *return on assets*.
LEV = Debt level ratio measured by *debt to asset.*
PPE   = Gross Value of *Property, Plant and Equipment*

The aggressiveness of taxation in this study used CETR. This calculation will reflect the tax deposited by the company to the Directorate General of Taxes, where the figure is obtained through the Notes to the company's Financial Statements. CETR is used because it can reflect the cash taxes that companies pay (Hanlon, Hoopes, & Shroff, 2014).

$$CETR = \frac{\text{Current tax burden}}{\text{Profit before tax}}$$

Previous research on family ownership has been very much found (Ying et al., 2017) and is most often measured by the percentage of voting rights owned by shareholders. The threshold value of voting rights used by previous studies varies, but in this study will use the threshold of 5% shareholding. Family ownership will use *a dummy variable,* berni value 1 if the shareholder has at least a 5% stake owned by the same family, 0 if the shareholder is not owned by the same family (Berrone et al., 2010; Hidayati &diyanti, 2018; López-González, Martínez-Ferrero, & García-Meca, 2019). The same family in the context of this study refers to blood relationships and marriage (Xu et al., 2019). The name of the shareholder in a company in Indonesia is known to have the same last name. After

searching, it turned out that the shareholders with the same last name had family ties. As in PT. MNC Investama Tbk. The shareholders of this company are owned by the Hary Tanoesoedibjo family. After being traced, the political connections that this family has are also very prominent. Where Hary Tanoesoedibjo as the chief commissioner together with Wiranto formed the Hanura political party and was the presidential and vice presidential candidate in the 2014 election. Even though he failed to serve as vice president, Hary Tanoesoedibjo is still actively supporting the government program carried out by the current president, Joko Widodo. In line with her husband, Liliana Tanoesoedibjo is also active in politics with her involvement as the general chairperson of the Perindo Party Kartini and attending charity activities sponsored by Perindo. The involvement of the Tanoesoedibjo family in politics was also passed down to his son, Valencia Tanoesoedibjo, who was known to have run for the legislature in Central Java. Based on the description of the political connections owned by each president commissioner and commissioner of PT. MNC Investama Tbk can be scored on political connections as follows:

Table 1 Examples of Political Connection Calculations

Official Name	Position and shareholding	Political Connection			
		Center	Province	City	Does not have
Hary Tanoesoedibjo	President Commissioner (3.23%)	3	-	-	-
Liliana Tanoesoedibjo	Commissioners (2.05%)	3	-	-	-
Valencia Tanoesoedibjo	Commissioners (1.4%)	-	2	-	-
Total political connection score		6	2	-	-

Based on the calculation table above, it is known that PT. MNC Investama Tbk has the strongest political connections in the center. It is evident from the suspension of political connections at the central level which is greater than the provincial level. The existence of large political connections in the center will make it easier for companies to find out the loopholes of government regulations so as to provide benefits for companies, such as carrying out tax aggressiveness (Ajili & Khlif, 2020). After calculating the total scoring of each connection, linear regression will be carried out by calculating the natural logarithm of the total scoring. So that index of pt. MNC Investama Tbk is LN (1+8) = 2,197. Furthermore, the political connection index for each level will also be calculated. So that the central level political connection index is LN (1+6) = 1,945, the provincial level political connection index is LN (1+2) = 1,098, and the city-level political connection index is LN (1+0) = 0.

This study will control the characteristics of companies related to the measurement of tax aggressiveness, so that the results will not be driven by the fundamental differences between family-owned companies and *non-family-owned* companies. The first variable control that captures the company's profitability is ROA. ROA will be measured by dividing net profit after tax by total assets. ROA will describe the company's ability to make a profit through its assets. Companies that have greater profits will have many incentives in carrying out tax aggressiveness (Gaaya et al., 2017). Therefore, ROA has a positive effect on tax aggressiveness (Kim & Zhang, 2016; Mafrolla & D'Amico, 2016). Furthermore, variable leverage is used for the company's ability to finance its operational activities. This risk will be measured by comparing the company's total expenses with total assets. Through variable *leverage*, it will be seen that the higher the *leverage* ratio of a company, the higher the amount of funding from third-party debt used by the company and the higher the interest costs arising from the debt (Jian, Li, & Zhang, 2012; Kovermann & Wendt, 2019; Muttakin, Monem, Khan, & Subramaniam, 2015). The next variable control is PPE which will capture the difference between the book value and the actually reported tax, which can affect the calculation of tax aggressiveness. Chen et al. (2010) explained that companies that make capital investments will have an impact on the treatment of their depreciation costs. Where the cost of depreciation will be of different value for taxation purposes and for financial reporting purposes. This will have a positive effect on tax aggressiveness (Brune et al., 2019; Kim & Zhang, 2016).

IV. RESULT / FINDING

A. Descriptive Statistics

The descriptive statistical results of each of these research variables are shown in Table 2. It can be seen that based on the results of standard deviations CETR and ETR reflects figures of 12% and 15% with an average of 24% and 21%. If the standard deviation and average results are compared with the applicable tax rate, it is concluded that the company is still below the rate set by the Directorate General of Taxes. It is likely that sample companies are subject to aggressive tax activities by reducing the taxes they pay to the Directorate General of

Taxes.. Furthermore, it is known that most of the sample companies are family-owned companies, which account for 65.26% of the total research sample. Of the 542 companies sampled, 354 of them have family ownership structures and 32.77% or 116 companies in them have political connections spread across the central, provincial and municipalities.

Table 2 Descriptive Statistics

Variabel	N	Mean	Min	Max	Std. Deviasi
CETR	1.626	0,24	-16,23	0,9090	0,12
FO	1.626	0,46	0	1	0,44
ROA	1.626	0,03	-33,11	1,12	0,89
Lev	1.626	0,72	-9,76	2,72	2,35
PPE	1.626	3,21	0	0,744	1,67
ETR	1.626	0,21	-113,75	0,7442	0,15

Dummy Variables

Variable	Nilai 1	Nilai 0	Total
FO	65,26%	34,74%	100%
	354 Companies	188 Companies	542 companies

CETR= current effective tax rate as measured by the ratio between the company's total current tax expense and the company's profit; FO= Dummy variable that is1 if the shareholder has at least 5% of the shares owned by the same family, 0 if the shareholders are not owned by the same family (Berrone et al., 2010; Hidayati &diyanti, 2018; López-González, Martínez-Ferrero, & García-Meca, 2019); ROA = Level of profitability (profit before tax divided by the total assets of the previous year); LEV = Leverage level (measured by the ratio of the company's total expenses to total assets.); PPE= The size of the company as measured by the ratio of property, plants, & equipment to the company's last year's assets;

Source: Processed Author Data (2022)

Based on the statistical description in table 3, information was obtained that a family-owned company with political connections in it would have a tendency to have a low CETR value tendency. This shows that the company is quite aggressive in carrying out tax management. Similarly, when tested with ETR, family-owned companies that have political connections tend to carry out tax aggressiveness. A higher ETR value than CETR indicates that companies are more utilizing permanent tax differences to carry out tax aggressiveness (Hidayati & Diyanti, 2018)

Table 3 Descriptive Statistics of the Influence of Moderation of Political Connections

Description	Average Values	
	CETR	ETR
Firm with FO	20.8 0%	2 3.19%
Non-FO firms	20,33%	22,77%
Firm with FO and PC	20,00%	2 2.27%
Firm with FO without PC	20,30%	22,72%

Firm with FO denotes a company with family ownership, while a non-FO firm is the opposite. Firm with FO and PC indicates a family-owned company with a political connection, while a firm with FO without PC indicates a family-owned company with no political connection.

Source : Processed Author Data (2022)

B. Analysis of Model Test Results

The data in this study were obtained with *stata* 16.0 software. before the regression test was carried out, the data first went through a classical assumption test so that the data used was BLUE. The autocoleration test was

performed with *the Wooldridge command,* heteroskedasticity was tested with *the wald test,* and multicholinearity through the VIF test. So that all data in this study is BLUE and these three problems have been overcome.

Table 4 shows that family ownership companies tend to be less aggressive in carrying out their tax management. The negative direction on the variable of family ownership (FO) towards tax aggressiveness in accordance with the initial hypothesis of the study ini. Brune et al.,(2019) found that the family played a role in considering the activities of tax aggressiveness. They are reluctant to lose social emotional wealth and company founders can influence the level of tax aggressiveness even if they have no direct influence (serving as CEO). This has caused the family ownership company to be very sensitive to reputation issues and to strongly maintain the good name of the family that will be their legacy to the next generation (Casson, 1999). The results of this study are in line with previous research, namely Hidayati & Diyanti (2018); Chen et al., (2010); Shen et al., (2019); Zhang et al., (2012); Gomez-Mejia et al., (2003). So it can be concluded that the first hypothesis is accepted.

Table 4 Regression Test Results

Hypothesis 1 : Family ownership negatively affects the aggressiveness of taxation		
Research Model :		
$TAg = \beta_0 + \beta_1 FO_{it} + \beta_2 PC_{it} + \beta_3 FO*PC + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 PPE_{it} + \varepsilon_i$		
Variable	**Koef**	**Prob**
Constant	0,0021	
FO	-0,015	0,000***
PC	0,003	0,066**
ROA	0,066	0,074*
Leverage	0,031	0,273
PPE	0,048	0,076*

Table Description:
FO= Dummy variable that is1 if the shareholder has at least 5% of the shares owned by the same family, 0 if the shareholders are not owned by the same family (Berrone et al., 2010; Hidayati &diyanti, 2018; López-González, Martínez-Ferrero, & García-Meca, 2019); PC= variable dummy political connections; ROA = Level of profitability (profit before tax divided by the total assets of the previous year); LEV = Leverage level (measured by the ratio of the company's total expenses to total assets.); PPE= The size of the company as measured by the ratio of property, plants, & equipment to the company's last year's assets;

Furthermore, testing of the effect of moderation of corporate political connections on family ownership and tax aggressiveness was carried out. Table 5 explains that the variable of political connections negatively affects (weakens) family ownership companies to carry out tax aggressiveness. Table 4 also supports the results of this moderation test, where the CETR and ETR values of family-owned companies with political connections will be lower than family-owned companies without political connections. So it can be known that family-owned companies with political connections have a tendency to carry out tax aggressiveness rather than family-owned enterprises without political connections. This is in line with the research of Ajili & Khlif (2020) which explains that manager in family ownership companies can reduce the burden related to government regulations and supervision by the competent authority through political connections owned, protected against the risks of litigation in the future and have direct access to special information. This is done to increase the value of the company in the form of large assets or low debt (Thiele & Wendt, 2017). An identic family company with a good reputation will have an impact on the reputation of the politicians involved in it. So this benefit is used by politicians to carry out tax aggressiveness to increase the value of the company. the results of this regression prove that the second hypothesis is accepted.

Table 5 Regression Results With Moderation

Hypothesis 2 : Political connections weaken the negative influence of family ownership on the aggressiveness of taxation		
Research Model :		
$TAg = \beta_0 + \beta_1 FO_{it} + \beta_2 PC_{it} + \beta_3 FO*PC + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 PPE_{it} + \varepsilon_i$		
Variable	**Koef**	**Prob**
Constant	1.022	
FO	-0.011	0.011
PC	0.000	0.033**
FO*PC	-0,017	0,000***
ROA	0,066	0.740
Leverage	0,031	0,273
PPE	0,048	0.601

Table Description:

FO= Dummy variable that is1 if the shareholder has at least 5% of the shares owned by the same family, 0 if the shareholders are not owned by the same family (Berrone et al., 2010; Hidayati &diyanti, 2018; López-González, Martínez-Ferrero, & García-Meca, 2019); PC= variable dummy political connections; FO*PC = variable interaction of family ownership and political connections; ROA = Level of profitability (profit before tax divided by the total assets of the previous year); LEV = Leverage level (measured by the ratio of the company's total expenses to total assets.); PPE= The size of the company as measured by the ratio of property, plants, & equipment to the company's last year's assets;

Table 6 illustrates the distribution of political connections owned by the companies that sampled this study. It can be seen that the most political connections are at the central level, meaning that 73 people in the riots who are sampled in this study are directly or indirectly involved with political activities in Indonesia such as serving as Ministers, serving as members of the DPR through political parties or serving as general chairmen of political parties at the center. The political connections owned by these family-owned companies turned out to have a different impact on the aggressiveness of taxation. It can be seen in the probability value of each level, that political connections at the central level exert a stronger influence than political connections at the provincial level as well as at the city level. This has an impact on family-owned companies with political connections centered on easier to find out tax loopholes (Ajili & Khlif, 2020) as well as information about government policies and economic direction (Harymawan et al., 2020).

Table 6 Results of Regression of Political Connections Between Levels

Variable	Number of political connections	% political connections	Koef	Prob
PC Center	73 people	62,93%	0,061327	0,000***
Provincial PC	38 people	32,75%	0,019952	0,008***
CITY PC	5 people	4,31%	0,0441616	0.041**
Total	116 people			

Source : Processed Author Data (2022)

V. DISCUSSION

Previous research discussing the influence of family ownership on tax aggressiveness with moderation of political connections has often been carried out. But this study provides a new picture of the power of influence of these political connections at every level. The findings of this study support that family-owned companies will tend to avoid tax management actions that are too aggressive to keep the company's image valuable if it is passed on to later generations (Casson, 1999). Based on the regression results, the CETR value of each company that is sampled is lower than the ETR value. This shows that the company is quite aggressive in carrying out tax management. A higher ETR value compared to CETR indicates that companies are more utilizing permanent tax differences to carry out tax aggressiveness (Hidayati & Diyanti, 2018). However, this family-owned company does not necessarily always obey tax rules. It's just that the level of aggressiveness of each company in carrying out tax management is different, as well as companies without family ownership.

Factors that can influence company decisions in carrying out tax aggressiveness, one of which is political connections. Political connections within a company are defined if a company has one or more *boards of directors* who are members of parliament (House of Representatives), ministers, and or former officials and are former members of the military (retired police and TNI). Based on the regression test that has been carried out, it is known that the moderation variable of political connections affects the relationship of family ownership companies in carrying out tax aggressiveness. In accordance with the purpose of this study, in addition to looking at the influence of political connections, it will also be known the amount of influence that political connections have at various levels. As a result, family-owned companies that have political connections at the center have the greatest influence on the decisions of family ownership companies in carrying out aggressive tax management. Political connections empower firms to pursue aggressive tax management at the cost of public welfare funded by taxation (Ying et al., 2017).

This study also added testing of variable control. The variables controlled in this study are company profitability (ROA), company debt level (*leverage),* and company investment decisions (PPE). The result is that the ROA variable of family ownership companies has not effect on tax aggressiveness when measured by CETR.

This result is supported by Harymawan et al (2020). Furthermore, this study controls the level of corporate debt as measured by *leverage.* The result is that *leverage* is not correlated with CETR. These results are in line with the research of Kim & Zhang (2016). The next variable control used in this study is PPE. Through the PPE variable, you will see the capital investment made by the sample company. The results of PPE were no correlation with CETR. These results are in line with the research of Nuritomo & Hermawan (2020) .

VI. CONCLUSION AND RECOMMENDATION

This study aims to see the influence of family ownership on tax aggressiveness, as well as how the influence of moderation of political connections on family ownership and tax aggressiveness. this research replicates the research of Hidayati & Diyanti (2018), but updates the measurement of political connections with the measurement developed by Chen et al., (2017). This is done to capture more information than just using *dummy variables.* Through the measurements of Chen et al., (2017) will be known information on the strength of political connections that family ownership companies have. It is useful for tax authorities to pay more attention to family-owned companies with political connections, because the political connections owned by family ownership companies erode the socio-emotional values that family ownership companies usually have. This study tested all non-financial and non-real estate companies listed on the Indonesia Stock Exchange in 2017 – 2019 with a total sample of 542 companies. The study used CETR to measure tax aggressiveness,but added ETR as a sensitivity test.

The regression model test used in this study aims to see the effect of family ownership on the aggressiveness of corporate taxation in Indonesia. The initial hypothesis of the study suspected that family-owned companies would tend to avoid or reduce commendable activities such as overly aggressive tax management. This is because the founders of family ownership companies will always put forward the *socio-emotional* wealth they have so that they will avoid business decisions that can threaten the company's continuity in the long term. The family company will maintain non-financial wealth such as maintaining the identity or good name of the family in running the business so that the continuity of the family dynasty can continue (Gomez-Mejia et al., 2003). Hidayati and Diyanti (2018) found that investments in family ownership companies are not diversified with a longtime horizon and avoid long-term risk activities. This is because family members consider investment as a wealth inheritance for the next generation, so that all company activities will avoid the risk of subduing company prices (Casson, 1999). The results of this study support previous research, where family-owned companies were less aggressive in their tax management than non-family-owned companies.

Furthermore, a variable test of the moderation of political connections to the aggressiveness of taxation of family ownership companies was carried out. The initial hypothesis of this study suspected that political connection will be caused family ownership companies to tend to take higher risks. This finding is supported by the research of Ferdiawan & Firmansyah (2017) and Wahab et al., (2017) where political relations have an impact on tax avoidance, this is characterized by the average company using its political connections to obtain lower tax payments through branch companies, subsidiaries or foreign activities attached to companies with profit shifting schemes and profit holding. A company with political connections will take advantage of the convenience gained from the political connections it has to carry out aggressive tax actions. The results of this study are in line with previous research and it can be seen that political connections at the central level have a greater impact than political connections at the provincial and municipal levels. Political connections at the central level make it easier for family-owned companies to more easily find out tax loopholes (Ajili & Khlif, 2020) as well as find out information about government policies and economic direction (Harymawan et al., 2020).

This research has many limitations that can be refined by subsequent studies. Where further research can use measurements other than CETR and ETR to detect tax aggressiveness. in addition, family ownership in this study was limited to only 5%. Further research can be developed using the composition of the number of holdings in addition to using only *dummy variables.* Further research can develop political connections by looking at political parties that are in power and not in power as supporting indicators so that the measurement of political connections becomes better.

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The Effect of Korean Celebrity Endorsers and Online Marketplace Brand Congruence on Indonesian Consumers' Purchase Intention

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Abstract

The Korean Wave phenomenon has now become global, and Indonesia is one of the countries that is greatly affected by this phenomenon. The use of Korean celebrities as endorsers is increasing among local companies especially on online marketplaces to generate purchase intention. Celebrity – Brand Congruence is one of the factors when choosing the right celebrity as an endorser, the image of the Celebrity and the Brand should match. Previous studies show an incongruent relationship between Celebrity and the Brand but still managed to maintain the congruency image as the celebrity is accepted and acknowledged by consumers. The congruency between Korean Celebrity and Online Marketplace has not been tested, as previous studies show that Indonesia has not fully viewed Korean Wave as an adopted phenomenon. An online survey was used and was filled out by 332 respondents aging between 18 – 41 and who have already seen an online marketplace advertisement that uses Korean celebrities as their endorsers. Structural Equation Model was used to test the hypothesis. The results show that Celebrity – Brand Congruence has no direct effect on Purchase Intention for online marketplaces and Brand Credibility has the most significant effect on Purchase Intention. This study offers managerial implications to online marketplaces in using celebrity endorsers more effectively, as marketing communication tools to increase revenue.

Keywords— Celebrity – Brand Congruence; Celebrity Endorsers; Consumers' Purchase Intention; Korean Wave; Online Marketplace.

I. INTRODUCTION

The Korean Wave phenomenon has now become global and Indonesia is one of the main countries that are greatly affected by this phenomenon. According to data released by Twitter in 2020, it was noted that Indonesia was in the third position as the country with the highest volume of tweets related to K-Pop from all countries. In addition, according to data from statista.com, Indonesia occupies the second position regarding K-Pop viewing on YouTube globally with a magnitude of 9.9% in 2019 after South Korea. Korean Wave is recognized as a phenomenon that is not temporary but a sustainable business (Parc & Hwy-Chang, 2013), so it is necessary to do a study from a marketing point of view. Korean celebrities are liked by many people from all over the world, because of their attractive appearance (Jung & Hwang, 2016)

From the Korean Wave phenomenon in Indonesia, there is a gap between this phenomenon and the theory of celebrity endorser selection. To get the right celebrity endorser, usually, the celebrity must have a positive influence, and the image of the celebrity must match or match the product (Choi & Rifon, 2012). However, currently, several studies show that celebrity endorsers who do not have a background with the product brand they endorse show a positive relationship with purchase intention, (Nguyen, 2021) the use of Son Tung a Vietnamese singer for OPPO a mobile device brand and (Rai et al., 2021), the use of Virat Kohli an athlete for American Tourist.

From the two previous studies above, even though there is an incongruent relationship between a celebrity and an endorsed brand, it shows that if a celebrity is recognized and approved by consumers, the celebrity will be considered congruent with any brand (Fleck et al., 2012). This shows that there is a gap between the two studies above and the Korean Wave phenomenon that is currently happening in Indonesia. The congruency between Korean Celebrity Endorsers and e-commerce brands in Indonesia has not been proven yet, as a study by (S. M. Kim & Park, 2020) shows that Korean Wave has not fully been accepted as an adopted phenomenon in Indonesia.

II. LITERATURE REVIEW

A. Celebrity Endorser

A celebrity endorser is an individual who enjoys public recognition and uses that recognition on behalf of the consumer good by appearing in advertisements (McCracken, 1989). The depiction of a celebrity is a professional athlete, film star, artist, singer, comedian, or figure known to the public from his achievements (Osei-Frimpong et al., 2019). The number of campaigns with celebrities has increased, with one in five marketing communications conducted in the UK using celebrities (Erdogan et al., 2001). The reason for using celebrity endorsement is that the high profile of celebrities helps to advertise to stand out, thereby increasing communication skills. Many companies are now using celebrities in their brand advertisements (Pornpitakpan, 2004)

B. Celebrity – Brand Congruence

Congruence is a combination or match between the characteristics of a celebrity with the essence of an endorsed brand (Till & Busler, 2000). The selection of celebrity endorsers is very important, and successful advertising is usually believed that the celebrity must have a positive influence and the image of the celebrity must match the endorsed product (Choi & Rifon, 2012). For example, sports celebrities will be the right choice to advertise sports brands because consumers see a match between the product and the celebrity (Liang & Lin, 2018).

C. Attitudes Towards the Celebrity

Attitudes Towards the Celebrity is a behavior that is formed on consumers by looking at several aspects that are measurements made by (Kamins & Gupta, 1994), namely related to attractiveness, trustworthiness, and expertise of celebrities to measure consumer behavior. The following is an explanation of the source of credibility from the endorser.

C.1 Attractiveness

Attractiveness can be seen in weight, height, good looks, or facial beauty which is the first expression seen by others. This concept is not only physical but also from mental abilities, traits, lifestyle, and talents (Erdogan, 1999).

C.2 Trustworthiness

Trustworthiness is the level of trust and honesty that is owned by the endorser and is seen by consumers (Erdogan, 1999), which depends on the perception of the target audience. When consumers believe that a source or celebrity can be trusted, they will also assume that the message communicated can also be trusted. So marketers try to promote trustworthiness by having endorsers who are seen as honest and trustworthy.

C.3 Expertise

The expertise or expertise of an endorser is a source of qualification that directly affects the level of confidence so that consumers become interested in buying products. Celebrities who are considered more skilled are more persuasive and able to generate more interest in making purchases (Ohanian, 1990). Celebrity expert produces more recall effect on product information than non-expert celebrity. So celebrities with a high level of expertise are assumed to be more persuasive than celebrities with a lower level of expertise.

D. Attitudes Towards the Brand

Attitudes Towards the Brand is a point of view about what consumers believe about a particular product or service, as demonstrated by brand awareness. The better the brand builds on the brand image, the better the value that can be given to consumers to differentiate the brand from other brands, and the product is increasingly recognized by consumers.

E. Brand Credibility

Brand credibility is defined as the level of trustworthiness of the information conveyed by a brand that has a major impact on the branding process. Previous research has shown that brand credibility not only affects brand selection but also moderates consumers' sensitivity to price.

F. Purchase Intention

Purchase intention is the tendency to buy a brand and see based on the suitability of the purchase motive with the attributes or characteristics of the brand that will be considered for purchase. Purchase intention has an important role, especially for companies because it can be used to predict consumer behavior in making purchases and is one of the factors that determine consumer purchase decisions.

G. Hypothesis Development

1. Celebrity – Brand Congruence on Attitudes Towards Celebrity

Research conducted by (Min et al., 2019) shows that there is a significant relationship between Celebrity - Brand Congruence with attitudes toward celebrities where if consumers feel there is a match between celebrity and brand then consumer attitudes towards celebrities become positive. In addition, according to (Mishra et al., 2015), this is supported by attribution theory, which states that consumers seek an explanation of people's actions, in this case, the reason celebrities endorse a brand. The match that occurs between celebrity and brand will result in internal attribution. This result occurs because consumers feel that celebrities do endorsements because they feel there is a match between their personality and the brand, not solely because celebrities do endorsements to obtain financial income. This will increase consumer confidence and behavior towards celebrities. Therefore, the hypothesis proposed is as follows

H1: Celebrity – Brand Congruence has a positive effect on attitudes towards celebrity

2. Celebrity – Brand Congruence on Attitudes Towards Brand

Research conducted by (Min et al., 2019) shows that there is a significant relationship between Celebrity – Brand Congruence with attitudes toward brands where if consumers feel there is a match between celebrity and brand then consumer attitudes towards the brand become positive. According to (Choi & Rifon, 2012), said that the congruence between celebrities and endorsed products greatly determines consumer perceptions. The results of several studies show that Celebrity – Brand Congruence has a significant effect on brand evaluation. When the perceived suitability of consumers is higher, the evaluation from consumers is better. So the hypothesis proposed is as follows

H2: Celebrity – Brand Congruence has a positive effect on attitudes towards brand

3. Attitudes Towards Celebrity on Brand Credibility

Research conducted by (Wang et al., 2017) shows that attitudes towards celebrity have a positive relationship with brand credibility. The results show that according to consumers, if the endorsed brand is trustworthy, and liked, the consumer's perception of the celebrity brand is more positive, so the brand has a more trusted perception. In addition, research conducted by (Chin et al., 2020), that there is a positive relationship between attitudes towards celebrity and brand credibility caused by consumer perceptions of the source model from celebrity. Research conducted (Rai et al., 2021), also shows that consumer perceptions of celebrities will result in brand credibility and a positive brand image. Therefore, the hypothesis proposed is as follows

H3: Attitudes towards Celebrity has a positive effect on Brand Credibility

4. Attitudes Towards Celebrity on Purchase Intention

Research conducted by (Min et al., 2019) shows that there is a positive relationship between Attitudes Towards Celebrity and purchase intention even though when compared to attitude toward a brand it has a greater impact on purchase intention. Several studies conducted by (Nguyen, 2021) and (Wang et al., 2017) also looked at the relationship of attitudes toward celebrities towards purchase intention but had mediating variables such as brand perception and brand credibility. Both studies show a positive relationship between the two variables. Therefore, the hypothesis proposed is as follows

H4: Attitudes towards Celebrity has a positive effect on Purchase Intention

5. Attitudes Towards Celebrity on Attitudes Towards Brand

Research conducted by (Wang et al., 2017) shows that there is a relationship between Attitudes Towards Celebrity and attitudes toward brands. The influence of celebrity endorsement is able to create an impact on the product and the brand itself, and this study shows that there is a positive relationship with brand attitude. Research conducted by (Chin et al., 2020), that there is a positive relationship between attitudes towards celebrity and attitudes towards brands caused by consumer perceptions of the source model from celebrity. In addition, research conducted by (Nguyen, 2021) also shows a positive relationship from the celebrity endorser dimension as measured by consumer perceptions of consumers' perceptions of the brand. Therefore the hypothesis proposed is as follows

H5: Attitudes towards Celebrity has a positive effect on Attitudes Towards Brand

6. Attitudes toward Brand terhadap Purchase Intention

Research conducted by (Wang et al., 2017) shows that there is a relationship between Brand attitude and Purchase Intention, this variable has a significantly positive relationship with purchase intention. Attitudes toward a brand usually appear in the minds of consumers based on the advertisements they see. In addition, endorsers also help consumers to help shape attitudes toward the brand. Attitude toward the brand has a huge impact on Purchase Intention when there is an increase in consumer motivation (Mackenzie and Spreng, 1992). (Chin et al., 2020) and (Pradhan, 2016), proves that there is a positive relationship between attitudes towards brand and purchase intention. In the context of advertising effectiveness, it also proves that attitude towards the brand is an antecedent that affects purchase intention. Therefore, the hypothesis proposed is as follows

H6: Attitudes towards Brand has a positive effect on Purchase Intention

7. Brand Credibility on Purchase Intention

Research conducted by (Wang et al., 2017) shows that there is a relationship between Brand Credibility and Purchase Intention, and this variable has a significantly positive relationship with purchase intention. Research conducted by (Rai et al., 2021) also shows the same results where there is a positive influence from the brand on purchase intention. (Chin et al., 2020), proves that there is a positive relationship between brand credibility and purchase intention. This is because consumers who have a positive perception of celebrity endorsers will produce a positive image of the endorsed brand and help advertisements to build credibility in the minds of consumers so that it will affect their purchase intention. Therefore, the hypothesis proposed is as follows

H7: Brand Credibility has a positive effect on Purchase Intention

8. Celebrity – Brand Congruence on Purchase Intention

Research conducted by (Min et al., 2019) shows that there is a significant relationship between Celebrity – Brand Congruence and purchase intention where if consumers feel there is a match between celebrity and brand, it will increase consumer buying intention. The match between the product and the endorser will positively strengthen consumer confidence in a brand, so that it will affect the brand attitude and purchase intention (Fleck et al., 2012). So the hypothesis proposed is as follows

H8: Celebrity – Brand Congruence has a positive effect on Purchase Intention
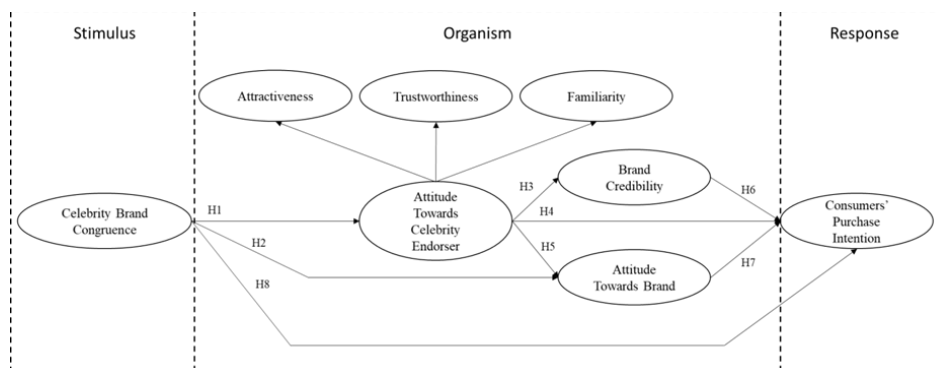
Fig.1 Research Model

III. RESEARCH METHODOLOGY

A. Methods

The use of celebrity endorsers who have different cultures can have a positive or negative impact on the brand. Research conducted by (S. M. Kim & Park, 2020), shows that there are six segments Korean Wave in ASEAN countries, each of which has different characteristics for products originating from Korea. This shows that the use of Korean celebrity endorsers in Indonesia for online marketplace brands has not been proven, because Indonesian consumers have not fully adopted the Korean Wave phenomenon. To answer the problem formulation and objectives in this study, the model that will be used refers to (Min et al., 2019) and (Wang et al, 2017), but adjustments are made according to other research models so that the influence of Celebrity – Brand Congruence on consumer purchase intention can be found.

B. Data Collection and Processing

The type of data used in this study is primary data. The type of primary data used is obtained directly from the object of research to test the hypothesis to be studied. Primary data will be collected through the distribution of online questionnaires, to facilitate data collection. The questionnaire that will be sent is several questions related to the use of Korean celebrity endorsers on brand perception and consumers' purchase intention. The population that will be studied is Indonesians aged between 18 - 41 years old who have seen advertisements on online marketplace sites in Indonesia that use Korean celebrity endorsers. The responses of the survey participants to each of the items were measured on a seven-point Likert scale, ranging from 1("strongly disagree") to 7 ("strongly agree").

The Wording Test will be conducted to test the feasibility of the measurement items that had been obtained from a collection of journals. Translation into Indonesian is required and needs to be tested on several respondents to reduce the possibility of errors occurring when the main questionnaire is distributed. Therefore, improvements to the questionnaire can be made first. The pre-test on the questionnaire will also be carried out with the aim of ensuring that the questionnaire carried out was easy to understand before the actual questionnaire was carried out. The number of samples that will be used in the Pre-Test is 30 respondents. The expected output of this Pre-Test is the response of the respondents and the analysis of the validity and reliability tests. Structural Equation Model (SEM) will be used to test the hypothesis because this model is more suitable for testing theories and measuring the feasibility of the model and confirming it according to the empirical data.

IV. RESULT

A. Wording Test & Pre-Test Results

The wording test has been carried out by 4 respondents, and there are several question indicators that need to be changed and clarified to make it easier for respondents to understand. There are 8 indicators that have changed and 3 indicators that need to be clarified and have been changed according to the recommendations of the respondents. Then, a pre-test was conducted to 30 respondents using SPSS 25 and the results show that the questionnaire was valid and reliable because it met the requirements KMO between 0.1 and 0.5 and Cronbach's Alpha > 0,60

B. Respondents Profile

The number of respondents from the main survey was 344 which were distributed through social media for 1 week (28 March 2022 – 5 April 2022), such as WhatsApp Groups, Facebook Groups, Telegram Groups and Instagram. However, of the 344 respondents who filled out the questionnaire, as many as 332 respondents met the survey criteria.

Table 1. Respondents Profile

Respondents Profile		Total	%
Gender	Male	105	31,6%
	Female	227	68,4%
Age	18 - 25 Years old	174	52,4%
	26 - 41 Years olf	158	47,6%
Domicile	Jabodetabek	245	73,8%
	Outside of Jabodetabek	87	26,2%
Education	SMP	4	1,2%
	SMA/SMK	94	28,3%
	Diploma	21	6,3%
	S1	193	58,1%
	S2	19	5,7%
	S3	1	0,3%
Income	< IDR 1.000.000	49	14,8%
	IDR 1.000.000 - IDR 3.000.000	71	21,4%
	IDR 3.000.000 - IDR 5.000.000	56	16,9%
	IDR 5.000.000 - 10.000.000	105	31,6%
	> IDR 10.000.000	51	15,4%
Occupation	Belum Bekerja	5	1,5%
	Pelajar / Mahasiswa	78	23,5%
	Aparatur Sipil Negara (ASN)	20	6,0%
	Pegawai Swasta	111	33,4%

Respondents Profile	Total	%
Pegawai BUMN	60	18,1%
Wiraswasta	30	9,0%
TNI/Polri	0	0,0%
Ibu Rumah Tangga	16	4,8%
Seniman	2	0,6%
Freelance	5	1,5%
Konten Kreator	1	0,3%
F&B Crew	1	0,3%
Guru/Pengajar	3	0,9%

C. Data Analysis

For descriptive analysis, the average of each indicator of the variable is higher than 3,5. Therefore, it can be concluded that Indonesian consumers "agree" and there is the potential to make purchases of online marketplace advertising brands that use Korean Celebrity Endorser. In conducting the test, this study uses SEM measurements where before testing the hypothesis it is necessary to measure the model by testing the validity and reliability of each indicator first. Testing on the model uses LISREL 8.8, and each measurement item will be tested for validity and reliability. Table 2 below shows the result of the descriptive analysis, validity, and reliability test. The requirement for validity is SLF $\geq$ 0.5 and the t-value $\geq$1.96, and for reliability measurement is CR $\geq$ 0.70 and AVE $\geq$ 0.5

Table 2. Descriptive Analysis, Validity & Reliability Test

Variable	Item Measurement	Mean	SD	T-Value	SLF	CR	AVE
Celebrity – Brand Congruence	CBC1	5,25	0,82	15,49	0,76	0,84	0,64
	CBC2	4,76	1,09	17,27	0,82		
	CBC3	4,96	1,06	17,39	0,82		
Attitudes Towards Celebrity (Familiarity)	FA1	5,41	1,09	7,68	0,42*	0,61*	0,65
	FA2	4,77	1,42	14,67	0,71		
	FA3	5,23	1,16	12,24	0,62		
Attitudes Towards Celebrity (Attractiveness)	AT1	5,19	1,04	16,58	0,78	0,89	0,63
	AT2	5,07	1,20	16,49	0,78		
	AT3	5,15	1,04	17,35	0,80		
	AT4	4,31	1,49	16,16	0,77		
	AT5	4,80	1,28	18,02	0,82		
Attitudes Towards Celebrity (Trustworthiness)	TW1	5,07	1,06	16,83	0,79	0,90	0,65
	TW2	4,54	1,19	17,61	0,81		
	TW3	4,73	1,12	18,28	0,83		
	TW4	4,58	1,21	18,32	0,83		
	TW5	5,06	1,01	16,02	0,76		
Attitudes Towards Brand	ATB1	3,42	1,82	18,88	0,86	0,87	0,70
	ATB2	3,05	1,79	15,87	0,77		
	ATB3	4,13	1,79	19	0,87		
Brand Credibility	BC1	4,48	1,29	14,61	0,71	0,93	0,67
	BC2	4,85	1,06	19,38	0,86		
	BC3	4,82	1,03	20,5	0,89		
	BC4	4,93	1,03	19,98	0,88		
	BC5	4,92	1,05	19,14	0,85		

Variable	Item Measurement	Mean	SD	T-Value	SLF	CR	AVE
	BC6	5,19	0,89	15,48	0,74		
	BC7	4,99	0,99	16,08	0,76		
Purchase Intention	PI1	4,78	1,13	18,39	0,88	0,89	0,68
	PI2	4,98	1,06	20,82	0,90		
	PI3	4,13	1,62	12,06	0,62		
	PI4	4,86	1,17	20,68	0,90		

From the validity test results, the item measurement FA1 did not meet the SLF requirement. Although theoretically, this variable should be omitted, referring to (Garson, 2010), stated that SLF < 0.40 is considered weak and SLF > 0.60 is considered strong, therefore, SLF between 0.40 and 0.60 can still be used in this research. As for the reliability test, the "Familiarity" variable has CR value below 0.7 where in theory this variable should be rejected. However, referring to previous research conducted by (Liang et al, 2018) a variable that is below the required CR can still be accepted by considering the average value of the descriptive analysis that has a high influence on the purchase. intention. Therefore, by considering the research and referring to the descriptive analysis on "Familiarity" that has an average value above a score of 5, the variable is still accepted.

D. Goodness of Fit

Based on the results of the goodness of fit of the model, in Absolute Fit Measures, all indicators have "Poor Fit". It can be concluded that this model is still not a "Good Fit" so modification indices are needed to get a fitter model to meet the parameters that have been set. From the results of these modifications, the following is the modified goodness of fit analysis that is recommended by LISREL 8.8

Table 3. Goodness of Fit

Parameter GOF	Tingkat Fitness	Output	Status
Absolute Fit Measures			
Chi-Square / degree of Freedom ($\chi 2/df$)	$\chi 2/df \leq 5$	2,94	Good Fit
Goodness of Fit Index (GFI)	GFI $\geq$ 0.90	0,82	Marginal Fit
Standardized RMR	SRMR $\leq$ 0.08	0,088	Marginal Fit
Root Mean Square Error of Approximation (RMSEA)	RMSEA $\leq$ 0.08	0,077	Good Fit
Incremental Fit Measures			
Normed Fit Index (NFI)	NFI $\geq$ 0.90	0,97	Good Fit
Non-Normed Fit Index (NFI)	NNFI $\geq$ 0.90	0,98	Good Fit
Comperative Fit Index (CFI)	CFI $\geq$ 0.90	0,98	Good Fit

E. Hypothesis Testing

This study uses SEM measurements where before testing the hypothesis it is necessary to measure the model by testing the validity and reliability of each indicator first. Testing on the model uses LISREL 8.8, and each measurement item will be tested for validity and reliability. According to the result, this framework has met the requirements for the model to be reliable and valid, as it met the Loading Factor > 0.5 and T value > 1,96. Therefore the hypothesis can now be tested, and the result is as follow

Table 4. Hypothesis Test

Hypothesis	Variable	Estimates	T-Value	Hypothesis Test
H1	Celebrity Brand Congruence -> Attitudes Towards Celebrity	0,75	7,08	Accepted

| Hypothesis	Variable	Estimates	T-Value	Hypothesis Test
H2	Celebrity Brand Congruence -> Attitudes Towards Brand	0,35	5,08	Accepted
H3	Attitudes Towards Celebrity -> Brand Credibility	0,56	6,19	Accepted
H4	Attitudes Towards Celebrity -> Consumers' Purchase Intention	0,23	2,33	Accepted
H5	Attitudes Towards Celebrity -> Attitudes Towards Brand	0,59	5,98	Accepted
H6	Brand Credibility -> Consumers' Purchase Intention	0,75	11,33	Accepted
H7	Attitudes Towards Brand -> Consumers' Purchase Intention	-0,14	-1,30	Not Accepted
H8	Celebrity Brand Congruence -> Consumers' Purchase Intention	0,05	0,70	Not Accepted
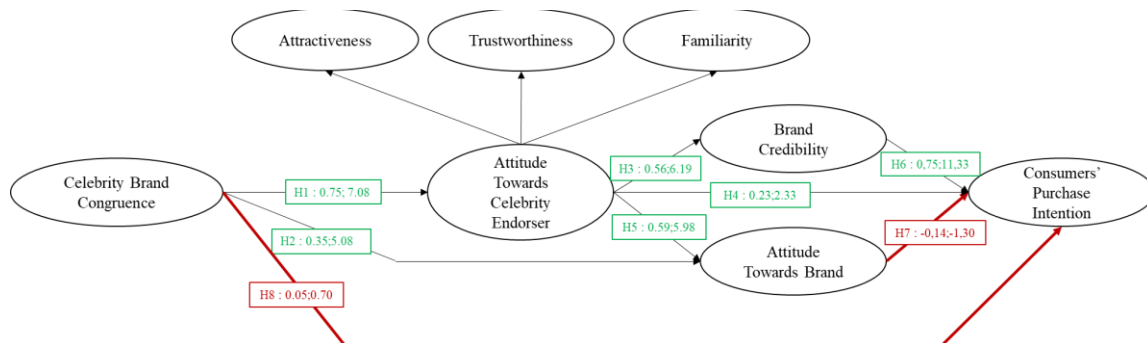
Fig 2. Hypothesis Result

V. DISCUSSION

The relationship between the Celebrity Brand Congruence and Attitudes Towards Celebrity (H1) has a hypothesis that is accepted because it has a t-value exceeding 1.64. So based on the research and theory that has been described above, the compatibility of Celebrity and Brand, will have a positive influence on attitudes towards celebrity, which indicates that the combination of Korean celebrity endorsers with Brand Marketplaces gives consumers the perception that Korean Celebrity Endorsers do endorsements not solely to earn financial income, however, because the Celebrity feels a match with his personality, especially from the way the ad is packaged. The results of this hypothesis are supported by previous research by (Min et al., 2019) showing that there is a significant relationship between Celebrity – Brand Congruence with attitudes toward celebrities.

The relationship between the Celebrity Brand Congruence variable and Attitudes Towards Celebrity (H2) has a hypothesis that is accepted because it has a t-value exceeding 1.64. This indicates that the combination of Korean celebrity endorsers with Brand Marketplace gives consumers a positive perception of the brand. The results of this hypothesis are supported by research conducted by (Min et al., 2019) and according to the theory (Choi & Rifon, 2012) showing that there is a significant relationship between Celebrity – Brand Congruence with attitudes toward brands. The relationship between the Attitudes Towards Celebrity variable and Brand Credibility (H3) has the accepted hypothesis because it has a t-value exceeding 1.64. This study shows that Indonesian consumers' perceptions of brands endorsed by Korean celebrities can be trusted and have a more trusted image. The results of this hypothesis are supported by research conducted by (Wang et al., 2017) which shows that attitudes towards celebrity have a positive relationship with brand credibility.

The relationship between the Attitudes towards Celebrity variable and Consumers' Purchase Intention (H4) has an accepted hypothesis because it has a t-value above 1.64. So this study shows that the handsome face and attractive appearance of Korean celebrity endorsers on online shopping site advertisements can increase the

buying interest of Indonesian consumers. These results support the hypothesis obtained from research by (Min et al., 2019) showing that there is a positive relationship between Attitudes Towards Celebrity and purchase intention. The relationship between the Attitudes Towards Celebrity variable and Brand Credibility (H5) has the accepted hypothesis because it has a t-value exceeding 1.64. This study shows that consumer behavior towards Korean celebrity endorsers has a significant impact on the brand of the online shopping sites they advertise. These results also support research conducted by (Wang et al., 2017) which shows that attitudes towards celebrity have a positive relationship with Attitudes Towards Brand.

The relationship between the Brand Credibility variable and Consumers' Purchase Intention (H6) has an accepted hypothesis because it has a t-value exceeding 1.64. This shows that the credibility of the online shopping site brand which is seen by Indonesian consumers has a significant impact on their buying interest. These results are supported by research conducted by (Wang et al., 2017) and (Rai et al., 2021) which show that there is a relationship between Brand Credibility and Purchase Intention, and these variables have a significantly positive relationship with purchase intention. The relationship between the Attitudes towards Celebrity variable and Consumers' Purchase Intention (H7) has a hypothesis that is not accepted because it has a t-value below 1.64. This indicates that Indonesian consumers' perceptions of brands from online shopping sites do not have an impact on buying interest. This is not in accordance with research conducted by (Wang et al., 2017) which shows that there is a relationship between Brand attitude and Purchase Intention in the aviation sector using endorsers. Likewise with research conducted by (Min et al., 2019) who conducted research on the compatibility of brands with celebrities, where there was a significant relationship between Brand Attitude and Purchase Intention. The difference between this study and previous research is that there are different contexts, where the brand discussed in this study is an online shopping sites brand, so based on (Kuswanto et al., 2019) attitudes toward online marketplace brands are seen more from the attractiveness and the user interface of the online marketplace site platform, as previous research discusses product such as shoes.

The relationship between the Celebrity Brand Congruence variable on Consumers' Purchase Intention (H8) has a hypothesis that is not accepted because it has a t-value of less than 1.64. These results indicate that the compatibility between Korean celebrity endorsers and online shopping site brands that are deemed suitable by consumers does not have a significant impact on buying interest. This is not in accordance with the theory from the initial hypothesis derived by (Min et al., 2019) which shows that there is a significant relationship between Celebrity – Brand Congruence and purchase intention. However, research conducted by (Rai et al., 2021) also shows that the compatibility between celebrity and brand does not have an impact on consumer buying interest, this is due to financial conditions in India which have a low average income, so the main factor in determining purchases is brand credibility.

From the indirect path analysis, Celebrity Brand Congruence has a positive influence on Consumers' Purchase Intention from Attitudes Towards Celebrity and Brand Credibility. The use of Celebrity Korean endorsers for online shopping sites can improve the consumers' behavior towards Korean celebrity endorsers because they have given perceptions that Korean Celebrity Endorser endorses the site because the sense of compatibility, they feel with the online shopping site brand. The use of Korean celebrity endorsers can increase the brand credibility of the online shopping site, because of the perception given to the consumer that the online marketplace can work with endorser from Korea. The established Brand Credibility and increase Consumer's Purchase Intention.

VI. CONCLUSION AND RECOMMENDATION

The results of this study indicate that the Korean Wave phenomenon greatly affects consumer behavior in making purchases. With the S-O-R method, Celebrity – Brand Congruence from Korean Endorser with Online Shopping Site Brands has a direct positive influence on Attitude Towards Celebrity and Brand. Attitudes Towards Celebrity has a positive influence on Brand Credibility, Attitudes Towards Brand, and Consumers' Purchase Intention. However, Attitudes Towards Brand has no effect on consumers' purchase intention. This is because consumer interest in making purchases on online shopping sites is seen in the appearance of the website, the user interface on the platform, and the services provided. In addition, Celebrity – Brand Congruence does not have a direct influence on consumers' purchase intentions. Based on previous research, celebrity – Brand congruence is not the main factor in making purchases intention, this is due to the country's economic conditions which show that income is still low, so the main factor for consumers to make purchases is brand credibility. From the results obtained Brand Credibility has a positive influence on consumers' purchase intention and the t value obtained is 11.33 which is the highest value. Brand credibility that occurs in the context of the online marketplace is caused by consumers who have positive perceptions of Korean celebrity endorsers which have produced a positive image of endorsed brands and helped advertisements to build credibility in the minds of consumers, thus influencing their purchase intention. The credibility that has been built by the brand will create security for consumers with the hope that the services provided will be in accordance with consumer expectations. Therefore, this supports the

statement from previous research that brand credibility is a very influential factor in consumers' purchase intention.

As a recommendation for managerial implication, this study shows that the use of any celebrity endorser will be very effective in increasing purchase intention if it is known and favored by consumers and has an image that is acceptable to consumers. This study also recommends that the online marketplace conduct "Harbolnas" specifically for Beauty Care products, considering the high interest in buying these products through the Online Marketplace, and according to the survey the main target segment would be women aged between 18 – 25 years. Collaborating with Korean Celebrity Endorsers is recommended to help promote and strengthen marketing communication for the "Harbolnas" event. According to previous studies, the Korean Wave is a sustainable phenomenon, therefore, conducting market studies related to the trending Korean Wave is recommended. This needs to be done because the Korean Wave will always develop as well as Korean artists. Over time, these Korean artists will experience an increase in age, so their target market will also change. So, the company must always be updated with the development of the Korean Wave.

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The Effect of User Generated Content and Fear of Missing Out Towards Indonesian Mobile Gacha Gamers' Purchase Intention

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Abstract

This paper aims to empirically analyze the effect of perceived credibility, perceived usefulness, and information quality of user generated content (UGC), as well as fear of missing out (FoMO) towards the consturct of theory of planned behavior (TPB) and purchase intention for gacha games in Indonesia. Mobile games has always been the biggest market amongst the gaming platform, with several gacha game like Genshin Impact made it to top 10 grossing worldwide in 2021. Indonesia has shown a lot of potential as the largest gaming market in South East Asia. However, there is little known research regarding gacha games and the effect of user generated content towards players' attitude regarding in-game purchase. Studies which shows the effect of FoMO towards the construct of TPB and purchase intention in gaming is also minimal. This research were assessed using PLS-SEM and 234 respondents data were collected from online survey. Finding shows that perceived credibility and perceived usefulness has a positive effect towards attitude, but information quality no significant effect towards attitude. FoMO has a positive effect towards purchase intention and subjective norms, but has no significant effect towards attitude and perceived behavioral control. Attitude, subjective norms, and perceived behavioral control has shown to have positive effect towards purchase intention. The study suggests that marketers should try to develop FoMO inducing strategy and encourage the creation of user generated content as it may lead to purchase intention.

Keywords— Fear of Missing Out; Gacha Games; Purchase Intention; Theory of Planned Behavior; User Generated Content.

I. INTRODUCTION

The video game industry is one of the largest entertainment industries in the world. According to data from Newzoo (2021), the market value for video games globally in 2021 is 175.8 billion USD and is expected to continue to grow to 218.7 billion USD in 2024. The same data also shows that video games have total players of 3 billion people worldwide in the year 2021 and 1.5 billion players are in the Asia Pacific region. Of the various types of video games platforms, the most popular is mobile games. According to data from Newzoo (2021), mobile games has the highest market in 2021, which was USD 79 billion, compared to other platforms such as consoles, PCs, and tablets. One of the reason why mobile games are more popular compared to other platforms is because mobile game has factors such as convenience, portability, and lower price (Bose & Yang, 2011). Indonesia itself covers 43% of the total game players in Southeast Asia and a constantly increasing smartphone penetration, with an estimated 89.2% of Indonesians are anticipated to own a smartphone by 2025 (Cekindo, 2021).

The mobile game business model can generally be divided into six categories; free, freemium, in-app purchase, in-app advertising, and combination model. Among these business model, the freemium or free-to-play (F2P) model is the most widely used and most successful (Baghbaniyazdi & Ferdosara, 2017). An analysis was conducted on the Apple App Store and showed that the majority of the apps on the App Store uses the freemium model (Brockmann, Stieglitz, & Cvetkovic, 2015). One system that adopts the freemium or F2P model are gacha games, which are games originating from Japan that have a loot box system as their monetization system and has been widely implemented by game developers worldwide. In the gacha system, players cannot directly purchase items through in-app payments, but they must participate in a raffle (gacha) to gain access or a chance to win the item (Yamakami, 2012). Gacha systems are very popular and widely implemented in mobile games in Asia with games such as Genshin Impact, Uma Musume, Fate Grand Order, and many more.

Fear of missing out or FoMO is a phenomenon where a person feels an emotional response in the form of missing out an experience. FoMO is the fear an individual feels from missing out on an experience that can enhance or maintain her/his self-concept (Zhang et al., 2020). An example of this phenomenon is that a consumer who self-identifies as a fan of a band will feel FoMO when there is a limited edition of a new recording by the band or the opportunity to see them perform in person (Zhang et al., 2020). Likewise in the context of mobile gaming, a FoMO situation is when there is a newly released in-game products like characters, skins, weapons, or other items that they play but haven't own yet. If the player thinks that the item will enhance their self-concept, they will feel FoMO.

On social media platforms such as Youtube, Twitter, Facebook, Discord or other social media, there are many user generated content (UGC) created by users who discuss games. UGC is defined as any form of content such as blogs, wikis, discussion forums, posts, chats, tweets, podcasting, pins, digital images, videos, audio files, and other forms of media created by users of an online system or service, often available through social media sites (Moens et al., 2014). These user-generated content contained information such as gameplay, in-game storylines, other discussions related to the game, as well as reviews or guides on how to use the characters, weapons, or other related in-game items. Perceived credibility, perceived benefit/usefulness, brand engagement, and information quality in UGC has shown to affect a person's attitude, which in turn has a significant effect on purchase intention (Mathur et al., 2021).

The Theory of Planned Behavior (TPB) is a theory that are widely used by academics to explain and predict behavior in a multitude of behavioral domains. According to TPB, behavioral intention are determined by attitude towards the behavior, perceived behavioral control, and subjective norms concerning the behavior (Ajzen, 2020). Using the theory of planned behavior framework, this research aims to analyze the effect of perceived credibility, perceived usefulness, and information quality of UGC towards attitude regarding in-game purchase. The study will also analyze the effect of fear of missing out towards the TPB constructs and purchase intention of in-game products. TPB framework has been used to analyze consumer behaviors in context of green products (Maichum et al., 2016; Choi & Johnson, 2019), luxury goods (Jain, 2020; Zhang et al., 2020) , and online shopping (Su & Huang, 2011; Ketabi et al., 2014), to name a few, although there is still a gap in context of in-game purchase. Previous FoMO studies address its effect towards purchase intention in context of masstige brand apparel purchase (Saavedra & Bautista, 2020) and the effect of FoMO towards purchase likelihood (Good & Hyman, 2020), however there are still a lot of gaps that can be addressed in different context. The objective of this research is to analyze the effect of perceived credibility, perceived usefulness, and information quality of UGC towards attitude and analyze the effect of FoMO towards the constructs of TPB and purchase intention.

II. Literature Review

A. Gacha Games

Gacha games are games originating from Japan that have a loot box system as monetization. In this game, players cannot directly purchase items via in-app payments but must participate in sweepstakes to gain access to a chance to win one of them (Yamakami, 2012). Like the free to play model in general, gacha games can be played for free, however, rare and/or valuable game items can also be obtained through monetary purchases of online gacha products (Shibuya & Teramoto, 2015). Some examples of gacha games includes Genshin Impact, Fate Grand Order, Arknights, Fire Emblem Heroes, Azur Lane, and many others. The system they use is that players can buy in-game currency using their money, where with that currency they can get the opportunity to get characters, weapons, or other virtual items.

B. Theory of Planned Behavior

The theory of planned behavior (TPB) is a development of the theory of reasoned action (TRA) developed by Ajzen (1991). This theory is one of the popular theories that has been used in many fields of research to see why a behavior is carried out or why a technological innovation is adopted. In TRA, subjective attitudes and norms are the factors that determine a person's intention to perform a behavior. However, this TRA has limitations in dealing with individual voluntary behavior or voluntary behavior. With that, TPB was developed to increase the effectiveness of the model by adding a perceived behavioral control construct, the purpose of which is to see the individual's perception of his own beliefs and abilities to participate in the behavior carried out. So with that, TPB has 3 independent variables. The first is attitude, where a person judges a behavior as positive or negative. Then the second is subjective norms, which are the influence of the individual's environment on a behavior. And the third is perceived behavioral control, as previously explained. When an individual has a positive attitude, subjective norms, perceived behavioral control, behavioral intentions, the individual is more likely to perform that behavior (Ajzen, 1991).

C. User Generated Content

User Generated Content or UGC includes all content in the form of images, text, audio, or video created by users (users) about a product, service, or experience they get uploaded on social media. According to Moens et al. (2014), UGC denotes all forms of content such as blogs, wikis, discussion forums, posts, chats, tweets, podcasting, pins, digital images, videos, audio files, and other forms of media created by users of an online system or service, often times available via social media sites. Wunsch-Vincent & Vickery (2007) states that UGC is content that is publicly available on the internet, content that reflects a creative endeavor, and conflicts that arise outside of professional routines and practices. According to Stoeckl et al. (2007), there are several requirements for online information to be categorized as UGC, namely information about products/services must be submitted by the user,

the person's motivation to write a review is not based on financial motivation, and the information provided must be publicly available.

D. Perceived Credibility, Perceived Usefulness, and Information quality of UGC

Perceived credibility is defined as the level of consumer confidence about the credibility of information for their purchases (Yuksel, 2016). Perceived credibility is a dimension of trust that influences message adoption either positively or negatively and can change consumer attitudes (Bouhlel et al., 2010). Credibility is an important factor in someone making a decision. Consumers believe that the feedback given by a user about a product or service is more reliable than the content provided by the seller (Jonas, 2010). Mir & Zaheer (2012), Yuksel (2016), Demba (2016), and Mathur et al. (2021) on their research shows that perceived credibility has an effect towards *attitude* in the context of UGC.

According to Davis (1989), perceived usefulness is defined as a consumer's belief that the use of a system will improve their performance. In the context of UGC, perceived usefulness is defined as consumers' perception that watching YouTube videos will improve their purchasing performance (Yuksel, 2016). In the context of information, perceived usefulness by definition is the perceived usefulness of information from a website as a belief that the information will increase efficiency in obtaining product information (Pavlou & Fygenson, 2006). Bouhlel et al. (2010) who conducted research related to blogs said that perceived usefulness is related to advantages in using blogs, and this advantage can prevent wasting time and access additional information and different perspectives about the product. Previous studies has shown that perceived usefulness in context of UGC positively affect attitude (Mir & Rehman, 2013; Yuksel, 2016; Mathur et al., 2021).

Information quality is defined as how much information available about the attributes of a product, brand or company is useful to customers, and what helps them evaluate the object (Gao et al., 2012). Muda & Khan (2020) defines information quality as a consumer's evaluation of a product or service from information available online such as accuracy, format, and completeness. Previous studies has shown that information quality positively affect attitude (Demba, 2016; Muda & Khan, 2020; Mathur et al., 2021).

E. Fear of Missing Out

Fear of Missing Out or FoMO is defined as a condition where a person experiences a fear of losing or missing an experience that can help the individual maintain or improve his personal or social self. FoMO results in a feeling where missing out on something will make a person feel left behind, personally and socially (Zhang et al., 2020). FoMO is often used commercially to stimulate demand for products targeted at young people and adults such as beer, clothing, feminine hygiene products, and real estate for young people (Hodkinson, 2016).

FoMO can lead to lower life satisfaction, increased detachment from friends or family, increased feelings of loneliness, increased unfair judgment of others, paranoia, jealousy, and decreased concentration (Hogan, 2015). FoMO can be associated with feeling absent from desired experiences, or having a desire to stay connected to what others are doing. This shows that people who feel FoMO feel the negative impact on their psyche. FoMO arises when a person chooses between an existing option and an uncertain potential option. The belief that an experience will be beneficial and relevant is one of the conditions for the emergence of FoMO (Good & Hyman, 2020).

Zhang et al. (2020) divide FoMO into two dimensions; personal FoMO and social FoMO. Personal FoMO relates to the private self, which by definition refers to a person's evaluation of one's own thoughts, feelings, behavior, or appearance (Fenigstein, Scheier, & Buss, 1975). Meanwhile, social FoMO relates to the public self, namely how someone believes how others perceive themselves (Fenigstein et al., 1975). FoMO is a feeling of fear of potential negative consequences when not taking advantage of the opportunities that exist (Zhang et al., 2020). Previous studies has shown that FoMO affect purchase intent (Saavedra & Bautista, 2020) and purchase likelihood (Good & Hyman, 2020).

F. Research Hypothesis

The main framework of this research is based on the Theory of Planned Behavior (TPB) model from Ajzen (1991). In this model, the construct of subjective norms, attitude, and perceived behavioral control are antecedents of intention. In the context of purchasing, several examples of previous studies using TPB includes internet purchasing (George, 2004; Sentosa & Mat, 2012), food purchases (Irianto, 2015), online shopping (Ming-Shen et al., 2007; Wu & Song, 2021). Therefore, based on the literature review, this research made the following hypothesis:

H1 : Perceived credibility of UGC information has a positive effect on attitude towards purchase

H2 : Perceived usefulness of UGC information has a positive effect on attitude towards purchase

H3 : Information quality of UGC has a positive effect on attitude towards purchase

H4 : Subjective norms have a positive effect on purchase intention

H5 : Attitude towards purchase has a positive effect on purchase intention

H6 : Perceived behavioral control has a positive effect on purchase intention

H7 : Fear of Missing Out has a positive effect on subjective norms

H8 : Fear of Missing Out has a positive effect on attitude towards purchase

H9 : Fear of Missing Out has a positive effect on perceived behavioral control

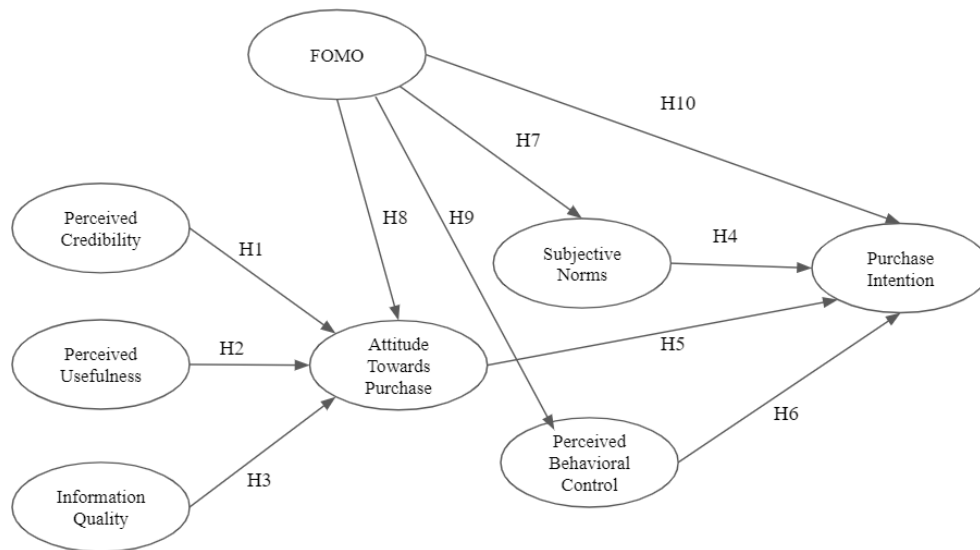**H10**: Fear of Missing Out has a positive effect on purchase intention

Fig. 1. Research Model

III. RESEARCH METHODOLOGY

This research was conducted using quantitative methods by analyzing questionnaires distributed to gacha game players in Indonesia who consume UGC on social media or the internet. The measurement items that will be used for this research is a questionnaire whose research subjects will be changed according to the research objectives. Perceived credibility of UGC information will use instruments from Mathur et al (2021) & Freeman & Spyridakis (2004). Perceived usefulness of UGC information variable will use instruments from Bouhlel et al. (2010), Davis (1989), Mir & Rehman (2013), and Venkatesh & David (2000). Information quality of UGC uses instruments from Yang et al. (2005) from Kim & Johnson (2016). FoMO using instruments from Zhang et al. (2020). Attitude towards purchase using instruments from Saavedra & Bautista (2020). Subjective norms using instruments from George (2004) and Maichum et al. (2016). Perceived behavioral control using instruments from George (2004). Purchase intention using instruments from Hsu & Tsou (2011) and Saxena (2011).

This study will use a Likert scale from 1 to 6 in the questionnaire. Scale 1 indicates that the respondent strongly disagrees and a scale of 6 indicates that the respondent strongly agrees with the questions given. The even scale is used to avoid the error of central tendency (Cooper & Schindler, 2014). The question is divided into 3 parts, the first is to fill out the questions regarding their behavior in context of gaming and UGC. They will also be given a visual explanation regarding UGC related to gacha games. The function of the visual is to explain to the respondents some examples of UGC found on the internet. The second part is the main research questions and the third part is the respondents' demography. This research is designed to be conducted on the target population of mobile gacha game players in Indonesia.

The sample used in this study is a sample obtained from people who play gacha games. According to Jöreskog & Sörbom (1993), the number of respondents required is five to ten respondents for each indicator used in the measurement. This study has 37 indicators so that the number of respondents for this study is 185 to 370 respondents. The sample selection method for this research is done through non-probability sampling, by means of purposive sampling. Purposive sampling is one of the non-probability sampling methods where the subjects selected for research are in accordance with the criteria that the researcher wants to study (Cooper & Schindler, 2014). The type of survey used is a self-administered survey where respondents will fill out survey questionnaires independently which will be distributed online via google form. If there are respondents who have incomplete answers or do not fully answer the questions, then the date will not be used for further analysis. Financial incentives will be given to some lucky respondents in order to increase their interest in answering the survey.

The data obtained will be analyzed using the partial least-squared method - structural equation modeling (PLS–SEM) using SmartPLS software. The PLS-SEM method was chosen because it can be used in the analysis of complex models such as many constructs and indicators (Hair et al., 2017). With the presence of higher order construct, PLS-SEM can be used when there is a formative construct (Hair et al., 2017). The first step in PLS-SEM is to evaluate measurement model. To test the reliability of the research instrument, composite reliability and Cronbach's alpha will be used while for validity testing, average variance extracted (AVE) and discriminant validity will be used. After getting the measurement model result, the structural model are evaluated by measuring the significance and relevance of the relationship between variables, measuring the level of R^2, and measuring the predictive relevance of Q^2 (Hair et al., 2017).

The FoMO variable (Zhang et al., 2020) is considered a higher order construct (HOC), where there are two dimensions, namely Personal FoMO and Social FoMO as the lower order construct (LOC). This construct is included in the reflective-formative category. According to Sarstedt et al. (2019), when there is a HOC, researchers can use a two-stage approach when analyzing the data. There are two types of two-stage approach, namely the embedded two-stage approach and the disjoint two-stage approach, but the differences in the results of these two types of analysis are very similar so that no one is superior (Sarstedt et al., 2019). In this study, a disjoint two-stage approach will be used. In the process, the first disjoint two-stage approach is to get the latent variable score from LOC; in this study, namely Personal FoMO and Social FoMO. After that, the latent variable is used to measure HOC; in this study, namely FoMO.

IV. RESULT / FINDING

A. Participants' Data

There are a total of 234 respondents who participated in this research. 172 participants (73.5%) are men compared to only 62 (26.5%) women. 118 participants (50.4%) fall into the age range of 26-33 years old, the majority reside in Jabodetabek with 164 participants (70.1%), for education level Bachelor's Degree is the most with 109 participants (46.6%) followed by High School with 98 participants (41.9%), and for monthly income the most are in IDR 1,000,001 – IDR 5,000,000 range with 86 participants (36.8%). The detailed participants' data can be seen in Table 2 below.

Table 2. Participants Demography

Characteristics (n=234)	Number	%
Gender		
Man	172	73.5%
Woman	62	26.5%
Age		
<18	58	24.8%
18-25	118	50.4%
26-35	54	23.1%
36>	4	1.7%
Residence		
Jabodetabek	164	70.1%
Outside Jabodetabek	70	29.9%
Education		
SMP	4	1.7%

	Number	%
SMA	98	41.9%
D3	20	8.5%
S1	109	46.6%
S2	3	1.3%
Monthly Income		
<IDR 500.000	57	24.4%
IDR 500.000 – IDR 1.000.000	56	23.9%
IDR 1.000.001 – IDR 5.000.000	86	36.8%
IDR 5.000.001 – IDR 10.000.000	30	12.8%
>IDR 10.000.000	5	2.1%

From the behavior data, 87 participants (37.2%) play gacha games around 1-2 hours daily and only 13 participants (5.6%) play less than 30 minutes daily. The majority of the participants have done an in-game purchase with 217 participants (92.7%) and only 17 participants (7.3%) have never purchased in game products. 110 participants (47%) consume UGC about gacha games less than 2 times per week and only 21 participants (9%) see UGC about gacha games every day. The most played gacha games are Genshin Impact where 142 respondents claimed to play and the most commonly used platform for UGC is YouTube with 184 respondents claim to use it. The behavior data can be seen in Table 3 below.

Table 3. Participants' Behavior

Behaviour	Number	%
Play duration per day		
< 30 minutes	13	5.6%
30 minutes - 1 hour	74	31.6%
1 hour - 2 hours	87	37.2%
> 2 hours	60	25.6%
In game purchase history		
No	17	7.3%
Yes	217	92.7%
UGC consumption per week		
< 2 times per week	110	47.0%
3 - 5 times per week	73	31.2%
> 5 times per week	30	12.8%
Everyday	21	9.0%
Games Played (multiple choice)		
Arknights	72	
Azur Lane	65	
Blue Archive	68	
Fate/Grand Order	51	
Genshin Impact	142	

Behaviour	Number	%
Others	148	
Social Media used for UGC (multiple choice)		
Discord	58	
Facebook	54	
Instagram	92	
Twitter	89	
Youtube	184	
Others	21	

B. Measurement Test

After getting the main test data, the first step is to see the measurement data. From the table of validity and reliability shown at Table 4, it can be seen that all of instruments have a Cronbach's alpha and composite reliability value above 0.7 which means that the instrument is reliable. For validity, in the average variance extracted value, all the instruments have values above 0.5 which means that the instrument is valid. All outer loading value shows above 0.7, except PU.1 with 0.677, however since the Cronbach's alpha, composite reliability, and AVE shows good numbers means that overall there is no problem with the indicators.

Table 4. Measurement Test Result

Construct	L	Cronbach's	CR	AVE
Perceived Credibility (Mathur et al, 2021; Freeman & Spyridakis, 2004)				
I think that the product information given in UGC is credible	.837			
I think that the product information given in UGC is trustworthy	.813			
I think that the product information given in UGC is accurate	.801	0.838	0.885	0.608
I think that the product information given in UGC is unbiased	.722			
I think that the product information given in UGC is expert	.717			
Perceived Usefulness (Davis, 1989; Venkatesh & David, 2000; Bouhlel et al., 2010; Mir & Rehman, 2013)				
I think that the product information given in UGC makes my purchase easier	.677			
I think that the product information given in UGC provides useful information for my purchase	.866			
I think that the product information given in UGC is valuable for my purchase	.863	0.88	0.91	0.63
I think that the product information given in UGC provides a convenient source for my purchase	.813	1		
I think that the product information given in UGC makes my purchase more effective	.764			
I think that the product information given in UGC makes my purchase more efficient	.763			
Information quality (Yang et al. 2005; Kim & Johnson, 2016)				
The information contained in UGC is relevant	.866	0.817	0.891	0.731

Construct	L	Cronbach's	CR	AVE
The information contained in UGC is up to date	.875			
The information contained in UGC provides valuable tips about the product	.823			
Fear of Missing Out (Zhang et al., 2020)				
Personal FoMO				
I feel anxious if I do not experience in-game products	.909			
I believe I am falling behind other people when I miss in-game products	.897			
I believe I am falling behind compared with others when I miss in-game products	.869	0.933	0.949	0.78
I feel sad if I am not capable of getting in-game products due to constraints of other things	.871			
I feel regretful of missing in-game products	.889			
Social FoMO				
I think my social groups view me as unimportant when I miss in-game products	.908			
I think I do not fit in social groups when I miss in-game products	.943	0.952	0.965	0.87
I think I am excluded by my social groups when I miss in-game products	.948			
I feel ignored or forgotten by my social groups when I miss in-game products	.940			
Attitude (Saavedra & Bautista, 2020)				
In my opinion, purchasing in-game product is…				
Good-bad	.823			
Pleasant–unpleasant.	.847	0.846	0.896	0.68
Rewarding – unrewarding.	.858			
Beneficial–harmful.	.776			
Subjective Norms (George, 2004; Maichium et al., 2016)				
My close friends think I should purchase in-game products	.795			
People who are important to me thinks I should purchase in-game products	.830	0.778	0.871	0.69
People who influence my behavior thinks I should purchase in-game products	.868			
Perceived Behavioral Control (George, 2004)				
I am capable of purchasing in-game products	.858			
Purchasing in-game products is entirely within my control	.830	0.792	0.874	0.69
I have the resource, knowledge, and capability to purchase in-game products	.819			
Purchase Intention (Hsu & Tsou, 2011; Saxena, 2011)				
I would consider purchasing in-game products in the future	.879			
It is likely that I shall actually purchase in-game products in the near future.	.879	0.902	0.932	0.77
I intend to purchase in-game products.	.880			

Construct	L	(bach's	Cron	CR	E	AV
I intend to consider in-game products in my future purchases.	.879	(				

For the discriminant validity of the research instrument, it can be seen using the fornell-larcker criterion. In this analysis, the correlation of numbers in other variables cannot be higher than the numbers in the same variable. From the results of data processing, it can be seen the discriminant validity in Table 5 below.

Table 5. Fornell-larcker criterion

	ATT	IQ	PBC	PC	PFOMO	PI	PU	SFOMO	SN
ATT	0.827								
IQ	0.166	0.887							
PBC	0.054	0.548	0.935						
PC	0.283	0.148	0.176	0.855					
PFOMO	0.189	0.001	0.114	0.234	0.836				
PI	0.479	0.174	0.140	0.617	0.261	0.78			
PU	0.439	0.292	0.322	0.165	0.240	0.343	0.879		
SFOMO	0.351	-0.030	0.086	0.593	0.220	0.564	0.262	0.794	
SN	0.077	0.118	0.154	0.04	0.199	0.101	0.269	0.033	0.832

From the fornell-larcker criterion table above, it can be seen and concluded that all variables are valid, where all variables have the highest correlation value when tested with their own variables. This shows that these variables are not related to each other or are not found to be correlated with each other.

After getting the validity and reliability of the research instrument, the validity of the higher order construct (HOC) in this study will be analyzed, namely the FoMO variable. In Zhang et al's (2020) research, FoMO is divided into two lower order construct (LOC) dimensions, namely Personal FoMO and Social FoMO. To see the HOC validity number, some things to pay attention to are outer weights, outer loadings, and VIF. From the results of the analysis, it was found that the outer loadings were greater than 0.5 and the VIF results showed a number below 5. Thus, the validity of the higher order construct FoMO is established.

Table 6. Higher Order Construct Validity

HOC	LOC	Outer Weights	Outer Loadings	VIF
FoMO	PFoMO	0.485	0.843	1.441
	SFoMO	0.646	0.915	1.441

C. Structural Test

After the measurement test is done, the structural model is assessed. The result of the hypothesis testing can be seen in Table 7 below.

Table 7. Hypothesis Test

	Hypothesis	Path Coeff	P Values	Result
H1	Perceived Credibility -> Attitude	0.438	0.000	Accepted
H2	Perceived Usefulness -> Attitude	0.154	0.023	Accepted

H3	Information quality -> Attitude	0.088	0.119	Rejected
H4	Subjective Norms -> Purchase Intention	0.175	0.001	Accepted
H5	Attitude -> Purchase Intention	0.373	0.000	Accepted
H6	Perceived Behavioral Control -> Purchase Intention	0.118	0.013	Accepted
H7	FOMO -> Subjective Norms	0.156	0.022	Accepted
H8	FOMO -> Attitude	0.046	0.272	Rejected
H9	FOMO -> Perceived Behavioral Control	0.073	0.204	Rejected
H10	FOMO -> Purchase Intention	0.271	0.000	Accepted

From the result of hypothesis testing, it is shown that 7 hypothesis were accepted and 3 hypothesis were rejected. There were significant effects for perceived credibility and perceived usefulness of UGC information on attitude as predicted, however there is no significant effect for information quality on attitude. Subjective norms, perceived behavioral control, and attitude were shown to have a significant effect towards purchase intention. FoMO is shown to have a significant effect towards subjective norms and purchase intention, but it has no significant effect towards attitude and perceived behavioral control. The illustration can be seen in Figure 2 below.
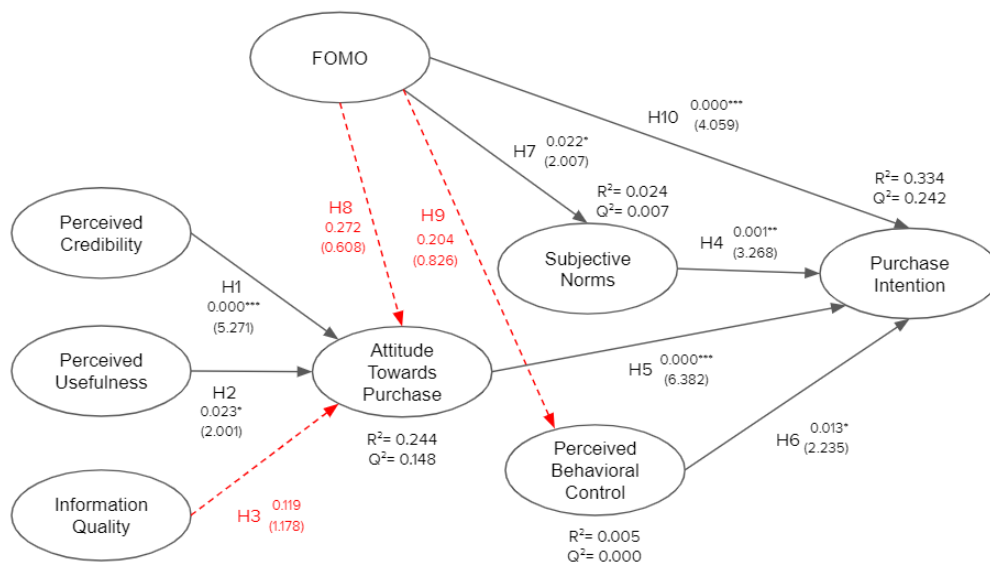

Fig. 2. Summary of the Structural Test Result

R^2 data is used to see the coefficient determinant of the model. In consumer behavior studies, the R^2 value of 0.2 is considered high (Hair et al., 2017). Result shows that attitude and purchase intention has a high predictive relevance with R^2 value of 0.244 and 0.334 respectively. However, perceived behavioral control and subjective norms has a value of lower than 0.2. This is reasonable because FoMO is the only exogenous variable and it is not enough to describe the variants of the two endogenous variable. Blindfolding procedure is done to see the predictive relevance of the model. A Q^2 value above 0 indicates that the model has predictive relevance (Hair et al., 2017). The result of the test shows that attitude, subjective Norms, and purchase intention has a Q^2 of above 0, which indicates there is a predictive relevance. However, perceived behavioral control has a Q2 value of 0, which means that the variable has no predicative relevance. The result of both R2 and Q2 can be seen on Table 7 below.

Table 7. R^2 and Q^2 Result

	R^2	Q^2
Attitude	0.244	0.148
Perceived Behavioral Control	0.005	0.000
Subjective Norms	0.024	0.007

Purchase Intention	0.334	0.242

V. DISCUSSION

This study aims to see the effect of perceived credibility, perceived usefulness, and information quality of information contained in user generated content as well as the effect of fear of missing out towards purchase intention. The first result shows that perceived credibility of information in UGC positively affect attitude towards purchase. This is in line with previous studies by Mathur et al. (2021), Demba (2016), and Yuksel (2016) where in their studies shown that perceived credibility has a significant effect on attitude. This conclude that perceived credibility of information in UGC in context of gacha game players can affect their attitude towards purchasing.

Perceived usefulness is shown to positively affect attitude. This is in line with previous studies by Mathur et al. (2021) and Yuksel (2016) where perceived usefulness positively affect attitude. This conclude that perceived usefulness of information in UGC can affect gacha game players' attitude towards purchasing. Based on the data, information quality is shown to have no significant effect towards attitude. This is in contrast from previous studies where information quality is shown to have significant effect towards attitude (Mathur et al., 2021; Muda & Khan, 2020). This result shows that relevant, up-to date, and valuable information contained in UGC does not affect the attitude of gacha game players towards purchasing. Fanoberova & Kuczkowska (2016) found that in the context of electronic word of mouth, information quality does not affect attitude. This is due to consumers form their attitude based on the assessment of credibility rather than the information quality. When a consumer think that the source is credible, it is assumed that the credible source provides information of sufficient quality (Fanoberova & Kuczkowska, 2016).

The theory of planned behavior constructs is shown to positively affect purchase intention for mobile gacha game players. Attitude, subjective norms, and perceived behavioral control is found to positively affect purchase intention. For attitude, the result is in line with Mathur et al. (2020) where attitude affects online purchase intention. The effect of information contained in user generated content by other users makes consumers think positively about the purchase. Inspired by the responses obtained from user generated content, consumers are ready to try new products (Mathur et al., 2020). In a study by Bautista & Saavedra (2020), it was also found that attitude has an influence on purchase intention in masstige brand apparel. For subjective norms, it is also in line with previous studies. Gunawan & Huarng (2015) in their study found that subjective norms can affect purchase intention on social media. Jain (2020), conducted a study on luxury goods in India and showed that subjective norms have a significant impact on luxury purchase intention. When the people around gacha gamers are making in-game purchases, it will form a perception of making that purchase is a normal behavior. Perceived behavioral control has a significant effect towards purchase intention. This is due to the easiness of buying items in the game, which led to higher intention to buy for the players. The result is consistent with previous studies regarding the significant effect of perceived behavioral control on purchase intention (Saavedra & Bautista, 2020; Tan et al., 2017; Cho & Sagynov, 2015).

In context of assessing the effect of fear of missing out towards the construct of theory of planned behavior and purchase intention, results shows that FoMO positively affect subjective norms and purchase intention, but it doesn't have any significant effect towards attitude and perceived behavioral control. This is in line with previous study by Saavedra & Bautista (2020) where FoMO significantly affect subjective norms and intention, and does not have any significant effect towards perceived behavioral control. It is also in line with Good & Hyman (2020), where FoMO affect purchase likelihood.

Based on data, FoMO does not have a significant effect towards attitude which is in contrast with the previous result where FoMO does significantly affect attitude (Saavedra & Bautista, 2020; Bright & Logan, 2018; Neumann et al., 2021). An explanation for the reason of why FoMO does not significantly affect attitude is that in this research, the attitude studied is towards purchasing in-game product. In the context of gaming, the experience that players want is the experience of using in-game products such as characters, weapons, or cosmetics; not a purchasing experience. The purchasing process is just a way that players can use to get the experience they want in the game. As for the reason of why FoMO does not significantly affect perceived behavioral control is that purchasing in-game product is an easy task. Based on the participants' data also shown that 93% has purchased an in-game product. In theory, perceived behavioral control is an individual's perception of the ease or difficulty of performing a behavior (Ajzen, 1991). The in-game purchasing process can be very quickly done via a debit card, credit card, or even bank transfer. Coupled with the abundant of in-game currency purchasing services from third parties on the internet such as Codashop, Unipin, Digicodes, or other people who

provide these services on social media; it will be very easy for players to buy in-game products. Hence this is why FoMO does not have any effect towards perceived behavioral control.

VI. CONCLUSION AND RECOMMENDATION

Based on this research, it is shown that perceived credibility and perceived usefulness of information in user generated content may lead positively to the attitude of gacha game players towards purchasing, however, the information quality within the UGC does not. This research also shows that the construct of theory of planned behavior positively affect purchase intention in gacha games. FoMO felt by the players will affect purchase intention subjective norms, however it does not affect attitude or perceived behavioral control.

From this result, mobile game or game companies in general are expected to support or encourage their community of players to participate in the creation of UGC. Consumers tend to trust user-generated content more than producer-generated content (Cheong & Morrisson, 2008; MacKinnon 2012). This is because the evaluation in UGC tends to be based on the experiences of other users about the positive and negative aspects of a product (Park et al., 2007). Therefore, it is very important for game companies to support their players who makes UGC about games and also encourage other users to make UGC about their games. Some of the things that can be done are to offer in-game gifts or rewards to people who participate in creating UGC, these rewards may encourage players to create their own UGC regarding the game. The company can also promote UGC created by their players in the brand's social media to ensure that the UGC creators feels involved and get the sense of contribution to the game.

The influence of FoMO on purchase intention shows that marketers in mobile games companies can use or apply marketing strategies that can lead to FoMO for their players. According to Good & Hyman (2020), the belief that an experience will be beneficial and relevant is one of the necessary conditions for FoMO to occur. This suggests that in order for a player to experience FoMO, the in-game product being sold must be attractive or beneficial to the player so that they want to get it. The definition of beneficial in this context can vary, from the nature of the usefulness of the item to the player's gameplay, or from the player's interest based on other personal factors towards the item in the game. In nature, the gacha system that exist in the game is already FoMO inducing, however it may be boosted with a good marketing campaign.

This study has several limitation, the first is that it is only done with Indonesian population. Different demographics may give different result. This study is also only done in one specific point in time, a longitudinal approach may show a more realistic view about the players intentions and behavior. This study combines all genres of mobile games that have a gacha system. The existence of a monetization system and gameplay system that varies in each game can affect the attitude of players in purchasing goods in the game. Future research should focus on a specific gacha games, because each games has a different system (monetization pricing, gacha rates) and style of play, which may attracts different demography of players. The comparison between users who use UGC and those who does not in regards to making purchase decision will also be an interesting topic of research.

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Causality Analysis between Economic Growth and Labor Absorption in Bali Province 2002-2021

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Abstract
The purpose of this study was to determine the relationship between economic growth and employment. This study uses secondary data to be tested. The analytical method used in this research is Granger causality analysis with an estimator model. The results of causality analysis between economic growth and employment in the province of Bali for the period 2002-2021, using the lag 1 constraint, show that the effect of economic growth on employment is not significant, then $\beta j = 0$, and vice versa employment does not affect growth. economic or not significant, then $\beta j = 0$. So it can be concluded that economic growth does not affect labor and labor also does not affect economic growth so that the relationship between the two does not affect each other.

Keywords—Economic Growth (GDP); Employment; Granger Causality Test

I. INTRODUCTION

Economic growth is one of the important indicators used to measure the success of a country's development. Therefore, each country will strive to achieve optimal economic growth. According to BPS, economic growth is defined as the development of the production of services and goods in the economic area in a year at the value of the previous year by calculating referring to Gross Domestic Growth on Gross Regional Domestic Growth on the basis of Constant Prices. The purpose of economic development is to improve the welfare of the general public. In these several periods, Indonesia experienced a multidimensional phenomenon, namely a condition where limited employment opportunities led to uncontrolled unemployment problems (Seran, 2017). According to (Ishak, 2018) the increasing number of residents causes the number of the workforce, namely job seekers and workers. This can happen because both the government and the private sector have limitations in providing job opportunities. Economic growth will usually accompanied by a decrease in the unemployment rate. If economic growth is higher in an area, the unemployment rate will be lower and the higher the employment rate. (The pulpit and Yusuf, 2016). Bali is one of the regions that has an economic dependence on the tourism sector, so that during the period of restriction (PSBB) it has caused economic vulnerability in the province of Bali (Pujaningsih and Sucitawathi, 2020).

From the table presented above, can be conclude the development of economic growth in Bali Province during the last twenty years, namely 2002-2021, experienced fluctuations. In 2002 economic growth was 3.04% then in 2009 economic growth rose 9.87%. however, in 2020 and 2021 the economic growth of the Bali Province declined very rapidly, namely 9.33% and 2.47%, respectively. This is influenced by the policy of restricting mobility in line with the increasing number of Covid-19 cases in Bali Province, coupled with the emergence of a new variant of Omicron which hampers economic activity. Through the data above, it can be seen that the average economic growth of Bali Province during the years 2001-2021 was 4.64%.

Furthermore, the development of the workforce in Bali Province during the last twenty years is the same as economic growth which also experienced fluctuations. In 2002 the province of Bali absorbed a workforce of 1,777,909 people. But then in 2015 the absorption of labor experienced a very rapid decline, namely 1,055,844 people. The following year, the labor absorption rate still fluctuated until 2021, the absorption of labor reached 2,580,523. absorption of the workforce reduces unemployment.

Table 1. Data on Economic Growth and Labor Absorption in Bali Province 2002-2021

Year	Economic Growth (unit %)	Employment (in million people)
2002	3,04	1777909
2003	3,57	1910054
2004	4,62	1924805
2005	5,57	2002171
2006	5,28	1990476
2007	5,29	2059711
2008	9,57	2099278
2009	5,33	2123588
2010	5,83	2246149
2011	6,66	2224874
2012	6,69	2300705
2013	6,69	2283896
2014	6,73	2316758
2015	6,03	1055844
2016	6,33	2463039
2017	5,56	2434450
2018	6,31	2561518
2019	5,60	2508294
2020	-9,33	2567919
2021	-2,47	2580523
Average	4,60	2192318

Absorption of labor has a very important role in the field of national and regional development. According to altigen in (Santi, 2018). That the large population will have an impact on increasing the workforce. This means that there are also two possibilities in this situation, namely an increase in workers or an increase in unemployment. In order for the situation to be stable, the workforce must work according to their fields and competencies. This statement has an indirect consequence, namely the demand for the economy to be able to provide jobs for the new workforce.

Through the description above, the formulation of the research problem is how is the relationship between employment and economic growth of Bali Province in 2002-2021. The research objective was to set the direction of the relationship between employment and economic growth in Bali Province, 2002-2021.

II. Literature Review

A. Economic Growth

Economic growth is an activity that causes goods and services produced by the community to increase and increase community welfare. Economic growth can be seen by comparing past economic growth with the achievement of economic growth in other regions. An area can be said to experience rapid economic growth if from year to year it increases periodically. while the slowdown in the economic growth of a region if the economic growth from year to year fluctuates. Economic growth can be known by comparing GDP in a certain year with the previous year, with the following equation:

$$\text{Economic Growth} = \frac{\text{GDP}_t - \text{GDP}_{t-1}}{\text{GDP}_t} \times 100$$

The theory of economic growth is a theory that explains what factors affect the increase in output per capita in the long term as well as an explanation of how the factors of economic growth interact with each other so that economic growth occurs.

One of the supporting factors in human development that can be carried out continuously is econonmic growth. Each region is opened up by the government with the aim of generating economic income from each source of each region. The correlation between employment and economic growth is described by the Cob Douglas production function (Ghina et al., 2020). Increasing economic growth is marked by a accompanied by a declining unemployment rate, it means that the level of employment is also getting higher.

B. Employment

Based on Law Number 13 of 2003 Article 1 concerning Manpower, it is stated that the workforce is anyone who can complete his work properly and is carried out inside and also outside of the working relationship which aims to obtain services and goods so that the needs of the community are met. It is stated in Law Number 25 of 2007 concerning Manpower that in Indonesia the age limit is fixed for a person to work if he is 15 years old. The workforce is a combination of residents of the labor force and residents of the non-labor force, this means that labor is a combination of residents who are already working and residents who are still looking for work (Ima, 2018). Labor is part of the total population that can potentially produce goods and or services (Nindya and Iwayan, 2014). The workforce is divided into three groups, namely productive workers, less productive workers, and unemployed workers.

C. Demand for Labor

Demand for labor means demand by employers by employing workers with the aim of helping in a business to produce products in the form of goods and services which will then be sold and increase profits. The demand for labor is called devided demand, i.e. the increase in demand for labor will be adjusted to consumer demand in the demand for goods and services to be produced (Sri et al., 2021). According to Sholeh (2007) labor demand is a demand in the economic field which is defined as the maximum amount of goods and or services that have been in demand by consumers which will then be purchased at a certain price and period of time. The demand for labor and the demand for goods and or services are interrelated with each other, changes in the demand for labor are highly dependent on the demand for the number of goods and or services to be purchased by consumers. If the demand for goods and or services increases to be produced, the demand for labor will also increase for more production activities.

D. Labor Supply

The labor supply stage is a situation where a person has to make a decision to take the offer to work or not. Labor supply means an offer that makes someone consider the opportunity cost between the time that will be used to work and the wages that will be received will be comparable or not (Ima, 2018). According to Sumarsono (2003) the the supply of labor is the correlation of the wage level with the number of units of workers that have been approved by the company which will then be offered in the labor market.

E. Absorption of Labor

Absorption of labor can be interpreted as a collection of the number of workers that can be needed by a company (Feriyanto, 2014). The workers who will be absorbed are workers who have the ability and expertise who will later be employed by the company to produce products in the form of service and/or goods in large quantities. The absorption of labor in the economic field will affect productivity and national income (Ridwan, 2018). Published in the Central Bureau of Statistics (BPS). Labor absorption is the number of people working in all sectors of the economy, which is a condition of labor provided employment opportunities. Each sector has a different growth rate, this growth rate will affect the ability of each sector to absorb labor. This growth rate also

causes differences in labor productivity in each sector as well as changes in the absorption of the number of workers.
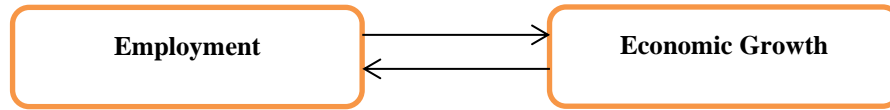
F. Conseptual Framework

Fig 1. Conseptual Framework

Hypothesis

H1 : Economic growth does not have a significant effect on employment of Bali Province in 2002-2021.

H2 : Employment does not have a significant effect on Economic Growth of Bali Province in 2002-2021.

G. Correlation of Economic Growth and Labor Absorption

In essence, economic growth is a mutually sustainable process between economic sectors, so that with the creation of economic growth, jobs will also be created and income distribution will eventually improve the standard of living of people. In every process of economic development that includes economic activity, one of which is to seek to optimize the use of economic factors, one of which is labor.

Economic growth is economic productivity in producing products in the form of goods and services for profit. Absorption of labor is the absorption of a number of workers needed by a company in producing goods and services in large quantities. According to research conducted by (Nurvira and Ichsan, 2021) employment does not have a significant effect on economic growth, and vice versa, also economic growth does not have a significant effect on employment in Indonesia. This is further strengthened by proprietary research (Iskandar, 2018) which states that there is no significant effect between economic growth, especially GRDP and employment in North Sumatra Province in 1986-2015.

H. Previous Research

Research conducted by Sri Maryati, Hefrizal Handra, and Irwan Muslim (2021), this method of this study uses multiple linear regression analysis. The results indicate that economic growth, especially GRDP and the Human Development Index (IPM) have an effect on employment in West Sumatra.

Furthermore, research conducted by Muhammad Sokian, Amri Amir, and Zamzami (2020), This research method uses path analysis. The results note that economic growth has no significant effect on employment. Economic growth also has a negative and significant effect on poverty.

Furthermore, the research conducted by Muhammad Hidayat and Nurlela (2018), This study uses the simultaneous equation regression method. The results indicate that simultaneously equation I, namely employment, shows that wages have a positive and significant effect on employment, education has a negative and significant effect on employment, economic growth has a negative and insignificant effect on employment. While the simultaneous equation II, namely economic growth, shows that wages have a negative and also insignificant correlation to economic growth, unemployment and investment have a positive and insignificant correlation to economic growth, labor has a positive and significant correlation to economic growth.

III. RESEARCH METHODOLOGY

The object in this research is the Economic Growth and Labor Absorption, while the research location chosen is the Province of Bali. The type of data used in this study is secondary data taken through the Central Statistics Agency (BPS) in 2002-2021. The variables used in this study are Economic Growth and Employment Absorption which are sourced from the Central Statistics Agency. The analysis used in this research is the Granger Causality Test with an estimator model with the following equation:

$$\Delta GDP_t \quad \sum_{i-1}^{m} ajGDP_{t-1} + \sum_{j=1}^{m} B_i EMP_{t-j} + \varepsilon_{1t}$$

$$\Delta EMP_t \quad \sum_{i=1}^{m} \lambda_i\, EMP_{t-i} + \sum_{j=1}^{m} \delta_i\, GDP_{t-j} + \varepsilon_{2t}$$

Which:

GDP   = Economic Growth

EMP   = Employment

m   = Number of Lag

ε_t = Erorr term

The Causality Test step includes the following stages:

a. Performing a stationary test, if both variables are stationary, the Granger causality test is immediately carried out, if one is not stationary then it must be stationary, then the Granger causality test is then carried out. If the two variables are not stationary, a cointegration test must be performed.
b. If the two variables are cointegrated, a Granger causality test can be performed, otherwise both variables must be transformed. With the transformed variable, return to step a.

A. *Population and Sample*
Population

The population of this study is all data on economic growth and labor in the province of Bali in 2002-2021.

Sample

The sample of this research is the annual data of economic and labor growth in Bali Province in 2002-2021 so that the total is 20 years.

B. *Operational Variable Definition*
Economic Growth

The data used in the economic growth on the growth rate of GDP at constant prices in the Province of Bali from 2002-2021 taken from the Central Statistics Agency (BPS) in the form of percent.

Employment

The labor data used in this study uses data on the number of people working in the Province of Bali with criteria aged 15 years and over according to their main employment status.

IV. RESULT / FINDING

A. *Level Stationarity Test*
The stationarity test was carried out to find out that the regression data did not cause spurious data (spurious regression). False data is a regression that shows the influence between variables looks statistically significant but in reality it is not significant. The method used to perform the stationarity test in this reserach is the Augmented Dickey Fuller (ADF) test. In the ADF test, if the t-ADF value is less than the McKinnon Critical Value, it can be said that the data is stationary. Stationarity testing was carried out at the level and first difference levels.

Table 2. Level Stationarity Test Results

Variable	Prob.	Description

GDP	0.8304	Not Stationary
Employment	0.025	Stationary

From the results of the analysis summarized in the table above, it can be seen that only the labor variable is based on the Augmented Dickey-Fuller test with a probability below 0.05 so that it can be declared stationary at the level level.

Table 3. First Difference Level Stationarity Test

Variable	Prob.	Description
GDP	0.009	Stationary
Employment	0.000	Stationary

From the results of the analysis summarized in the table above, it can be seen that all variables are based on the Augmented Dickey-Fuller test with a probability below 0.05 so that it can be declared stationary at the first difference level.

B. Optimum Lag Test

The test for the next stage is to determine the Optimum Lag. Determination of the optimal lag length utilizes some information using the optimum Akaike Information Criteria (AIC), Schwarz Information Criteria (SIC) and Human Quin Cirteris (HQ). The following is an image of the Optimum Lag determination table:

Table 4. Optimum Lag Test Results

Lag	LR	FPE	AIC	SC	HQ
0	NA	3,74E+26	66,86148	66,96086	66,87830
1	40,02612	4,69E+25	64,78090	65,07914	64,83137

The table above shows the determination of lag using various criteria. From the results in the table above, that the smallest Akaike Information Criteria AIC value is 64,780 at lag 1. Thus the optimum lag produced is 1 lag.

C. Cointegration Test

Cointegration testing is carried out to determine the long-term effect between variables, namely economic growth and employment where both variables have met the requirements of the integration process.

The cointegration test in the table above uses the Johansen test method, where the trace statistic value 0 (none) is 21.17 > critical value at 5%, which is 15.49. Thus, it can be stated that there are 2 cointegrations used in this study.

Table 5. Cointegration Test Result

Trace Statistice	Ctitical Value	Probability
21,17221	15,494791	0,0062
6,798481	3,841466	0,0091

D. *Granger Causality Test*

The causality test in this study was carried out by comparing the probability value with the real rate of 5%. If the probability value is less than 5%, it can be said that there is a causal relationship between variables. If the probability value is greater than the real level, then on the contrary, there is no causal relationship between variables. The results and causality testing can be seen in the image below:

Table 6. Granger Causality Test Result

Variable	Probability	Causality
GDP - Employment	0,9957	No correlation
Employment - GDP	0,8615	No correlation

The results of the Granger causality test show that the probability value of the variable economic growth and employment is greater than 0.05 so that economic growth does not affect the workforce. Labor also does not affect economic growth. The conclusion obtained from the Granger causality test is that the correlation between the two does not affect each other.

V. Discussion

A. *Bali Province Economic Growth*

Bali is one of the Indonesia provinces with a land area of about 5,780.06 km^2. Administratively, Bali Province is divided into eight districts and one municipality which includes; Buleleng, Tabanan, Jembrana, Karangasem, Bandung Regency, Bangli, Gianyar, Klungkung and Denpasar. The province of Bali consists of 80 sub-districts and 636 villages or sub-districts. The population of Bali Province based on the 2020 population census is 4,317,404 people.
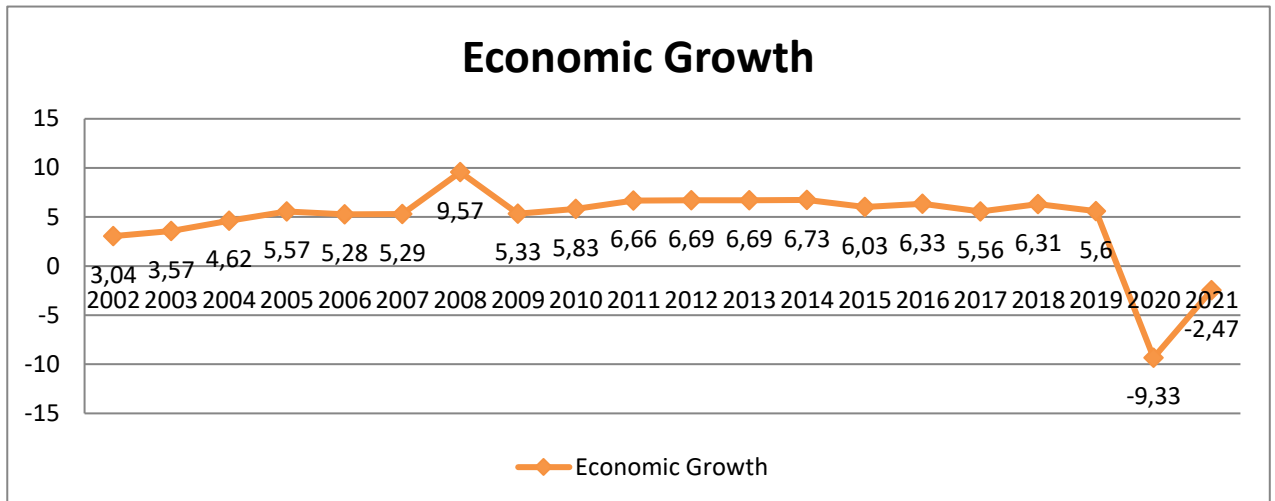
Economic Growth

Fig 2. Graph of Bali Province Economic Growth Rate in 2002-2021 (in percent)

The total economy of the Province of Bali as measured by Gross Regional Domestic Income on the basis of Constant Prices in 2010 was recorded at Rp. 143.87 Trillion, with this figure the economic growth in 2021 was recorded to have increased by 4.52 percent. However, if the accumulation of economic growth in Bali from quarter 1-2021 to quarter IV-2021, the Balinese economy recorded negative growth or contracted as deep as 2.47 percent. This is because the economic structure of Bali in 2021 is dominated by the category of providing accommodation and providing food and drink which contributes 16.66 percent.

B. Bali Province Employment Absorption

The workforce is people who are of working age. The workforce is grouped into two, namely the labor force and the non-labor force. The workforce is someone who has a job or is currently working. while the non-labor force are workers who are not working or are not looking for work, namely people who are in the school category (students), housekeepers, retired people, and dependent disabled people.
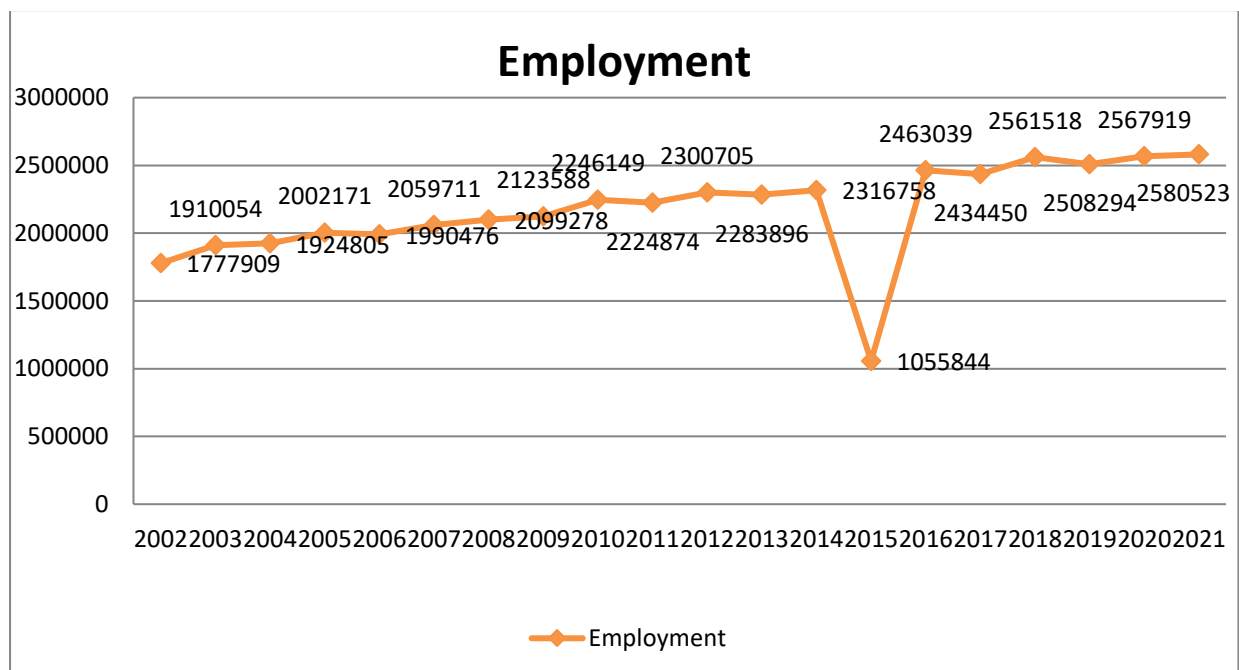
Employment

Fig 3. Graph of Labor Absorption of Bali Province in 2002-2021 (in million people)

Based on the picture above, it is known that from 2002-2021 the absorption of workers in the Province of Bali has increased every year. The increase in the workforce is accompanied by an increase in the population in the province of Bali. From the Central Statistics Agency, the population of Bali province in 2000 was 3,146,999 people, in 2020 reaching 4,317,404 people that the population growth of Bali Province is very fast.

Bali Province succeeded in reducing the unemployment rate in August 2021, which was 138.67 people compared to 139.14 thousand people in 2020, the activities of several businesses have been reopened, especially in the tourism sector which is the largest employment field in Bali Province. Labor absorption in the manufacturing sector increased to 88.95 people, labor absorption in agriculture increased to 25.23 people, and labor absorption in the trade sector also experienced an increase of 13.84 thousand people in productivity. Business fields in the agricultural sector have dominated the absorption of labor in the Province of Bali because the agricultural sector is an informal employment based on the field and level of education that is not too problematic. The agricultural sector absorbs the most labor from the total population of the workforce, which is 21.90%, followed by the trade and manufacturing sectors at 20.86% and 26.14%, then the akmamin sector with a share of 6.29% supported by tourism activities in Bali Province.

Granger causality test results show that the relationship between economic growth variables and employment shows a probability value of 0.9957 which means that this value is greater than the 0.05 level of significance, so it can be said that there is no correlations between economic growth (GRDP) also employment. work. Furthermore, the probability value of employment to economic growth is 0.8615, this value is greater than the 0.05 level of significance, so it can be said that there is no causal relationship between labor absorption and economic growth. Thus, it concluded that the two variables, namely economic growth and employment, do not have a causal relationship or the relationship between the two does not affect each other.

The results showed that there was no causal relationship between employment and economic growth. This is because labor is one of the supports in improving economic growth, where labor is influenced by productivity factors. Economic growth has no effect on the workforce in Bali Province due to the Covid-19 condition with periodic activity restrictions (PPKM) which causes human productivity activities to not run smoothly so that economic growth is hampered.

The results of this research support previous study from Nurvira and Ichsan (2021) which in their research states that employment does not have a significant effect on economic growth in Indonesia, and vice versa, and also economic growth does not have a significant effect on labor in Indonesia. This is because the workforce is influenced by several factors, namely age, education and a person's productivity so that if the workforce does not run productively, economic growth will not experience growth.

VI. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on research that has been done regarding the analysis of the causal relationship between economic growth and labor absorption in the Province of Bali in 2002-2021, which is from the Granger causality test, there is no two-way correlations between Economic Growth (GRDP) and Labor Absorption with a higher probability value of Labor ie (0.9957> 0.05), while the probability value of Economic Growth (GRDP) is greater (0.8615> 0.05).

This research was conducted in the period 2002-2021 inwhich in early 2019 there was a Covid-19 pandemic which caused many economic activities to be hampered. Economic growth fluctuated over a period of 2 years accompanied by fluctuations in the workforce.

B. Recommendation

From the result and the conclusions, there are several suggestions, namely:

a. The absorption of labor in the Province of Bali can be increased by increasing the number of business units and labor intensive in their respective fields so that the workforce will find employment, thereby increasing economic growth.

b. For the Bali Provincial Government, it is necessary to provide capital and financing to increase the number of productivity activities in the Bali Province so that both business units and labor intensive units are able to increase employment.

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Implementation of Digital Marketing Strategies in Vertex Studio

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Abstract

Many companies have used digital marketing to gain competitive advantage in their respective industries. But not every company has used digital marketing strategies effectively. This problem has been observed to mainly occur in small and medium enterprises (SMEs), especially in the construction industry. The purpose of this study is to analyze, plan, and implement effective digital marketing strategies on an Indonesian architecture firm called Vertex Studio. The method used for this study is business coaching. The primary data used in this research was gathered qualitatively from the business owner, the company's staff members, and the customers through interviews. The end goal of this study is to create brand awareness on Vertex Studio's architecture design services and to potentially increase revenues coming from said services. The solutions proposed fulfilled the objective and the business landed on new design projects after a period of one month after implementation. This research shows how using digital marketing strategies effectively can be beneficial for construction and design businesses.

Keywords—digital marketing; architecture; construction; Indonesia

11. 1. INTRODUCTION

As defined by Dave Chaffey, digital marketing is "achieving marketing objectives through applying media, data, and technology" (Chaffey & Ellis-Chadwick, 2019). Many big companies have used digital marketing as a tool to gain competitive advantage in their respective industries. But not only big companies, small and medium enterprises (SMEs) can also benefit from digital marketing. Regardless of their size, digital marketing has been proven to be an effective method to market a company's product or services (Jain, 2015).

SMEs from many industries have adopted and implemented digital marketing strategies. Even traditional industries like construction have used digital marketing to market their services. Small construction companies used digital means like social media and email blasting services to create brand awareness and get more projects for their businesses. But many construction SMEs are not using digital marketing effectively. This is usually due to the lack of environmental analysis and also insufficient funding and expertise to maintain and update their marketing objectives and strategies (Malesev & Cherry, 2021) (Danzen, 2022).

The aim of this study is to plan and implement an effective digital marketing strategy for a construction related SME called Vertex Studio. The method of the study will be in the form of business coaching. Current conditions of the company will be analyzed to formulate a solution that will be effective and also sustainable for the company to maintain. The proposed end result of this study is to create brand awareness on Vertex Studio's design services and increase the number of their design projects.

2. LITERATURE REVIEW

A. Stages of Service Consumption: The Prepurchase Stage

The prepurchase stage starts with the customer being aware of a need. This is called the need awareness point and it is triggered by need arousal. After the need has been identified, the customer will search for information regarding

the solutions for that need. Several service providers come into mind here which will be narrowed down into a consideration set of a few firms. After the consideration set has been made, the customer will evaluate the alternatives. This is the point where the customer will take into consideration the risks involved with choosing each alternative. Finally, the customer will make the decision to purchase from a specific service provider based on their previous evaluation. The customer will also have formed expectations on the quality of service that they will receive from the chosen provider (Wirtz J., 2022).

B. Brand Awareness and Brand Association

Good brand awareness and positive brand association plays an important role in the decision-making process in the prepurchase stage. Brand awareness is the foundation of all brand relationships. By definition, brand awareness is how aware are the customers about the firm's brand. Without brand awareness, the service providing firm will not be in one of the evoked set of brands in the customer's mind. This means that the brand will not be included into the consideration set and will not have the opportunity to get chosen by the customer. Brand association is when the customer has developed emotional, psychological, or performance associations with the brand. In other words, brand association is the brand's reputation to the customer. Having positive brand association to the customer will smoothen their decision-making process by reducing the perceived risk of choosing said brand. By choosing the brand that the customer has good association to, they will be more confident in getting the quality service that meets their expectations (Marshall, 2015).

C. Communication Process Model: Message and Channel

Communication is important in digital marketing to ensure that the customers receive the marketing information effectively. The message contains information that the sender is trying to convey. The content of the message must be structured and designed to fit the channel and the customers they are targeting. Choosing the right channels is also important to make sure that the receivers receive the sender's message. Channel is the path where information travels from the source to the receiver, and it can be personal and nonpersonal. Together with message, these two elements in the communication process can have a positive impact on the sender's brand awareness and association (Belch, 2018).

D. Digital Marketing Implementation: Social Media Marketing

Using social media as a marketing tool is an effective way to increase brand awareness (Bilgin, 2018). To effectively implement our digital marketing strategy using social media, it is important to be interactive to the customers. The brand must engage with the customers in social media and participate in conversations. The conversations can be related to many things including the brand's services, promotions, or providing the customers with support (Chaffey & Ellis-Chadwick, 2019). Bilgin's research shows that the most significant marketing activity that is valued by the customers in social media is content with customization and entertainment. Trendiness and interaction come with lesser significance to the customers. This means that in order to achieve better communication, the content that the company share to the customers must be interesting and entertaining, rather than being just trendy and promotion heavy (Bilgin, 2018).

III. RESEARCH METHODOLOGY

This study used business coaching as its research method with primary qualitative data gathered from the business owner. The data were then analyzed using analysis tools including business model canvas, internal and external analysis, and SWOT and TOWS analysis. The methods used for internal analysis were STP analysis (segmenting, targeting, positioning), VRIO analysis (valuable, rare, inimitable, organized), and marketing mix analysis. The methods used for external analysis were PESTEL analysis (political, economic, social, technological, environmental, law) and Porter's Five Forces analysis. Results from these analysis methods will be summarized into the gap analysis format and Pareto analysis to identify the source of the problem of the SME. A solution will then be derived in the form of a new business model canvas.

IV. RESULT/FINDING

A. *Business Model Canvas*

Fig 1. Business Model Canvas (Source: Author's Analysis, 2022)

Vertex Studio's business model canvas shows two issues that needs to be addressed. The first issue is in their customer relationships section where they have no used their company profile effectively to help with their personal selling. Vertex Studio's company profile only contains their portfolio of finished designs. The company profile does not include relevant information about the company that gives them any credibility. It also lacks and vision and mission statement and the results of their constructions projects. Together with the fact that they are a relatively new company, these lack of information impacts the perceived risks of the consumers negatively.

The second issue is that Vertex Studio does not have an online channel like a website to market their services. Vertex Studio has potential to get more projects if they have other channels rather than relying solely on word of mouth to promote their services. Vertex Studio already have an Instagram page, but their content is lacking and unstructured. They also are not actively using Instagram for promotional purposes.

B. *PESTEL Analysis*

PESTEL	Point	Impact
Political	Covid-19 national budget for healthcare facilities	Positive
Economic	Low interest rates during Covid-19 for loans	Positive
Social	Social media used to search product and services	Positive
Technological	3D designs being well received by the consumers	Positive
Environmental	Stricter permit requirement for projects	Negative
Legal	Construction is an essential sector during PPKM period	Positive

Fig 2. PESTEL Analysis (Source: Author's Analysis, 2022)

The results of the PESTEL analysis show that Vertex Studio has a gap in their social section. The social trends shows that consumers are using social media as means to fin information regarding companies that offer the services they need. Construction and architectural companies in Indonesia have used social media platforms like Instagram to market their services and portfolio. Vertex Studio's Instagram page can be developed better to be an effective marketing tool. Their inactive Instagram page contributes to the lack of brand awareness that the consumers have about Vertex Studio's design services.

C. *Porter's Five Forces Analysis*

No.	Porter's Five Forces	Analysis Results
1	Threats of New Entrants	Low
2	Threats of Substitutes	Low
3	Bargaining Power of Suppliers	Low
4	Bargaining Power of Buyers	High
5	Competitive Rivalry	Medium

Fig 3. Porter's Five Forces Analysis (Source: Author's Analysis, 2022)

Results from the Porter's Five Forces analysis show that Vertex Studio is in a moderate to high profitability industry. The high bargaining power of buyers causes Vertex Studio to keep prices low to get projects. But the winner of the project's bidding process is not always the cheapest company. This is because the buyers perceived value of that company's services is higher than the price they offered. That value can be in the form of the company's reputation, experience, and brand equity. To build Vertex Studio's brand, an effective marketing strategy is necessary especially in online channels that have a lot of users like Instagram.

D. *STP Analysis*

Geographic	Demographic	Behavioral
Consumers located in JABODETABEK area	• Adults aged 21 and above • Consumers with middle to high income	• Consumers that wants to build a house. • Consumers that needs a design for their house. • Consumers that needs a design for their house's interior.

Fig 4. STP Analysis (Source: Author's Analysis, 2022)

Their STP analysis shows that Vertex Studio can still developed their segmenting, targeting, and positioning strategies further. The market segment that they target can be expanded to include companies and individuals outside of the JABODETABEK area. Vertex Studio can use medias like Instagram and company profiles to increase the credibility of their design services and introduce new customers outside of the JABODETABEK area about their design services.

E. *Marketing Mix Analysis*

Marketing Mix	Impact
Product	Positive
Place	Positive
Promotion	Negative
Price	Positive

Fig 5. Marketing Mix Analysis (Source: Author's Analysis, 2022)

The marketing mix analysis shows a gap in their promotion section. Vertex Studio's lack of website causes new customers to not be able to use search engines like Google to get information about the company. Vertex Studio also do not have their relevant contact information like email, WhatsApp, or office phone number in their Instagram profiles. These factors cause Vertex Studio to have difficulties getting projects from new customers. Their promotion strategies can be reworked so that new customers can easily reach Vertex Studios for inquiries.

F. *VRIO Analysis*

	Valuable?	Rare?	Costly to Imitate?	Exploited by Organization?	Competitive Advantage
Reputation	Yes	Yes	Yes	No	Unused
Suppliers	Yes	Yes	No	No	Temporary
Design services	Yes	Yes	No	No	Temporary
Construction services	Yes	Yes	Yes	No	Unused

Fig 6. VRIO Analysis (Source: Author's Analysis, 2022)

The results from VRIO analysis shows that Vertex Studio has unused competitive advantage in their reputation and construction services section. Vertex Studio can use their company profile better to promote their design services. They can utilize the good reputation they have and the results of their construction services to add credibility to their design services. Other than in the company profile, Vertex Studio also has a gap where their designs are easy to imitate. Vertex Studio can solve this issue by training their workers to increase their skill so that they can create unique designs with traits that other companies cannot imitate.

G. SWOT and TOWS Matrix

Strength	Weakness
1. Experienced labor 2. Skills in modern design 3. Flexible designs 4. Affordable designs	1. No website 2. Instagram inactive 3. Incomplete company profile 4. No online ads
Opportunity	**Threat**
1. Market outside JABODETABEK area 2. Construction is an essential sector 3. More consumers using online channels to search	1. Competitors using Instagram for marketing 2. Competitors having functional websites 3. Competitors with more design portfolio

Figure 7. SWOT Analysis (Source: Author's Analysis, 2022)

The SWOT table above is derived from the results from previous analyses. To summarize, the strength of Vertex Studio comes from their experienced workforce and affordable designs. Vertex Studio's main weakness is their lack of marketing. Vertex Studio has an opportunity to expand to areas outside JABODETABEK. Finally, their threat comes from competitors with more portfolio and effective marketing strategies. From the SWOT table, the TOWS matrix is made to formulate solutions that can be implemented in Vertex Studio. Here is Vertex Studio's TOWS matrix:

SO Strategies	WO Strategies
1. Promote the company's skills and experience online using digital marketing strategies to get projects outside JABODETABEK area (S1, S2, S3, S4, O1, O3)	1. Set up website with relevant company information (W1, O3) 2. Use Instagram with ads to expand target market to outside JABODETABEK area (W2, W4, O1, O3) 3. Fix company profile to be more tidy and include more company information (W3, O3)

ST Strategies	WT Strategies
1. Use Instagram more actively to promote designs and other services (S1, S2, S3, S4, T1, T3) 2. Set up website to display the company's portfolio (S1, S2, S3, S4, T2)	1. Actively use Instagram for promotion (W2, T1) 2. Set up functional website (W1, T2) 3. Set up online ads for both website and Instagram (W4, T1, T2) 4. Regularly update portfolio for all channels (W1, W2, W3, T3)

Fig 8. TOWS Matrix (Source: Author's Analysis, 2022)

H. GAP Analysis

After the SWOT and TOWS matrix, a GAP analysis table is made to summarize the results of each analysis methods and the possible solutions for each of the issues found. Here is the GAP analysis for Vertex Studio:

Method	Current Condition	Ideal Condition	Gap	Solution
BMC	No website containing relevant company information	Tidy website for customers to search information	Website needed	Create website
	No active social media	Social media used actively for promotion	Need active social media	Promotions in Instagram
	Company profile lacks credibility information	Company profile has complete information	More information needs to be added into the company profile	Company profile revision
PESTEL	Brand is unknown	Brand is known by the customers	Need to build brand	Promotion in Instagram
Porter's Five Forces	Competitors using social media to compete	Social media can be used to compete	Active social media page can attract customers	Promotion in Instagram
STP	No projects outside JABODETABEK area	Projects outside JABODETABEK area	Need to attract customers outside JABODETABEK	Promotion in Instagram
Marketing Mix	No promotional ads	Using online channels for advertisement	Need online ads	Create online ads
	Difficulty finding information about the company	Company information can be easily searched with Google	Need website with good SEO	Create website
VRIO	Imitable design	Have designs unique to the company	Labor training to increase skills	Labor training

	Good reputation and construction services not used to promote their design services	Reputation and construction services used	Reputation and construction services needed in company profile	Company profile revision
SWOT	Company profile lacks work experience	Company profile can be used to show portfolio	Need to revise company profile	Company profile revision
	No website	Have functional website	Website creation	Create website
	Inactive Instagram	Instagram used for promotion	Promotion in Instagram	Promotion in Instagram
	No online ads	Set up online ads for online channels	Create online ads	Create online ads

Table 1. GAP Analysis (Source: Author's Analysis, 2022)

I.   *Pareto Analysis*

Problem	Weight (0-10)	Score (0-10)	Contribution	Distribution (%)
Inactive social media	8	9	72	26,5
Incomplete company profile	8	8	64	23,5
No online ads	8	8	64	23,5
No website	7	6	42	15,4
Designs not unique	5	6	30	11,0
Totals			272	100
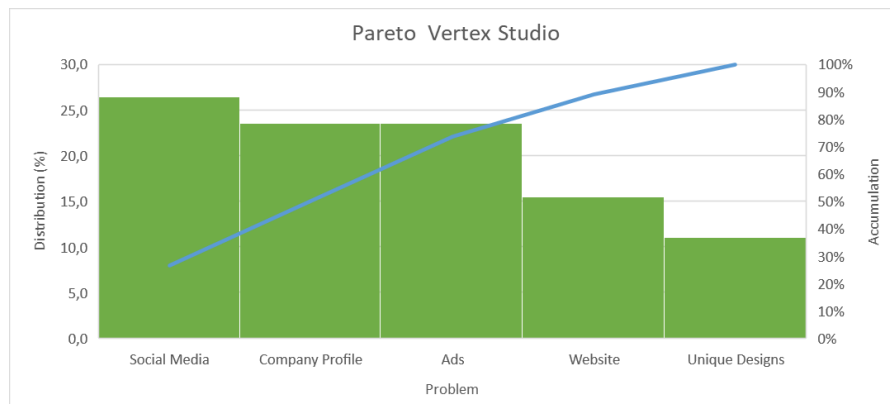
Fig 9. Pareto Analysis (Source: Author's Analysis, 2022)

From the issues found above, a pareto analysis is done to determine the priority for each problem. The weight of the problem is the level of difficulty and the score is the level of urgency to solve that issue. The weight is on a scale of 1 being the easiest to 10 being the hardest problem to solve. The score is on a scale of 1 being the least urgent to 10 being the most urgent problem that needs to be solved.

J.   *Proposed Business Model Canvas*

Fig 10. Proposed Business Model Canvas (Source: Author's Analysis, 2022)

The solutions for the problems in Vertex Studio are proposed in the form of a new business model canvas. For the customer relationships, company profile is added to introduce new customers to their design services. For their channels, Vertex Studio will use Instagram for promotion and also create a website so that they can be found in Google when the customers are searching.

V. RESULT/FINDING

A. *Stages Of Business Coaching*

After the problems inside Vertex Studio has been identified and proposed solutions have been approved by the business owner, next comes implementing those solutions into the company. Here is the timeline of the stages of business coaching implementation:

Activity	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22
Introduction to the company and business owner	■						
Data gathering through interviews and observations		■	■				
Problem identification and discussion			■				

	1	2	3	4	5	6	7	8
Solutions proposal and discussion			�					
Implementation: Company Profile Revision								
Evaluation on current company profile				▣				
Company profile revision				▣				
Revised company profile distribution					▣			
Implementation: Website Creation								
Discussion on website elements					▣			
Making new website (offline)					▣			
Publishing new website (online)						▣		
Setting up Google Ads							▣	
Implementation: Instagram Revamping								
Discussion on current Instagram page						▣		
New account creation and content posting						▣		
Setting up Google Ads							▣	
Evaluation and Maintenance								
Training to post marketing contents in Instagram						▣		
Training to edit new website						▣		
Training to use web analytic tools						▣		

Table 2. Stages of Business Coaching Implementation Timeline (Source: Author's Analysis, 2022)

B. Company Profile Revision Implementation
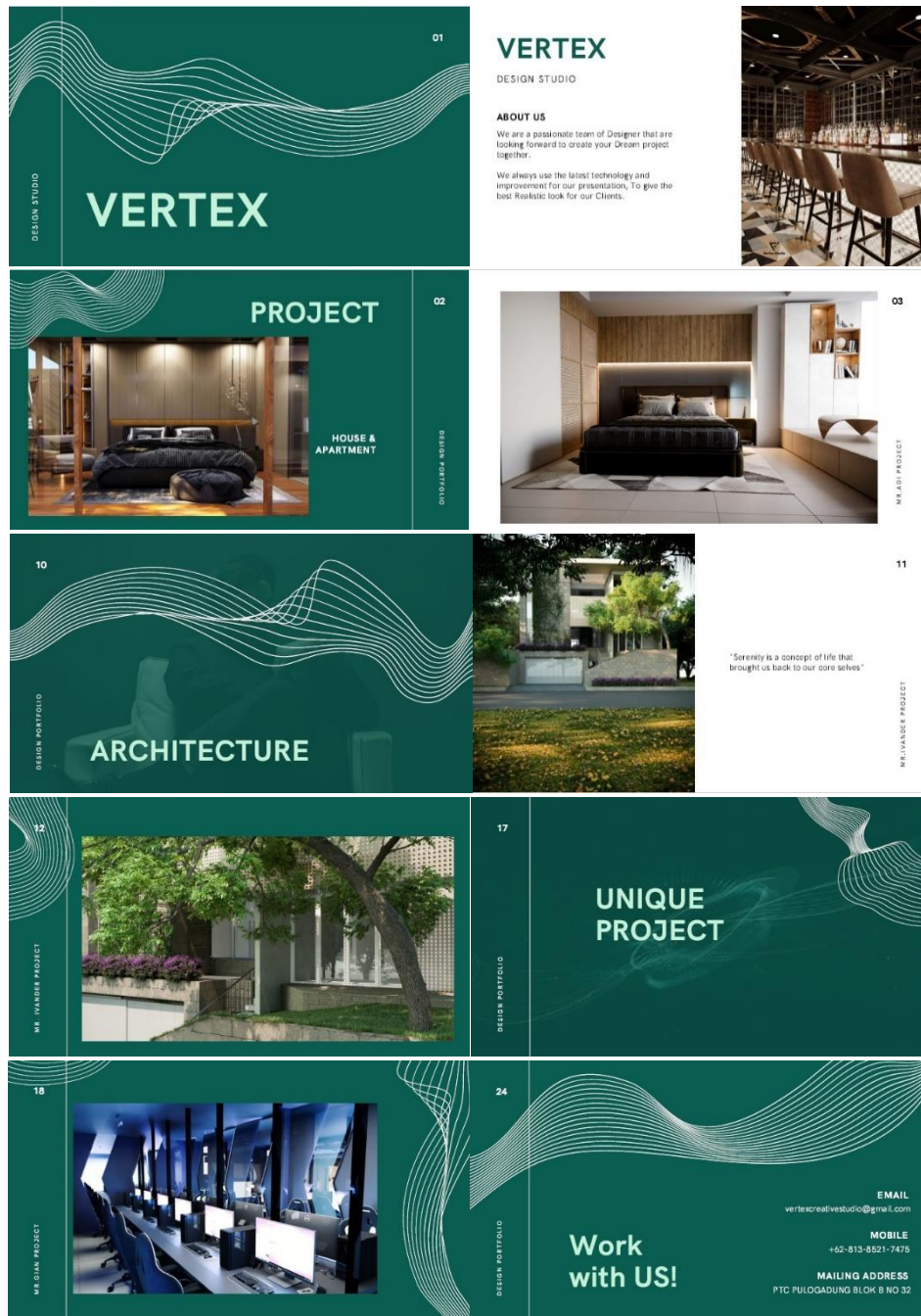
Fig 11. Vertex Studio Old Company Profile (Source: Author's Documentation, 2022)

After evaluating Vertex Studio's old company profile, the business owner agreed that there are a few points that needs to be fixed. The first point is the inclusion of credibility information about the company. This information includes the company's history, the experience of the company leaders, and the certifications that the company has. Most notably, the new company profile must include the experience of Pak Oktavianus and his company Cipta Dimensi. This is done to create brand association of Vertex Studio to the decades of excellence that Cipta Dimensi

has under the management of Pak Oktavianus, who is now the commissioner of Vertex Studio. The second point is to include their vision and mission statement. This is done to strengthen the introduction of the company to new customer and build strong brand image right from the start. The third point is to include Vertex Studio's construction projects in the company profile. This is done to associate their design services to their already well-known construction services. Here is the result of the company profile revision:

Fig 12. New Company Profile

Discussions with the business owner led to a decision being made to change the name of Vertex Studio to DJO Kreasi. This new name is thought to be more fitting to the company as it is the same official name of the company registered in the company registration documents which is PT. DJO Kreasi Mandiri. Moving forward, DJO Kreasi will be used for company operational purposes including marketing purposes. Thus, the revised company profile will also use DJO Kreasi instead of Vertex Studio for the company name. The color scheme is also changed to increase the aesthetic levels of the company profile.

C. Website Creation Implementation

DJO Kreasi's new website will be made using Wix as the primary editing platform. The business owner decided that the purpose of the website is to be more as a company introduction and contact information source rather than a portfolio gallery. A desktop version and a mobile version of the website will be made to give more accessibility to the customers. Here is the finished website in the mobile version:
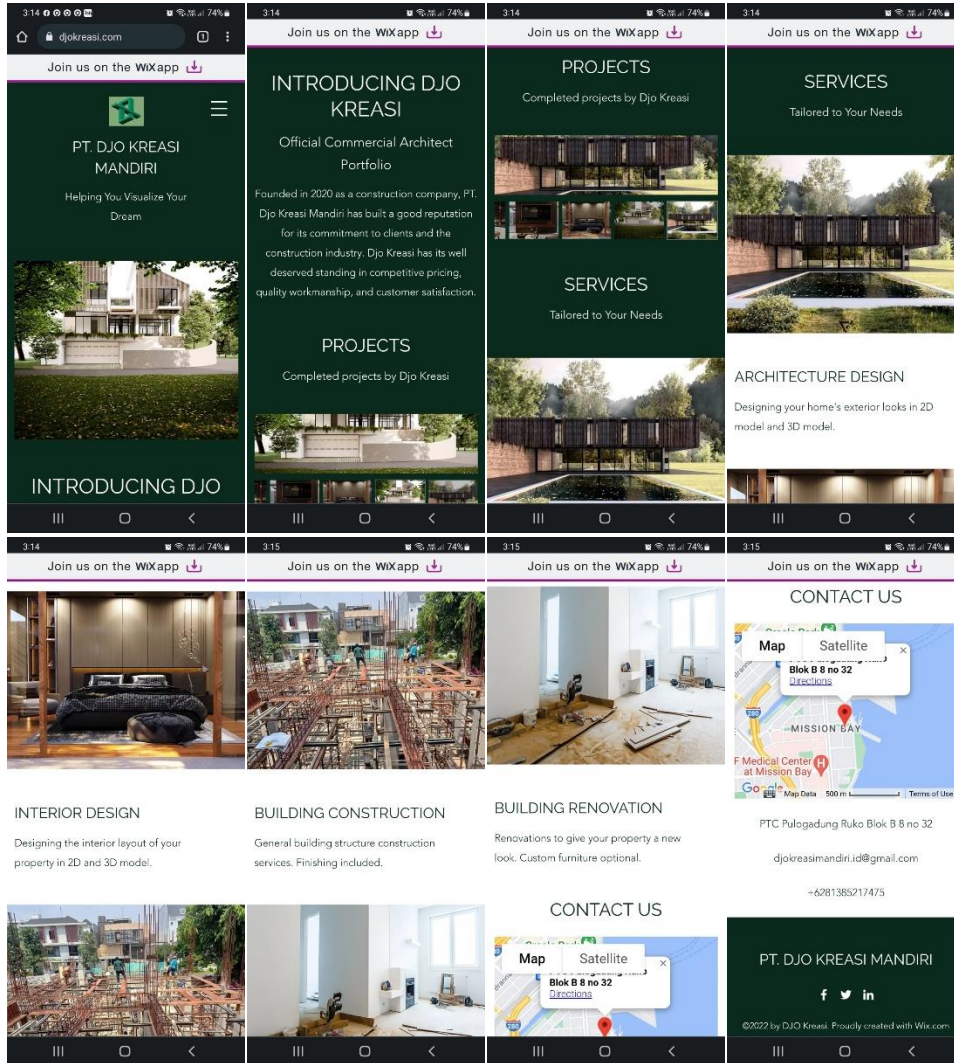
Fig 13. DJO Kreasi's Website (Mobile Version) (Source: Author's Documentation, 2022)

The website contains 4 sections: the introduction, small portfolio gallery, the services offered, and most importantly, the contact information of DJO Kreasi. The domain for the website is registered using Wix Domains and the address is djokreasi.com. The SEO for DJO Kreasi's website is optimized using the help of Wix's SEO Optimization tools so that the website can be shown in Google search results.

D. Instagram Revamping Implementation
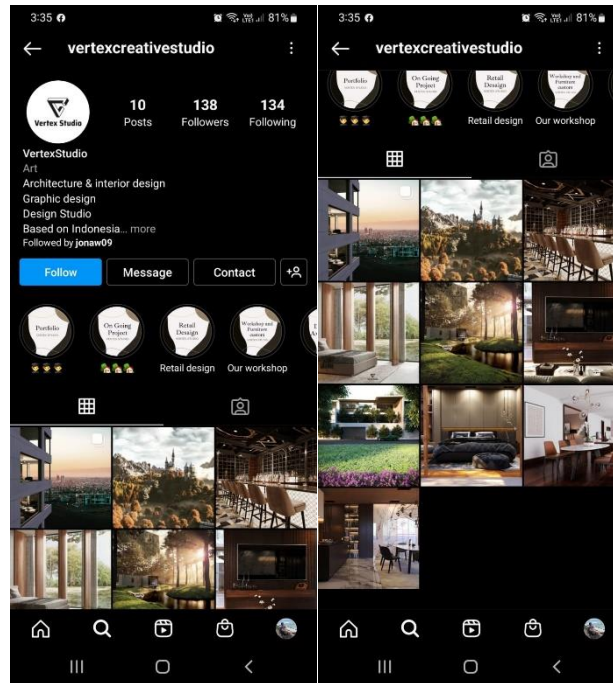
Fig 14. @vertexcreativestudio Instagram Page (Source: Author's Documentation, 2022)

When the company name Vertex Studio is changed to DJO Kreasi, the business owner also decided to abandon their old Instagram page @vertexcreativestudio to make their new Instagram page with the new company name. The old Instagram page has relatively small number of followers and only 10 pictures worth of portfolio uploaded.
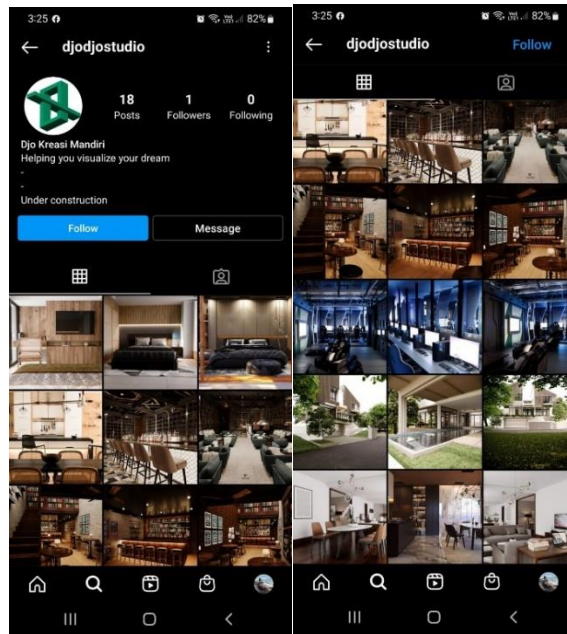
Fig 15. @djodjostudio Instagram Page (Source: Author's Documentation, 2022)

DJO Kreasi's new Instagram page is @djodjostudio. The new Instagram page sorts the pictures according to the color pallet for each row. The purpose of this method of ordering the pictures is to make the page look nicer and give the customers a message about the company's tidiness. The company will also regularly post fun facts about the construction and design industry as promotional material to attract customers.

E. Evaluation and Maintenance

After the solutions have been implemented, a staff member of DJO Kreasi's team is assigned as an administrator to handle the website and Instagram pages. The person chosen for this job is Bu Isabella. Bu Isabella is then trained to edit the website using Wix Control Panel, and also print out the web analytics results using Wix Analytic Tools. She is also trained to access @djodjostudio's account and to create promotional materials to be posted into the account's page. Instagram also has an analytics tool called Instagram Insight to evaluate the page's performance over time. These trainings are done to make sure that the online marketing channels of DJO Kreasi still run even after the business coaching process has ended.

VI. CONCLUSION, LIMITATION, AND RECOMMENDATION

A. Conclusion

After the condition of the SME has been analyzed and problems have been identified, solutions are implemented in the company to solve those problems. The first solution implemented in the SME is the revision of their current company profile. The new company profile incorporated more of the company's credibility elements and attempts to associate the company to an already established construction company called Cipta Dimensi. The SME also decided to change their brand name from Vertex Studio to DJO Kreasi during this stage. The second solution implemented is the creation of their website. Their new website address is djokreasi.com and their SEO is optimized to make the page appear in Google search results. The third solution is the revamping of their Instagram page. The new Instagram page

is @djodjostudio and the pictures are ordered in such a way to increase the tidiness of the page. An administrator staff is also trained and assigned to handle the website and post promotional material in the Instagram page.

B. Limitation

There are a few limitations to the solutions implemented into the SME. The first limitation is the lack of hardcopy company profiles to be distributed to the customers. The business owner decided not to print the company profile in hardcopy because of the relatively high number of pages. Due to time constraints, another version of the company profile that is more suitable to be printed has not been made. The second limitation is in the website implementation where Google Ads have not been set up for the page. The business owner is not ready to use Google Ads to promote the new website because of the costs involved. The owner wants to improve the website further and post more content first before subscribing to Google Ads. The final limitation is in the Instagram implementation where the promotional material has not been uploaded yet and Instagram Ads have not been set up for the page. The reason for this is due to time and budget constraints where the administrator has not finished the new posting by the time this research is written. Instagram Ads have not been set up because there is no promotional material yet for the page.

C. Recommendation

From the limitations above, a few recommendations can be made for the SME to improve their online marketing channels. The first one is to make another version of the company profile to be printed for the customers. This new company profile must be concise and contain lesser number of pages. The second recommendation is to upgrade their website's Wix plan so that they can remove the Wix Ads at the top of the page to make the website look more professional. The SME should also set up Google Ads so that more customers can find the page and engage the company. The final recommendation is for the administrator Bu Isabella to routinely post promotional material like fun facts to the Instagram page. The SME can also set up Instagram Ads for the page to attract more customers into visiting the page.

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Implementation Of Admin Recruitment, Admin Sops, And Optimizing The Use Of Instagram As One Of The Customer Acquisition Efforts At Nurma Catering Smes After The Pandemic

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Abstract

This study discusses improving the quality of services for SMEs Nurma Catering through the application of SOP Admin, Recruitment of Admin, and Optimization of Digital Marketing Strategy. The research was conducted during the Covid-19 pandemic that was hitting Indonesia. The main obstacle is the change in dynamics from offline to online, which causes unpreparedness for these conditions, resulting in overlapping tasks and not working well in product marketing. With the method of word of mouth which is a way to market products, it must be changed to an online marketing method. Furthermore, some employees perform other tasks besides their main duties such as the General Manager who doubles as Whatsapp admin, order taker, and financial manager. So that an admin is needed and the application of online marketing forms. The method used in this research is qualitative by conducting a Business Coaching process. The types of data used are primary data (interviews & observations) and secondary (literature studies) and process the business model canvas. In this process, external analysis (PESTEL & Five-Forces Model) and internal analysis (STP & Marketing Mix) is carried out so that problems that occur inside and outside the company can be known. The Business Coaching process is carried out by implementing SOPs and admin functions to simplify the ordering process and clarify roles in the field of work. In addition, a digital marketing strategy is also implemented that serves to expand marketing channels and can reach consumers online. Thus, it can be found that Nurma Catering's business activities have limitations in the use of social media and training for admins as well as maximizing the use of media as a form of implementing digital marketing.

Keywords— Service Quality; SOP; Digital Marketing; Business Coaching

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I. INTRODUCTION

Indonesia is one of the developing countries that has the third largest economic power in Southeast Asia after China and India. In the last 5 years, Indonesia experienced the highest rate of increase in economic growth in the first quarter of 2019 which was 5.07 percent (Ministry of PPN RI, 2019). However, the increase in economic growth did not last long. After 2020, Indonesia's economic growth experienced a surprising decline.

The surprise was caused by the outbreak of the Covid-19 virus in the world, including in Indonesia. As the virus keep spreading, it caused a policy to restrict mobility when this virus emerged in 2020. The government initial action was to changed the way people carried out their daily activities, especially for groups of people who were or lived in cities that were productive with various kind of activities.

During the covid-19 pandemic, there have been many losses, one of which has occurred in the field of providing accommodation and eating and drinking. This sector experienced a contraction in economic growth of 7.26%. This happened because of restrictions on mobility and the closure of many business places such as restaurants and hotels nationwide. Contractions that occur during a national pandemic are one of the problems that the government must face and the government's restrictions on mobility are a problem for places of business, one of which is SMESs.

(UU RI, 2008) Micro, Small, and Medium Enterprises are productive businesses owned by individuals or individual business entities that are not subsidiaries or branches of companies that are controlled, owned, or become a part, either directly or indirectly, of large businesses. A business can be categorized as a Micro Business if it has assets of Rp. 50,000,000 and a maximum turnover of Rp. 300,000,000 per year; while Small Business has assets of at least Rp. 50,000,000 – Rp. 500,000,000 with a turnover of more than Rp. 300,000,000 – Rp. 2,500,000,000; and Medium-sized businesses have assets of more than Rp. 500,000,000 – Rp. 10,000,000,000 and a turnover of more than Rp. 2,500,000,000 – Rp. 50,000,000,000.

SMES Nurma Catering is located at Jalan Gedung Hijau Raya Number 1A Pondok Indah, Pondok Pinang, Kebayoran Lama, RT.3/RW.6, Pd. Pinang, Kec. Kby. Lama, South Jakarta City, Jakarta Special Capital Region 12310. SMES Nurma Catering has been established since 1993. Nurma Catering serves orders from various events such as school events, recitations, proposals, weddings, and office events to corporate events. The loyal customers of Nurma Catering from the government are City Hall, Jakarta Education Office, General Election Agency, and Jakarta Maritime Service while loyal customers from the Company are Blue Bird Group, PT. Erlangga Publishers and PT. Sido Muncul Tbk. The menu variants and the prices offered for each menu package are also very varied and no less competitive with other competitors. No wonder Nurma Catering can get an extraordinary turnover every year.

Since the COVID-19 pandemic, events that were originally running normally have been switched to online or even canceled, so that Nurma Catering, which previously could produce 2000 packages of orders per day, has decreased by 80%, in one day it can only get 400-500 orders. A Decrease in business turnover affects the workforce that is employed. Of the 30 employees, Nurma Catering only be able to maintain 15 of its employees.

Based on observations from the results of interviews conducted, several things need to evaluate by Nurma Catering to survive and run business activities smoothly during this pandemic, such as position of Mrs. Widya as social media admin (WhatsApp) and financial manager that might affect business performance. Nurma Catering also does not have a specific marketing campaign or strategy, their business marketing relies on word of mouth from its customers. Before the pandemic maybe this could run smoothly but during a pandemic it gonna takes special online marketing via Instagram.

Quoting Aaker (2010) Brand awareness is the first step for consumers before deciding to buy a product. According to Ercis (2011), to build awareness, SMEs can implement an Integrated Marketing Communication strategy by choosing the right media to communicate with customers. So it is necessary to adjust the business model while increasing marketing activities. For this reason, this thesis was prepared to help implement Integrated Marketing Communication and Marketing Optimization through Instagram SMES Nurma Catering.

II. Literature Review

A. Integrated Marketing Communication

The role of marketing communications is vital in planning strategies to disseminate business forms, products, and activities. With appropriate strategy that applied to the marketing process, it can provide a positive perspective from outsiders towards a business. This happen when communication becomes important to be able to bring a picture of business values in a positive direction (S. Hassan, 2019).

Marketing communication it's an instrument to communicate companies with targets and interests to be distributed for products or the company as a whole (Finne & Gronroos, 2015). According to Belch (2018), IMC (Integrated Marketing Communication) is an integrated marketing communication planning concept that aims to evaluate the strategic role of the marketing (marketing mix, product, price, place, and promotion) with various communication models, such as general advertising, personal selling, direct marketing, public relations, and combining these programs to increase sales turnover.

B. Digital Marketing

Digital Marketing is a marketing activity or promotion of a brand or product using digital media or the internet. The purpose of digital marketing is to attract consumers and potential customers quickly. According to Kannan (2017), Digital Marketing is a marketing activity including branding that uses various media. Furthermore, according to Hasan Said (2019), digital marketing can help a company in promoting and marketing its products and services. Digital marketing includes direct marketing, which considers customers as individuals and defines them not only by individual characteristics but also by their behavior, and interactive marketing, which can address individuals and the ability to gather and remember responses that individuals receive (Daniel Laksana and Diah Dharmayanti). , 2018). The benefit for consumers with digital marketing is that it can be easier to get products or services (Kusumaastuti and Purnama, 2015)

This is supported by the necessary social media platforms such as Instagram. Instagram is a photo-sharing application that allows users to take photos, apply digital filters and share them to various social networking services, including Instagram owners themselves (Mahendra, 2014). According to (Diamond, 2015), Instagram has supporting elements such as profiles, followers, hashtags, push notifications, connected to other social networks, location tags, and others. Previous study (Jayanti, 2014) explains that Instagram is used by business actors to promote their business by sharing information through photos equipped with captions as explanations. The comment tool on Instagram is also used by business actors to interact with their consumers in order to build consumers' trust.

C. Brand Awareness

According to Shimp (2003:11) Brand Awareness is the ability of a brand to be remembered in the minds of consumers when they are thinking about a particular product or service category and how easily the name is raised on the basis of considerations of safety, comfort, quality and so on. It can be concluded that Brand Awareness is a general purpose of marketing communication, the higher the Brand Awareness of a product or service, the higher the potential for consumers to directly buy or use the brand when looking for a reference both offline and online.

D. Company Profile

A Company profile is a means of marketing communication in the form of printed media in the form of a book that used to inform potential consumers about the company's products or services or other messages to be conveyed (Kotler & Keller, 2016). A company profile usually includes company history, company philosophy and culture, company owner remarks, vision and mission, company address, human resources, company achievements, and a description of the products and services offered. (Kriyantono, 2008).

E. Standar Operasional Prosedur

Standard Operating Procedures are a series of instructions that describe the documentation of activities carried out repeatedly in an organization. SOP serves to maintain the quality and quality assurance of the activities carried out by an organization to maintain consistency. If the organization does not have SOPs, then the organization does not function properly because it does not have a clear flow of guidelines. (United States Environmental Protection Agency, 2007). SOPs provide information to do the job or task correctly and facilitate consistency in the quality and integrity of the end work (Rachmi dalam Herdiyanti, Puspitaningrum, Astuti, & Yuhana, 2018).

III. RESEARCH METHODOLOGY

A. Data Collection

Data collection conducted using a qualitative approach with the business coaching method. The research design implemented using qualitative methods through case studies (Moloeng, 2010). Case studies are empirical research that investigates contemporary phenomena in depth in the context of the real world (Yin, 2014). Data collection in this method requires two types of data, primary (interviews & observations) and secondary (literature studies).

B. Data Analysis

Sugiyono (2009) suggests that data analysis is systemic process of searching and compiling data obtained from interviews, field notes, and documentation, by organizing data into categories, describing them into units, synthesizing, and compiling them into patterns, choosing which ones to use to be studied, and make conclusions so that they are easily understood by themselves and others. With the stages of data analysis, such as data reduction, data presentation, and drawing conclusions.

The data reduction is done by interviewing and observing in the field of SMEs Nurma Catering. From the results of data reduction, data exposure is carried out using tools that support data display, including segmenting, targeting, positioning (STP) analysis, PESTEL analysis, Porter's Five Forces analysis, Business Model Canvas (BMC) analysis, marketing mix analysis (7P)) to SWOT and TOWS analysis. After all these analyzes are fulfilled, the data will be narrowed to gap analysis to see the condition of the Nurma Catering SMEs.

C. Business Model Canvas

a. Consumer Segment

Based on Behavior, Nurma Catering has a target, namely people who are looking for catering or catering services for various kinds of events in large and large portions. Based on Physicography, Nurma Catering's customers are people who have events but don't have time to cook and want to present quality, delicious and nutritious dishes as well as office workers who don't want to bother leaving the office. Based on Demographics, Nurma Catering's customers are young adults to the elderly, namely 18-65 years. Based on geographical location, Nurma Catering can serve catering services in the Jakarta Bogor Depok Tangerang Bekasi area.

b. Value Proposition

The value of Nurma Catering is that there are more than 100 types of rice and side dishes, 25 drink menus, 25 types of market snacks, and 25 types of pastries. The menu offered is Archipelago dishes, Chinese Food, Western, and Middle Eastern. It can be served in the form of Buffet, Buffet, Rice Box, and Basket Rice. Nurma Catering has economical to premium prices so it can reach almost all circles.

c. Channels

Nurma Catering reaches consumers by providing Pricelist Company and Profile on blogspot but its not been updated for a long time.

d. ConsumerRelationship

Nurma Catering provides information for customers via Direct Whatsapp and blogspot. Maintaining relationships with customers is an important aspect. So far, Word of Mouth has had a big influence on product sales.

e. Revenue Streams

SMEs Nurma Catering earns income from selling catering services in large quantities and already has several regular customers.

f. Key Resources

SMEs Nurma Catering has a strategic place of business located in Pondok Pinang, Kebayoran Lama. They also have complete production equipment, facilities, and excelent presentation.

g. Key Activities

SMEs Nurma Catering carries out its main key activities by producing catering orders from customers with high quality materials.

h. Key Partnership

SMEs Nurma Catering has a supplier of chicken and meat. For vegetable and fruit ingredients, the chef himself shopping manually to the main market so that they can remain consistent in choosing quality of raw ingridients.

i. Cost Structure

SMES Nurma Catering has divided the expenditure costs. Fixed Costs that are issued every month are Employee Salaries and Taxes. The variable costs that are issued every month are electricity, internet, gasoline, car delivery orders, and the cost of purchasing raw ingridients.

D. Eksternal Analysis

a. *PESTEL*

PESTEL analysis is one type of analysis model used to understand the overall picture of the external environment, namely the analysis of Politics, Economics, Socials, Technology, Environment, and Legal (Thompson, Peteraf, Gamble & Strickland., 2016). This analysis can help see various things that have an impact on business continuity. This analysis uses a literature study method and searches for phenomena or news that currently happening in Indonesian society.

b. *Five-Forces Model of Competition*

According to Gamble (2015) Analysis of the Five-Forces Model of Competition is a tool developed by Michael Porter to identify and analyze the competitive conditions of the business environment of a business unit.

c. *Internal Analysis*
1. *STP*

STP analysis is an analytical method that can be used by a business actor to determine "who" is the product sales target. The elements contained in the STP analysis are Segmenting, Targeting, and Positioning.

2. *Marketing Mix*

SMES Nurma Catering is an SMES engaged in catering services, they used service marketing mix as their marketing mix.

IV. RESULT/FINDING

The implementation of business coaching for UMKM Nurma Catering has been formally started in November 2021 and lasted until March 2022. The implementation of business coaching includes initial introduction activities, collection of required data, solution planning, solution implementation, solution evaluation, and handover implementation result. To ensure business coaching can be carried out properly and structured, it is necessary to create timeline for business coaching implementation.

Table 1 Business Coaching Implementation Plan

No	Activities	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	Mar-222
1	Initial introduction and delivery of BC objectives	■						
2	SMES Data Collection	■	■	■				
3	Problem Identification			■				
4	Confirmation regarding proposed solution			■				
5	Implementation of Logo and Company Profile Creation Solutions				■			
6	Implementation of social media creation				■			
7	Detailed social media development				■			
8	Product innovation disscussion				■			

No	Activity							
9	Confirm product innovation to the SMES owner					■		
10	Monitoring the results of SMES development					■	■	
11	Results evaluation of the entire implementation							■
12	Result handover							■

Table 28 Proses Business Coaching PT. Nurma Catering

1. 1st Visit, Introduction and Data Collection (Interview)
   The first meeting was entirely focused on the outline of the profile of Nurma Catering. Like the early history of Nurma Catering, the motivation to establish SMESs, the types of businesses and products offered, the achievements that have been achieved, business capital, turnover, and unachieved targets, and what they want to do in the future. The owner also told about the situation of SMESs during the pandemic.

2. 2nd Visit, Data Collection (Interview and Observation)
   Nurma Catering has several loyal customers who come from the office located at Jalan Gedung Hijau Raya Number 1A Pondok Indah, Pondok Pinang, Kebayoran Lama, RT.3/RW.6, Pd. Pinang, Kec. Kby. Lama, South Jakarta City, Special Capital Region of Jakarta 12310. Some of Nurma Catering's loyal customers from corporate are PT Erlangga, BCA and Bluebird. The owner of SMESs said that there was no firm SOP regarding client

No	Date	Activities	Result
1	21 July '21	1th Meeting and Introduction	Introduction to SMES owners, explanation of Business Coaching activities and an overview of SMESs
2	9 August '21	First Interview and Observation	Exploratory interview on Five's Porter Analysis, PESTEL, STP, Marketing Mix, and SWOT
3	6 Dec '21	Second Interview and Observation	Interviews related to detail business processes and SMES BMC as well as direct observation of SMES activities
4	28 Feb '22	Third Interview and Observation	An in-depth exploratory interview about the problems at Nurma Catering
5	29 Mar '22	Confirm Problem Identification and Solution Plan	Data confirmation and analysis results of problem identification and discussion of proposed solutions to be implemented.
6	1 April '22	Implementation	Discussion on making SOPs, Recruiting Admins, and taking photos and materials for menu renewal content, Company profiles and Instagram content.
7	9 April '22	Implementation	Discussion of Digital Marketing Strategy and Making Whatsapp Business.
8	23 April '22	Implementation	Discussing Company Profile results and implementing Digital Marketing strategies.
9	7 May '22	Implementation	Socializing SOPs to new Admin and discussing Company Profile results.
10	28 May '22	Results and Handover	Final evaluation of SOPs and submission of Business Coaching Results

payments, such as no DP for old customers, so there was a case where customers who had ordered in large quantities canceled their orders on the H-1 event, causing losses for Nurma Catering. Owners find it difficult to make SOPs regarding payments and target potential new customers.
Table 29 Proses Business Coaching PT. Nurma Catering

3. 3rd Visit, Data Collection (2nd Interview and Observation)

The interview is still exploring more deeply related to the Business Model Canvas (BMC), Segmenting targeting positioning (STP), marketing mix, VRIO, PESTEL, and Porter's five forces. Further observations and discussions were also conducted on the problems and obstacles in running the Nurma Catering business. The owner revealed that he wanted to upgrade the service and quality as well as promotion but don't know where to start. Mba Widya stated that the Nurma Catering menu needs to be updated in terms of its photos, design, and price, due to an increasing price of raw materials.

4. 4th Visit, Data Collection (3rd Interview and Observation)
    The interview talk about the problem of recording financial statements and inventory, the records are not neat and there are still many missing because there is no specific finance admin, the financial record is handled by Mas Ivan who also helps make the orders, and receives guests when someone comes to order directly to the office. The problem of recording arises when employees suddenly have to shop for ingredients, for example: when cooking less than 1 kilogram of vegetables, employees often forget to ask for a receipt or the seller didn't provide any receipt. Because usually, the supplier cannot shop in small quantities or specific commodity out of stock.Furthermore, regarding marketing issues, in Nurma Catering there is no special manpower. In terms of branding, Nurma Catering has a permanent logo, website, Instagram, and is easy to find on Google but yet to be optimal. There is no specific strategy for marketing, because so far Nurma Catering only relies on word of mouth.

5. 5th Visit, Problem Identification and Solution Implementation Plan
    It was found that there were several main problems from SMESs, such as not having employee SOPs which included: SOPs for purchasing raw materials and SOPs for Grooming guests who came to the office and payments method. Second, Nurma Catering does not have a marketing strategy that includes attractive product photos, social media that has not been fully utilized and there is no menu display update that is part of the Marketing Communication.

6. 6th Visit, Implementation
    On the sixth meeting, the owner and author made an appointment for product photos and discussed making SOPs, recruiting admins, re-evaluating, and looking at competitors' social media, menus and company profiles as benchmarks for improvisation in a better direction. The author brought a team of photographers to take some photos of the prepared Nurma Catering menu.

7. 7th Visit, Implementation (Creating Whatsapp Business)
    Whatsapp Business was created so that Nurma Catering can be more optimal and efficient in serving customers, the first time they chat. As for some of the setups made on Whatsapp Business, these are:

    a. Adding "greeting message" for customers initial conversation
    b. Memasang Nama jelas dan logo Nurma Catering
    c. Adding "Catering" as bussines categorie
    d. Adding operational work, 08.00 – 17.00 WIB
    e. Adding profile summary of Nurma Catering
    f. Adding a google map geolocation so the customers can easily find out the location of Nurma Catering
    g. Adding Email Address
    h. Adding Call to Action directly to Nurma Catering's Instagram as an added value
    i. Adding some Shortcuts to reply to chats quickly. The menu creation process is currently in progress.
    j. Add "leave message" when admin off duty.

8. 8th Visit, Implementation (*Company Profile*)
    The author helps SMES owners create a Company Profile which will later serve as a promotional tool to B2B customers. Company Profile Consists of an introduction to Nurma Catering, the services offered, registered letters, permits, and menu.

9. 9th Visit, Implementation (SOP socialization)

At the ninth meeting, socialization of the SOP was given to the newly recruited admin who had been recruited by Mba Widya based on author recommendation. Admin is in charge of recording finances and the format of financial reports has been made. Admin must go to the Nurma Catering office at least three times a week and receive Nurma Catering's Whatsapp messages, coordinate with the Kitchen and Mas Ivan regarding Inventory, and Recording of shopping receipts, especially sudden shopping.

V. DISCUSSION

A. Implementation of SOP Preparation and Admin Recruitment

SOPs need to be developed and used as they are an integral part of a successful quality system. SOPs provide information to do the job or task correctly and facilitate consistency in the quality and integrity of the final work result (Rachmi in Herdiyanti, Puspitaningrum, Astuti, & Yuhana, 2018). At the initial stage, discussions with the owner were held to discuss the Standard Operating Procedures which would later be implemented and disseminated to the new admin. Then to compile the SOP, theoretical references are used and adjusted to the work process that will be carried out by the Nurma Catering Admin. The SOP made consists of several parts as follows:

a. The introduction section consists of the company's vision and mission, the purpose of the SOP, and the scope of the SOP. It is written to explain the purpose of the SOP being prepared and what things are included in the SOP that is prepared.
b. Flowchart or diagram that describes admin activities.
c. Detailed explanation of each activity in tabular form. This table describes the objectives, responsibilities, scope, and documents required at each stage.
d. Examples of formats of supporting documents for Admin activities. The documents included in the Nurma Catering Admin SOP are consumer data documents, chat reply formats, Nurma Catering Menu List, order formats, Down Payment formats, and financial report formats.

Compiled SOP for admin activities are socialized for each content and stage to the new Admin. This is important to do so that the SOP can be applied as a guide for admin activities so that the quality of Nurma Catering services and financial records can be consistent.

B. Company Profile Implementation

The function of the company profile is as the identity of the company, a means of communication, as well as information media. The company profile usually includes the history of the company, company philosophy and culture, welcome from the company owner, vision and mission, company address, human resources, company achievements, and descriptions of the products offered (Kriyantono, 2008). With such a Company Profile function, it is important for CV Nurma Catering to create an adequate Company Profile.

Discussions were held with the owner to find the needs of the Company Profile. From the results of the interview with Mba Widya as the Owner, it found that Nurma Catering is one of the tender candidates from catering vendors, for example at SCTV TV station, because lack of Company Profile, makes the client sometimes finds it difficult to apply for Nurma Catering as a permanent tender. Therefore, the owner wants information about Nurma Catering, Permits Exposure, Types of Services and Menus offered, and equipped with several photos of Nurma Catering's office.

C. Digital Marketing Strategy Implementation

Based on the interview with Mas Ivan as Nurma Catering Manager, there are problems during the Pandemic, such as old customers do not order catering in large quantities. Meanwhile, compared to the other catering, which was still busy during the pandemic, Nurma Catering did not expand its marketing channels. With these facts, researchers are trying to add to the marketing channels carried out by SMES Nurma Catering with digital marketing. According to Chaffey & Chadwick (2016), there is a 5S theory (sell – grow sales, serve – Add Value, speak – get closer to customers, save –save costs, and sizzle – extend the brand online) there is a save factor where digital marketing can help companies to save costs. That way, there are several steps taken to create an efficient and cost-

friendly digital marketing program. In the process of improving the Nurma Catering business model, increasing digital marketing channels can be done by improving the appearance of Instagram and Whatsapp Busines.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

a. The results of the problem mapping show that SMESs do not have clear guidelines to support the process of recording financial reports and Front Line activities in replying to customer messages. Therefore, based on the results of discussions and agreements with the owner of Nurma Catering, an admin SOP was prepared consisting of process flow diagrams and explanations to make it clear and easier to implement. The admin works from the Nurma Catering office in Pondok Indah 3 times per week and in charge of recording daily, weekly, monthly financial reports, and replying to customer whatsapp. Based on the results of interviews with the owner of Nurma Catering, during the training process the admin has been very helpful and can speed up the process of replying to customer messages.

b. The mapping result show that Nurma Catering SMEs need a Company Profile to get potential new B2B customers. Because if you are selected to be one of the catering tenders, you will need a complete business letter permit and company background information. Therefore, a Company Profile has been compiled that consists of Background, Permit, Nurma Catering Menu, Location of Nurma Catering and Contacts.

c. From the mapping results it was found that Nurma Catering does not have a specific digital marketing strategy and has not utilized their social media to its full potential. Therefore, the author and the owner agreed to use Instagram as a promotional tool and take advantage of Whatsapp Business. As a result, since being active on Instagram, Nurma Catering has gotten 23 new customers who ordered the Catering Box, Rantangan and Tumpeng Menu. Through Whatsapp Business which has been set up with auto reply, the addition of a catalog and a location pin has helped Nurma Catering in speeding up replies to its customer messages.

B. Recommendations

a. Recruited admin need to be given informal and upgrading training regularly to help Nurma Catering in the long term in managing financial reports and updates to menus or pricelists and must always respond quickly to Whatsapp customers.

b. Special employees are required for marketing and handling social media. As we can see, it is better for admins specifically for bookkeeping and finance so they can concentrate and not disturbed nor confused about the jobdesk.

c. Company Profile and existing menus need to be updated regularly if there are changes, they must be updated immediately.

d. For Inventory recording needs, a Point Of Sale application is needed (Majoo, Moka, and Pawoon)

e. Improvements are needed in the physical facilitation of Nurma Catering, such as office and kitchen renovations.

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Improvement In Operational Cost Efficiency And Increasing Net Profit In Duck Egg Farming MSME Business : Business Coaching Of Duck Egg Farming Business

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Abstract

Among all size categorized and classification of enterprises ranging from micro, small and The large enterprises, Indonesia has the potential in MSMEs due to its large growth of economic Trend and surplus of its population. For accommodate this benefit, especially in product of raw materials enterprises, the business unit needs to have good holistic performance operational cost efficiency. If the cost could be decreased the MSME could handle the budget for taking care of another different potential, for example make the business even broader, In further developing the company performance for gaining more net profit, it is required to have well sense of management in numbers of major areas, one of the important in operational cost and area of management. Located city of Bekasi, Mr. Surya Duck egg farming categorized as small/micro sized enterprise with its core business activities in producing and farming duck egg. This study uses business coaching techniques utilizing qualitative method as data collection to mapping existing condition and problems detection of this MSME in order to development and implement solutions of improvement. Four number problems found indicated by high cost of daily operational and small net profit. The solution for these problems is maximizing MSME potential, uniformed operational procedure, and find substitutive feed for the duck itself. The main goal for this business coaching, more decreasing in operational cost due to operational efficiency then make profit as much as could for gaining more lot of net profit in this MSME duck egg farming Business.

Keywords—Business coaching, Operation Efficiency, Net-Profit, Duck Egg farming, MSME Business.

I. Introduction

Among types of enterprises ranging from micro to macro, MSMEs (micro, small, and medium enterprises) significantly contribute this nation/country economic growth. Retrieved from Kompas.com (Catriana : 2021), MSMEs contribute approximately 61.07 percent to the GDP which estimated 8,573 trillion Rupiah. Ministry of Cooperatives and Small and Medium Enterprise (MenkopUKM : 2021) further states in 2019 MSMEs had contributed 7,034.1 trillion rupiah to GDP. Current amount increased since last year which only recorded at 5,721 trillion. In addition, MSMEs export value has increased by 15 percent dated from 2018 to 2019, estimated 293,8 trillion rupiah. Not just only contribute in the economic growth, MSMEs also contributed huge in employment numbers. Ministry of Cooperatives and Small and Medium Enterprises (2021) stated MSMEs has contributed at least to 96.92% workforce, which in 2019 estimated 119.6 million people.

There are many forms in MSME business in Indonesia, which the most number of them, therefore if we talk about Food business and its production, one of the source is certainly the egg, the egg farms is one of the type of farms in Indonesia, the duck's egg is one of the main components of the many of the Indonesian favourite meals, such as Martabak and thousands of the good meals come from duck eggs as ingredients, also it is believed the duck egg is one of the good supplements for gaining more stamina, especially for the men stamina due to it nutrition that contained in it (*Nuruzzakiah : 2016*).

Unfortunately the duck's eggs farmers has low on Net-profit to sustaining their Micro sized business, there are many problems they had to dealt without helps or guidance from the research approach, of the greatest problems of the duck's egg farmer is the lack of the net-profit, due to the high maintenance cost also their operational cost. Therefore it is urgently required to take action to improvised this problem into solving effort of this problems, the egg quality which is the main product for this business is depend on the protein intake from what was being consumed / feed the duck who made this egg into the well quality (Mihir Sarma : 2013). Then the next issue for the farmer is lack of the business

process, how to turn their eggs into being Priced Well, these issues need to be solved too as important matters, for answering the main objective, gain the better profit for the duck's egg farmers.

II. LITERATURE REVIEW

A. *Operation Cost*
Operational cost is the amount of money, taken from resources budget of a business unit, being use for business unit fuel like fuel that being use in a car (urmanbetova : 2009)

B. *Micro, Small, and Medium Enterprises (MSMEs)*
According to record in laws and government regulation UU no. 11 year of 2020 article 87 concerning job creation (*cipta kerja*), MSMEs are categorized based on business capital, turnover, net worth, annual sales results, investment value, incentives and disincentives, application of environmentally friendly technology, local content, or the amount of manpower in accordance with criteria of each business sector. The regulation further elaborates MSMEs criteria in government regulation no.7 year of 2021 concerning convenience, protection, and empowerment of MSEs article 35 as:

a. Micro - Net worth of below 50 million rupiah with lower than one billion business capital and lower than 300 million annual sales.

b. Small - Net worth between 50 to 500 million rupiah with one to five billion business capital and between 300 million to 2.5 billion annual sales.

c. Medium - Net worth between 500 million to 10 billion rupiah with 5 to 10 billion business capital and between 2.5 billion to 50 billion annual sales.

C. *Cost Efficiency.*
As we know, resources or budget are very limited, therefore every effort need to be carefully taken, as for daily operational, there are lot of efficiency need to be implemented, for maximizing the value of our limited resources / budget (Bonnanno : 2013)

D. *Net Profit.*
Net Profit is a term that amount of money, that has been calculated from our total revenue, and being calculated again against our operation cost that had been spent, therefore if we could implemented well the term of cost efficiency, we could decreased the operational cost, then it would be raised the total of net profit (Jayathilaka : 2020)

III. RESEARCH METHODOLOGY

This study applied a qualitative research method. Qualitative research is a method to understood how phenomenon happened and its caused (Cooper and Schinder : 2014). (Greener : 2008) stated the focus in data gathering in a qualitative approach is the organization itself, the business difficulties that happened on the field, and its internal and external factors. The data gathering method in this research is by conducted deep interviews and observation for primary sources. The secondary source of data gathered from MSMEs annual sales and marketing documentation, and study literature of the subjects researched. The population of this research is the employees and director of MSME with a total of six people. The sample selected in this study was six employees and director of the MSME with a total of seven people.

To identify problems and devised solutions for the MSME, coach followed several steps by utilizing a variety of analysis tools and data gathering methods. To gather data and information regarding current conditions in the MSME, the coach made an interview guideline based on management basic knowledge in the field of operating efficiency, marketing, and cost structure. The data and information gathered then processed several analyses to identify and compare MSME's current condition to ideal condition on company level, internally, and externally. At the company level, coach analyses data utilizing BMC (business model canvas) to identify the partner. For the external condition

of MSME coach utilizing PESTEL, porter's five forces, and STP (segmentation, targeting, positioning) tools to identify and compare MSME's current condition to the market in general. For the internal condition of MSME. Coach then formulates the identified data and information into SWOT-TOWS tools to identify MSME's strengths, weaknesses, opportunities, and threats. Coach then did gap analysis to compared the current MSME's conditions with its ideal counterparts. To decide priority and significance of problems to address, the coach along with the director discussed the findings based on MSME's availability, time allocated, resources, and its short-term target utilizing pareto analysis tool. Lastly, the coach utilizes fishbone diagrams to identify main causes of the problem addressed in pareto to ensure the problem will not recur in the future.

IV. RESULT AND DISCUSSION.

The two main goals of this coach for this MSME are stated below:

    a.   Decrease the operational cost and use all resources efficiently as it could.

    b.   Gaining more (increasing) Net Profit.

Price Comparations of duck's egg between of Direct Marketing sales vs Collectivication sales by middleman			
Product type	**Classification product**	**Middleman**	**Remarks**
duck's egg product	Middleman collectivication sales		
	duck egg with stadard size	Rp. 1900 / egg	Standard sized duck egg above 75 gram per egg
	small sized duck egg, smaller than stadard egg	Rp. 1700 / egg	small sized egg, due to duck in early stages in laying egg weight below of 75 gram per egg
	Direct Marketing / Direct Sales		
	duck egg with stadard size	Rp. 2250 / egg	Standard sized duck egg above 75 gram per egg
	small sized duck egg, smaller than stadard egg	Rp. 1950 / egg	small sized egg, due to duck in early stages in laying egg weight below of 75 gram per egg
duck meat	price with direct marketing	Rp. 89.000 / duck	**duck with productivity below tolerable rates below 45%, should be sold as duck meat product for purchasing another new duck**
	Direct Marketing	Rp. 93.000 / duck	

Fig 1. Price comparation of duck egg (Source : coaching analysis study, 2022)

Fig 1 above, is showing the price different between sales by doing direct sales, and sales via middleman, there are price gap been found, in between Rp 350,00 higher than sales through the middle man. Therefore direct marketing must be enforced, due to achieving the main objective of increasing the net profit income.

Fig 2 shows that the most important things as weighted and sorted through pareto diagram analysis, source : coaching analysis, 2022

Pareto Analysis Diagram, from Duck egg farming of Mr. Surya
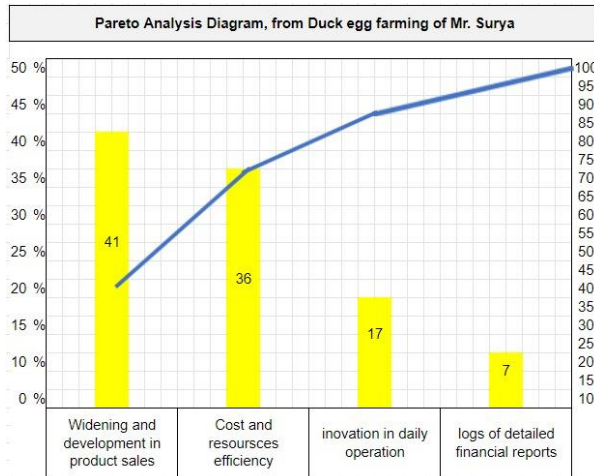
No.	Important issues	score	wright	contribution	distribution	accumulation
1	Widening and development in product sales	8	9	72	41%	41%
2	Cost and resoursces efficiency	6	7	63	36%	76%
3	inovation in daily operation	5	6	30	17%	93%
5	logs of detailed financial reports	4	3	12	7%	100%
	TOTAL :			177	100	

Based on finding due to the pareto analysis, the most difficulties has been identified number one is, Widening and development in product sales, it is very helping to leveraging to increasing the revenue of this MSME business, beside the number one problems, there are several problems that need to maintained and solved efficiently to accomplished the great objectives in increasing total net profit also decreasing the operational cost in this business. But in the farming of duck egg business, there are several problems is need to take care closely.

Fishbone Problem Analysis
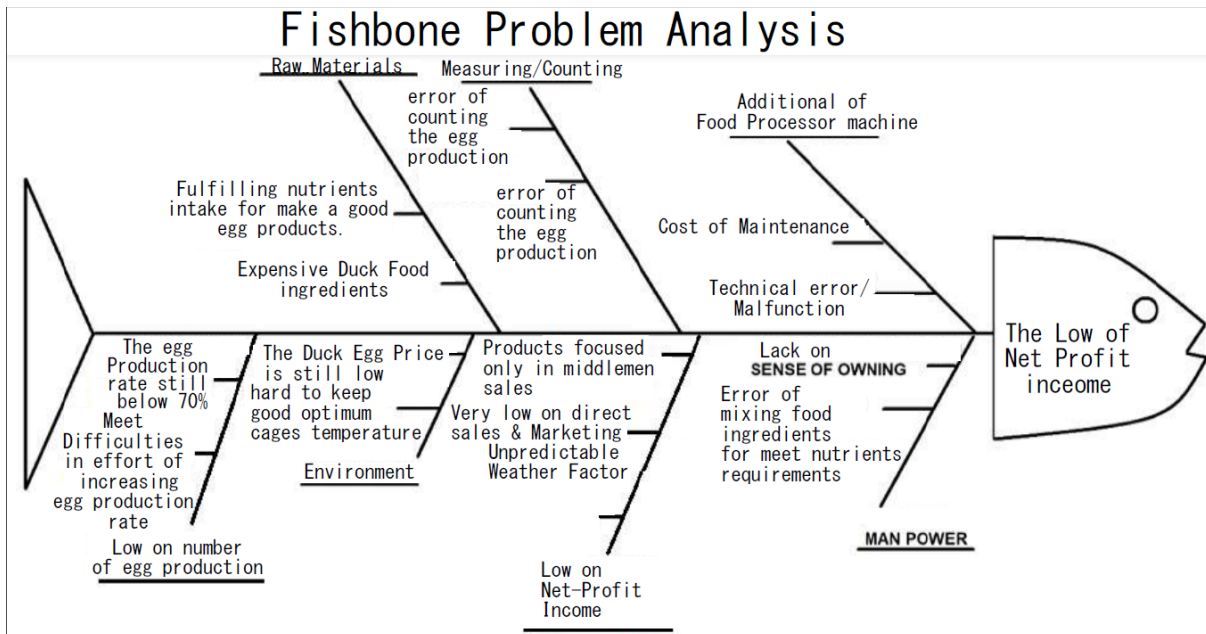
The Picture above, show the fishbone of problem analysis, each main problem has the greatest issue and additional factors, Source : Based on researcher field analysis find.

This business very rely on living creature, the main business of this MSME it is the duck itself, if we could handle this smoothly well, increasing net profit would be a pieces of cake, There were many difficulties and challenges in this coaching activity that must be solved : the availability of food for the duck, the nutrients should be achieved for the duck could lay the good quality egg, then the good quality egg would be good priced and gained trust from the market(user/buyer of the egg products), to fulfil the nutrients need, there were modification and substitutions, for example the food sometimes being mixed with the vegetable that being left-over from the nearest market, then we used the head of the shrimp for catching the protein requirements for the ducks, as stated from numbers of studies, Duck would be ready laying good quality egg if the duck nutrients requirements for protein achieved in 14% per feed serving, the duck food would be given thrice a day, in the morning around 7:00, afternoon at around 12:00 and last for the day at 18:00, for preparing this feed, it is required numbers of effort, the major things about this duck feed issues are :

    a.   Ducks need to achieved the minimum nutrients requirements.
    b.   For good quality duck feed, need to be precisely divided as well of all ingredients. Therefore the portioning of duck feed would be another issues/difficulties of timing and work forces.

Those critical risk, if the duck nutrients input compromised, the duck would be delayed to lay her first egg, also affected for full-grown duck in duck laying her egg, the egg number would be decreased if the number of the nutrients not be fulfilled properly. By done some effort that stated as above, the egg production has increasing, since doing coaching activity until the month of march, the egg production counts has ben risen to 75% since the start of this coaching activity. Other major things for achieved the two both objective were, make the market going even broader, we cut the buy process of the duck eggs buying chain, we sale the duck egg directly to the nearby market, by doing this effort the net profit has been increasing by 15%. The main difficulties is gained the new market who want to procured our egg products.

The next challenge is to maintain what has been done, the number of daily eggs production has been increased for now, then the maintaining programs wellness of the coachee and his MSME was another great issue, close watch and close attention of this MSME daily operation and guiding directly sometimes still need to do.

V. CONCLUSIONS

From the research effort has been done, there are numbers of conclusion from this Business coaching finding activity on this MSME Duck Egg Farming :

    a.   The Duck need to be well feed, as well the nutrients intake The egg quality is depends on the how much food required by the ducks, also the nutrients intake need to be enough, to able to produce high quality egg, and also for catching up the target of number of egg being produced by the duck itself.

    b.   The Net Profit income could be increased, by the direct marketing effort.

        As the middleman could not offer the well price of the products, we have to take a brave action, to make a direct sales to other parties, during this

    c.   Innovation make easier way, to maintain this business.

        One of the great motivation has been done is by made a food processor mixer, due to using food processor for making the duck food, we could more time to do other works, and decreasing effort of making everyday food for the duck, the food processor mixer is made the duck food more blended well, therefore, the nutrients intake for all of the duck needed is easily monitored and good result is to be more easier to meet.

d. The Duck Egg Production rate target was met as targeted. As the projected before, for good sustaining this business. The egg production rate is need to be high above 80%, recorded on June 2022, the production rate is on 84.20%.
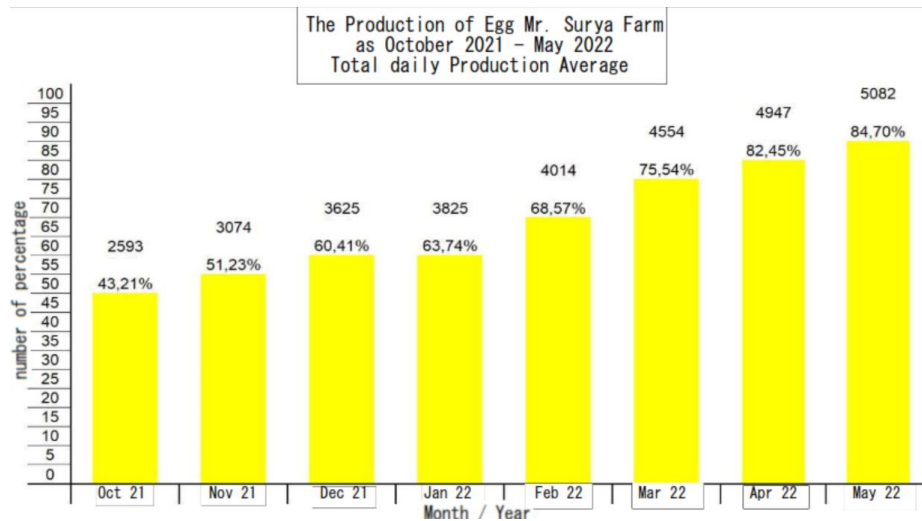
The Graphic show that egg production rate on each month, as October 2021 – may 2022, the production rate is touched over the 80% egg.
Source: based on the researcher field analysis

Recommendations

a. The production duck egg rate which recorded in June 2022, as 84.20%, is still being improved, with the better care of many factors, such as food and its well nutrients intake, it is not impossible to make projection target that in July 2022, the duck egg production rate could be risen to 85% more.

b. The great effort of this business, to make it gain more net profit, is by the direct sales methods, the middleman offer not too good price, therefore, it is strongly advised that this MSME business needed to make broader their marketing effort, to make a new market channels to make a direct sales of its products.

c. The Innovations it the great way, to decreasing the operational cost, such as a food processor devices, which could automatically mixing the all ingredients for the ducks. The devices itself make workers of this MSME less effort due to processing the everydays need of duck food.

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The Effect of Good Corporate Governance and Ownership Structure on The Profitability of Companies Listed in The Jakarta Islamic Index

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Abstract
This study aims to see the effect of Good Corporate Governance (GCG) and Ownership Structure on profitability. Previous studies have continuously examined the effect of GCG and Ownership Structure on profitability. Good Corporate Governance in this study will be represented by the Board of Commissioners and the Audit Committee, while the Ownership Structure in this study will be represented by Managerial Ownership and Foreign Ownership. In addition, profitability in this study will be represented by Return on Assets (ROA). The sample in this study consisted of 32 companies that were consistently listed on the Jakarta Islamic Index for the 2020-2021 period. The data taken are the proportion of the Board of Commissioners, the proportion of the Audit Committee, the composititon of Managerial Ownership, the composition of Foreign Ownership, and the company's Return on Assets (ROA) value. The research method used the panel data regression model selection test, classical assumption test, panel data regression analysis, t statistic test and F statistic test, and R^2 determination coefficient test. The results showed that the Board of Commissioners and the Audit Committee did not have a significant effect on Profitability, while Managerial Ownership and Foreign Ownership had a significant effect on Profitability. However, the Board of Commissioners, Audit Committee, Managerial Ownership, and Foreign Ownership simultaneously have significant effect on Profitability.

Keywords—Good Corporate Governance, ownership structure, profitability

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I. INTRODUCTION

The Indonesia Stock Exchange (IDX) offers sharia stocks as an option for investors in the capital market. Islamic stocks are considered to have advantages in terms of relatively stable stock movements and tend to produce a fairly high level of return (CNBC, 2019). Not only that, the islamic capital market is also considered to have a positive prospect in the future due to the high demand side which encourages the growth of the islamic capital market. The growth of the capital market over the past 10 years has been supported by millennial investors or young people and this is in line with the population in Indonesia which is dominated by age with categories productive or young age. The Covid-19 pandemic had made the market falter, but throughout 2021 the growth increased again. The Islamic capital market industry grew significantly in terms of the volume of transactions carried out by islamic stock investors. The growth of the Islamic capital market is supported by regulations, of which here are at least 20 fatwas in the islamic capital market sector as well as 13 POJK and SE OJK (Republika, 2022).

The prospect of Islamic capital market performance is believed to continue to grow. This is supported by the development of the Islamic capital market over the past 10 years in terms of capitalization, average transactions, and the number of investors (Liputan6, 2021). One type of sharia stock offered by the IDX is the shares contained in the Jakarta Islamic Index (JII). This index is a sharia stock index consisting of the 30 most liquid Islamic stocks listed on the IDX. Over the past 10 years, the market capitalization in JII in 2011 was recorded at Rp1.414 trillion, to Rp2.015 trillion in 2021 (OJK, 2022).

The profitability ratio has an important role in the company. This ratio is also a consideration for stakeholders such as investors when they want to invest in a company. According to Ebert & Griffin (2015:508) profitability ratio is the strength of profit for owners where this ratio is important to know whether the company is able to pay off its short-term or long-term debt. One type of profitability ratio is Return on Asset (ROA). According to Kasmir (2018:201) Return on Asset is a profitability ratio that measures a company's ability to generate returns based on the number of assets owned by the company. The implementation of GCG is an important thing for companies to be able to help achieve their business goals. The principles of GCG implementation must continue to be applied, even though at one time the company is in a bad time due to a disaster or disaster that is certainly undesirable, for example during a

pandemic situation. In 2020, there was a pandemic that resulted in a significant impact in various countries in the world, namely Covid-19. The Covid-19 pandemic has become a very dangerous pandemic due to the very fast rate of spread. In Indonesia, Covid-19 first began to detect in March 2020. At that time, Covid-19 continued to spread and became a problem with a big impact on Indonesia. Almost all industrial sectors have been negatively affected by the covid-19 virus. Of all industries, only 37% of industrial companies operate normally and another 60% are paralyzed or not operating (Putri, 2020). During the current pandemic, Good Corporate Governance (GCG) can help companies to survive during the pandemic and is a foundation of the strategy taken by the company. In this rapidly growing economy and business development, especially during a pandemic like today, companies are required to be able to continue to implement GCG in accordance with existing regulations (Olavia, 2021). According to BPKP (2021) there are reasons why GCG is a necessity for companies, namely practical reasons and academic reasons. If you look at it from practical reasons, GCG is needed because of the experience of the United States which restructured corporate governance due to the market crash in 1929. In addition, the current financial crisis in America is also caused by the non-implementation of GCG principles, so there are several cases of financial scandals, such as in Enron Corp., Worldcom, and Xerox involving the company's top executives. Based on academic reasons, GCG is needed and arises because it is related to principal-agency theory which is a form of avoidance of conflicts between *principals* and their agents. The conflict arises because there are differences in interests that require management so as not to cause losses to the parties. This study will focus on the mechanism the effect of GCG and ownership structure on profitability.

II. LITERATURE REVIEW

A. GCG, Ownership Structure, and Profitability

Good Corporate Governance (GCG) is a form of decision by positioning the company in a much more organized and structured manner with a work mechanism that complies with the business rules that have been outlined and is ready to accept sanctions if these rules are violated. This is done as a form of implementing corporate governance to achieve the business goals that have been set (Kuncoro, 2020). The implementation of *Good* Corporate Governance also has the main objective so that the company can be managed properly according to applicable regulations, so that not only the company gets the profit, but also the company's shareholders and all stakeholders involved in it. In this study, Good Corporate Governance will be represented by the Board of Commissioners and the Audit Committee. According to Susilo (2017) the Board of Commissioners has the authority to supervise the policies and processes of the business carried out by the Board of Directors. In addition to supervising general matters, the Board of Commissioners can also supervise matters of a special nature, such as financial audits and supervision of all forms of policies carried out by the Board of Directors, meanwhile, The Audit Committee is a corporate organ that can be appointed and dismissed by the Board of Commissioners. The Audit Committee has the task of assisting the Board of Commissioners in ensuring the effectiveness of internal control and the effectiveness of the implementation of internal and external duties of auditors.

Ownership structure is a governance mechanism in the company that is useful for controlling agency problems that occur. This is especially important in weak governance environments such as external auditors, agencies, market of corporate control, and institutional frameworks. In addition, the ownership structure can control agency matters or the selection of the company's board to carry out management and supervision. The establishment of the company's board structure is a step to balance the interests of different stakeholders (Queiri et al., 2021). The ownership structure in this study is represented by managerial ownership and foreign ownership. According to Munisi et al. (2014) managerial ownership is the share ownership of a company owned by the management of the company which is measured by the percentage of the number of shares owned by management. Meanwhile, according to Herawanto et al. (2017) foreign ownership is a form of individual ownership of foreign nationals, foreign business entities, or foreign governments that invest in the territory of the Republic of Indonesia. These investment activities are carried out to conduct business in the territory of the Republic of Indonesia, both those who use foreign capital fully and those in contact with investors from within the country.

According to Brigham & Houston (2018:139) profitability is a financial ratio that shows a combination of the influence of liquidity, asset management, and debt on the results of operations carried out by a company. This ratio will also describe the final result of all financial policy and operational decisions. One of the profitability ratio is

Return on Assets that measures a company's ability to obtain net income based on the number of assets owned by the company by linking net income to the company's total assets.

B. Previous Research and Hypotheses Development

There are previous researches that study about the effect of good corporate governance and ownership structure on profitability. Saidat et al. (2019) and Arief & Susan (2020) in their research revealed that the board of commissioners did not have a significant impact on profitability. This is different from the research conducted by Puni & Anlesinya (2020) and Queiri et al. (2021) which reveals that the board of commissioners has a significant effect on profitability. Bansal & Sharma (2016) and Putra & Nuzula (2017) in their research revealed that the audit committee has no significant effect on profitability. This is different from the research conducted by Darko et al. (2016), Ofoeda (2017), Suttipun (2018), Puni & Anlesinya (2020), and Queiri et al. (2021) which shows that the audit committee has a significant effect on profitability. Putra & Nuzula (2017) in their research revealed that managerial ownership has no significant effect on profitability. This is different from the research conducted by Saifi (2019) and Queiri et al. (2021) which shows that managerial ownership has a significant effect on profitability. Herawanto et al. (2017), Mardnly et al. (2018), Saidat et al. (2019), and Pebriani & Rizal (2020) in their research revealed that foreign ownership has a significant effect on profitability. Based on previous studies, thus we propose our hypotheses

H_1 Board of Commissioners will have significant effect on Profitability

H_2 Board of Audit Committee will have significant effect on Profitability

H_3 Managerial Ownership will have significant effect on Profitability

H_4 Foreign Ownership will have significant effect on Profitability

H_5 Board of Commissioners, Board of Audit Committee, Managerial Ownership, and Foreign Ownership will have significant effect on Profitability

RESEARCH METODOLOGY

This research method uses quantitative methods. The population in this study is 42 companies listed on the Jakarta Islamic Index for the 2020-2021 period. The sample was selected using a purposive sampling technique with the criteria of companies that are consistently listed on the Jakarta Islamic Index for the 2020-2021 period. Total of the selected sample is 32 companies for the 2020-2021 period. The data analysis method uses descriptive statistical analysis, panel data regression model selection test, classical assumption test, panel data regression analysis, t statistical test, F statistical test, and determination coefficient test. The following is the operationalization of the variables in this study.

Table 30. Variable Operationalization

Variable	Concept of Variables	Indicators	Scale
Dependent Variables			
Return on Asset (ROA)	*Return on Asset* is a ratio that measures a company's ability to generate profit based on total assets used (Saifi, 2019).	$ROA = \frac{Net\ Profit}{Total\ Assets}$	Ratio
Independent Variables			
Board of Commissioners (X_1)	The Board of Commissioners has an important role in overseeing performance and	Board of Commissioners Size = Total members of the board of commissioners	Ratio

	providing advice to the company's directors (Susilo, 2017).		
Ratio	The audit committee is needed in a company because it has the function of assisting the performance of the Board of Commissioners, supervising reports published by the company such as financial statements, and supervising the company's internal implementation of the *Good Corporate Governance* system (Susilo, 2017).	Board of Audit Commitee Size = Total members of the board of audit committee	Ratio
Managerial Ownership (X_3)	Managerial Ownership is a form of ownership that company managers have over a company (Saifi, 2019).	Managerial Ownership = $\dfrac{\text{Number of management shares}}{\text{Number of shares}}$ x 100%	Ratio
Foreign Ownership (X_4)	Foreign Ownership is a form of ownership of a company owned by a legal entity, government, or organization from abroad (Herawanto et al., 2017)	Foreign Ownership = $\dfrac{\text{Number of foreign shares}}{\text{Number of shares}}$ x 100%	

III. RESULT/FINDING

In Table 2. we pesent the model of panel data. The selected model for panel data is the random effect model. Only two variables, X_3 and X_4, that have $< 0{,}10$ probability value. Therefore, Managerial Ownership and Foreign Ownership (X_4) partially has a significant effect on the Profitability (Y) of companies listed on JII. Meanwhile, X_1 and X_2 have $> 0{,}10$ probability value. Therefore, Board of Commissioners and Board of Audit Committee has no significant effect on the Profitability (Y) of companies listed on JII. The F test is used to determine simultaneously the influence of the independent variable (X) on the dependent variable (Y) by looking at the F-statistical probability values available in Table 2. The F-statistical probability value is 0.064039 which means have < 0.10 probability value. Therefore, the independent variables of the Board of Commissioners (X_1), Audit Committee (X_2), Managerial Ownership (X_3), and Foreign Ownership (X_4) simultaneously have a significant effect on the Profitability (Y) of companies listed in JII.

Table 31. Model of Panel Data

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	0,022277	0,091762	0,242770	0,8100
X_1	0,041315	0,093307	0,442783	0,6614
X_2	-0,028703	0,135073	-0,212496	0,8333
X_3	-0,022385	0,008811	-2,540666	0,0171
X_4	0,064078	0,024096	2,659247	0,0130
Adjusted R-squared	0,164457			
Prob(F-statistics)	0,064039			
Durbin-Watson stat	1,871941			

IV. DISCUSSION

The Board of Commissioners has no significant effect on Profitability (Y). These results are in line with previous research from Saidat et al. (2019) and Arief & Susan (2020) that showed the Board of Commissioners had no significant effect on Profitability. However, other studies from Puni & Anlesinya (2020) and Queiri et al. (2021) have shown that there is a significant influence of the Board of Commissioners on Profitability. The Board of Commissioners has not been optimal in carrying out its performance, so it cannot affect the profitability of the company. In this study, this was proven by the absence of a significant influence between the Board of Commissioners and Profitability.

The Audit Committee has no significant effect on Profitability (Y). These results are in line with previous research from Bansal & Sharma (2016) and Putra & Nuzula (2017) that showed the Audit Committee had no significant effect on Profitability. However, other studies from Darko et al. (2016), Ofoeda (2017), Suttipun (2018), Puni & Anlesinya (2020), and Queiri et al. (2021) have shown that there is a significant audit committee's impact on profitability. The Audit Committee has not been optimal in carrying out its performance in the supervisory and control functions of the company's management, so it cannot affect the company's profitability. In this study, this was proven by the absence of significant influence between the Audit Committee and profitability.

Managerial Ownership has a significant effect on Profitability (Y). These results are in line with previous research from Saifi (2019) that showed Managerial Ownership had a significant effect on Profitability. However, other studies from Putra & Nuzula (2017) have shown that there is no significant effect of Managerial Ownership on Profitability. Amount of managerial shareholdings may indicate a similarity of interests between management and shareholders. Research objects that have a large Managerial Ownership composition may have low agency conflicts due to the similarity of interests between company management and shareholders.

Foreign Ownership has a significant effect on Profitability (Y). These results are in line with previous research from Herawanto et al. (2017), Mardnly et al. (2018), Saidat et al., (2019), and Pebriani & Rizal (2020) that showed Foreign Ownership had a significant effect on Profitability. Companies that have foreign ownership in their share ownership structure can be said to have succeeded in achieving the company's goal of increasing profits for all company stakeholders. This is caused by the large number of foreign parties who invest in a company can increase the value of the company. In addition, the increasing value of the company will also invite more new investors who will invest in the company.

V. Conclusion And Recommendation

The findings show that some of the results from this study are consistent with the previous articles which view ownership structure has a significant influence on profitability, although in this study GCG has no significant influence on profitability. The company is expected to improve the composition of managerial management because it is proven that managerial ownership has a significant effect on profitability. The management of companies that also own shares in the companies they manage tend to improve their performance and make policies that can benefit shareholders, including those who also own the number of shares in the companies they manage. If the policies made are profitable, then they will also receive benefits like other shareholders, so that the company's activities can run better to generate profits for all stakeholders. Then, the company is expected to increase foreign ownership as a step to increase the value of the company and become another way so that the company is able to get more capital that will support the company. However, the amount of the composition of Foreign Ownership must be adjusted to the rules and policies of each company regarding the maximum limit of foreign investors who can invest in the company, so that the company can also provide opportunities and space for other investors to be able to invest. Investors are expected to consider Managerial Ownership and Foreign Ownership in a company when they want to invest. The existence of company management who also owns shares in the company it manages makes management will also make policies that benefit investors as shareholders. In addition, investor must consider the profitability ratio as one of the benchmarks when making an investment. One of these profitability ratios is Return on Asset which describes to investors how the company's ability to generate net profit based on the total assets owned by the company. Companies that can attract many investors including foreign investors will be able to raise more capital to support the company's activities, so that the company can carry out its business activities and provide benefits to companies and investors by utilizing aset owned where the assets are of course also financed based on the capital obtained by the company. This research was conducted by focusing on the pandemic situation only, namely 2020-2021. Furthermore, it is expected to be able to extend the period of the research year, for example by focusing on the state of affairs after the pandemic. In addition, researchers can then also focus on comparing the period of the study year, for example comparing research on pre-pandemic, pandemic, and after-pandemic circumstances.

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Analysis of Intellectual Capital Disclosure on the Kompas 100 Index in Indonesia

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Abstract

Intellectual capital disclosure is the delivery of information about the intellectual capital owned by the company to meet the needs of stakeholders. Disclosure of intellectual capital is a form of information transparency that reduces information asymmetry. This study aims to determine the industry type, CEO duality, ownership concentration, and profitability effect on intellectual capital disclosure. Disclosure of intellectual capital needs to be done by the company as a form of management accountability to stakeholders. The implementation of intellectual capital has been implemented since the issuance of PSAK No. 19, which regulates intangible assets. However, in this regulation, PSAK does not explain the provisions for the measurement and recognition of intangible assets, so it can be concluded that PSAK recommends companies to disclose their intangible assets, and disclosure of intellectual capital is voluntary. There are still inconsistent research results on CEO duality, ownership concentration, and profitability variables on intellectual capital disclosure, so further research is needed. This research method is quantitative. This study's population is companies included in the Kompas100 index on the Indonesia Stock Exchange during the 2017-2020 period. The sample selection used purposive sampling to obtain a sample of 187 observations. The results showed that the type of industry positively affected the disclosure of intellectual capital. CEO duality and profitability have a negative effect on intellectual capital disclosure. Meanwhile, the concentration of ownership does not impact intellectual capital disclosure. Investors are expected to consider investing in companies with a high IC-intensive industry category because companies with this category tend to disclose more intellectual capital

Keywords— CEO Duality; Intellectual Capital Disclosure; Ownership Concentration; Type of Industry

I. INTRODUCTION

The company's financial statements are essential for making investment decisions because they contain information on the work that has been achieved by the company in a certain period and can be used as an illustration of its performance in the future. In addition, financial statements also act as accountability for the management of the company's resources. In the disclosure of information, according to Yadiati & Mubarok (2017), financial statements have two types of disclosures, namely mandatory disclosures that must be made based on applicable regulations. Voluntary disclosure is a disclosure that is not required by relevant regulations, namely intellectual capital. Intellectual capital is information and knowledge applied in business activities and processes to manifest company value. In general, intellectual capital consists of 3 elements, namely knowledge about external parties (relational capital), human knowledge (human capital), and learning about the company's internal (structural capital). Intellectual capital that is utilized optimally will increase sustainable competitive advantage. Companies can create value added (added value) by updating products or services that are more qualified and varied (Ulum, 2017).

Disclosure of intellectual capital needs to be done by the company as a form of management accountability to stakeholders. Stakeholders have the right to know all company activities and ensure that the company's activities are carried out as expected. This is in line with stakeholder theory, which states that companies are obliged to report all company information, carry out their activities by stakeholder expectations, and increase company value (Suwarti et al., 2016). Furthermore, disclosure of intellectual capital can provide validity to the company's actual value and reflect the company's ability to generate wealth. The more comprehensive disclosure of intellectual capital will benefit the company because it increases the completeness of financial statements and is one of the bases for decision-making for stakeholders (Widiatmoko & Indarti, 2018). Disclosure of intellectual capital needs to be considered to expand its company exposure due to rapid changes in technology and information, which also impact the world economy. The company's ability to create sustainable innovation, use knowledge, and develop human resources is also essential to maintain sustainability and add competitive value to the company (Delvia & Alexander, 2018).

The implementation of intellectual capital has been implemented since the issuance of PSAK No. 19, which regulates intangible assets. Based on PSAK, intangible assets are non-monetary assets that can be recognized as assets without physical form. Intangible assets include the design and implementation of new systems or procedures, intellectual property rights, science and technology, licenses, knowledge of brands, and trade markets (IAI, 2021). However, in this regulation, PSAK does not explain the provisions for the measurement and recognition of intangible assets, so it can be concluded that PSAK advises companies to disclose their intangible assets, and disclosure of intellectual capital is voluntary (Puspitarini & Panjaitan, 2018).

To facilitate investors in making investment decisions, the Indonesia Stock Exchange provides stock indexes. The stock index is a statistical measure that includes price changes of various stocks, determined using specific techniques and parameters and evaluated periodically. as of November 2021, the Indonesia Stock Exchange has 38 stock indices, one of which is the Kompas 100 index (IDX, 2021). The Kompas100 index is measured based on companies with a significant level of liquidity and market capitalization. This index was published on July 13, 2007, in collaboration with Kompas Media Group, the publisher of the Kompas Daily Letter. This index is updated regularly every six months, namely, in February and August; companies must maintain their performance to remain sound and continue to improve, not to lose competitiveness with other companies, and carry their position. However, not all companies can maintain their role in the Kompas100 Index. The number of companies that came out of the Kompas100 Index in the 2017-2020 period fluctuated. The number of companies that came out of the Kompas100 index was the lowest in 2018, with 15 companies. In comparison, the most significant number occurred in 2019 as many as 26 companies, and in 2020 as many as 23 companies came out of the Kompas 100 Index. This shows that some companies cannot maintain their position on the Kompas100 Index list. There is a risk of uncertainty over investment, so investors need other considerations in making investment decisions. One of them is by looking at the disclosure of the company's intellectual capital. Companies with a high level of intellectual capital disclosure can reduce the uncertainty risk in large market capitalization to become an added value for investors to invest in the company. Based on this phenomenon, it is essential to know the level of intellectual capital disclosure in companies included in the Kompas 100 index.

This study focuses on four variables that investors consider: the type of industry, CEO duality, ownership concentration, and profitability. Many studies influence companies in analyzing the level of intellectual capital disclosure. The results of research conducted by Widiatmoko & Goreti (2018) type of auditor and concentration of ownership do not affect intellectual capital disclosure. Leverage and profitability have a positive effect on intellectual capital disclosure. Similar to the results of Sinaga & Sudarno's research (2018), family ownership, foreign ownership, CEO duality, and the number of audit committee meetings significantly positively affect intellectual capital disclosure. The duality of family and independent directors does not affect intellectual capital disclosure. Kamath's research (2016) shows that the type of industry, type of auditor company, leverage, research and development, profitability, and company size significantly positively affect intellectual capital disclosure. Meanwhile, Alfraih's research (2018) shows that board size, external directors, CEO duality, block holder ownership, and government ownership affect intellectual capital disclosure.

Based on the results of research that has been carried out both in Indonesia and outside Indonesia, there are still inconsistent results; therefore, it is necessary to re-examine the level of intellectual capital disclosure in companies that are included in the Kompas 100 index. This study aims to determine the simultaneous and partial effect of the industry type, CEO duality, ownership concentration, and profitability on intellectual capital disclosure. Research benefits for companies can provide a stimulus and know the urgency to disclose intellectual capital in financial statements. At the same time, for investors, it can be taken into consideration in the decision-making process to invest.

II. LITERATURE REVIEW

Stakeholder theory states that company management carries out all of its activities based on the expectations and directions of stakeholders and then reports on its activities to related parties. Although there is a possibility that stakeholders do not use this information and do not play a direct role in the company's operations, they have the right to obtain information regarding the implementation of company activities carried out by stakeholder directions and meeting their expectations. The essence of this theory is that companies are required to prosper stakeholders optimally.

Stakeholders are not only shareholders but also employees, suppliers, creditors, owners, and all parties who have an economic interest in the company (Susanto et al., 2019). Managers must have good skills in managing company resources efficiently and effectively to increase the company's value and reduce the risk of possible stakeholder losses. This is supported by understanding the stakeholder environment so that the company can determine the right policies to meet stakeholder expectations of the company. Stakeholders also have the right to know the information and potential of the company (Anna & Dwi, 2018).

Intellectual capital contains information about intangible assets owned by the company to maintain competitive value and help realize the company's strategy effectively and efficiently (Rezki, 2018). According to Bukh in Isnalita & Romadhon (2018), intellectual capital can be defined as intangible assets, including resources, company capabilities, and competencies, to improve performance and add value to the company. Disclosure of intellectual capital is necessary for investors because it can reduce uncertainty about the future and make company valuations more accurate. From this description, it can be said that intellectual capital is an intangible asset owned by a company consisting of human capital, structural capital, and relationship capital. If properly disclosed, intellectual capital can increase the company's value and help investors see the company's future and assess the company's capabilities more accurately.

According to Laurencia & Meiden (2020), intellectual capital disclosure is the delivery of intellectual capital owned by the company to meet the company's information needs to stakeholders. Intellectual capital disclosure includes voluntary disclosures so that companies are given the authority to disclose or not. Disclosure of intellectual capital is a form of transparency of information owned by the company so that it can explain the potential of the company well (Sariningsih & Saputro, 2020). Disclosure of intellectual capital can help increase employee confidence and provide evidence of the company's actual value. Disclosure of intellectual capital has become a concern for companies since the issuance of PSAK 19, which regulates intangible assets. However, in this regulation, PSAK does not explain the provisions for the measurement and recognition of intellectual capital, so it can be said that PSAK advises companies to disclose their intangible assets, and disclosure of intellectual capital is voluntary (Puspitarini & Panjaitan, 2018).

a. *Type of Industry and Intellectual Capital Disclosure*

An organization or corporation with similar business characteristics is the definition of an industry. An industry can be grouped based on the type of company activity (Sariningsih & Saputro, 2020). Based on the Global Classification Standard Criteria in Naimah & Mukti (2019), industries can be grouped based on high IC intensive and low IC intensive industries. High IC intensive industry is a company that utilizes a lot of technology and knowledge in its activities. Common IC intensive industry is a company that still prioritizes tangible assets in the process of its activities and tends to be traditional. The high IC intensive industry tends to disclose more intellectual capital than the low IC intensive industry. This is because high IC intensive industry companies use technology and science a lot in carrying out their company activities, which impact increasing employee knowledge and adding value to the company. To prove the use of intellectual capital, companies disclose intellectual capital to meet stakeholder needs (Naimah & Mukti, 2019). This statement is in line with Sariningsih & Saputro (2020) research that the type of industry positively affects the disclosure of intellectual capital. Companies in the high IC intensive industry category disclose more intellectual capital and optimize intellectual capital more broadly. The results of Rezki's research (2018) also show that the type of industry positively affects the disclosure of intellectual capital.
H_1: The type of industry affects the disclosure of intellectual capital.

b. *CEO Duality and Intellectual Capital Disclosure*
CEO Duality and Intellectual Capital Disclosure CEO duality is a situation when the CEO of a company holds concurrent positions on the board of directors or board of commissioners in the same company. In addition, CEO duality can also be defined when the leader has a family relationship with the board of directors or commissioners. The duality of the CEO can interfere with independence in decision-making because the CEO prioritizes personal interests, and the delivery of information about the company is not optimal due to inadequate supervision. In the long term, CEO duality will lead to abuse of authority Alfraih (2018). There needs to be a separation of positions to increase

effectiveness and reduce the possibility of conflicts of interest. The duality of the CEO will cause the disclosure of intellectual capital to be not optimal due to a conflict of interest. The results of the research support this statement by Alfraih (2018) and Laurencia and Meiden (2020), which state that CEO duality has a negative effect on intellectual capital disclosure.

H_2: CEO duality affects intellectual capital disclosure

c. *Concentration of Ownership and Disclosure of Intellectual Capital*

Company concentration is the number of shares owned by groups or individuals with a more significant portion than other parties. In a company, ownership can be concentrated if the share ownership is mainly owned by certain groups or individuals so that the parties have a larger share of shares than other parties. The concentration of ownership will affect the level of supervision of the company's management and its board of directors. This is due to differences in voting rights for majority and minority shareholders, thereby increasing the possibility of conflicts of interest between internal and external parties of the company (Indrayati et al., 2021). This is in line with research by Ulfah et al. (2021) and Indrayati et al. (2021), which state that ownership concentration has a positive effect on intellectual capital disclosure.

H_3: Concentration of ownership affects intellectual capital disclosure

d. *Profitability and Intellectual Capital Disclosure*

The profitability ratio measures the company's ability to earn profits from assets, sales, profits, and own capital (Sujarweni, 2017). The ratio calculation measures the company's profitability in several periods, which will then be used as the basis for making policy decisions and evaluating the company. While for external parties, the profitability ratio is also used to assess the company's ability to generate profits, see the company's prospects in the future, and as a basis for making investment decisions (Hery, 2016). Profitability measures the company's ability to generate profits from sales, assets, profit, and own capital. Companies with a high level of profitability tend to disclose their intellectual capital more widely than companies with a low level of profitability. This is because the company provides an overview to stakeholders regarding its future capabilities (Rezki, 2018). This is in line with the results of research by Widiatmoko & Indarti (2018) and Rezki (2018) that profitability positively affects intellectual capital disclosure.

H_4: Profitability affects intellectual capital disclosure

III. RESEARCH METHODOLOGY

The method used in this research is quantitative research. The data used in this research is secondary data. The population used in this study are companies included in the Kompas100 Index on the Indonesia Stock Exchange for the 2017-2020 period. The sample in this study was determined using the purposive sampling technique. Purposive sampling is a sampling technique with specific considerations. The purposive sampling criteria used in this study are companies included in the Kompas100 Index in a row in the 2017-2020 period, companies included in the non-financial sector, and companies that consistently publish financial reports and annual reports during the study period. Based on the preparation of sample criteria, 51 companies were obtained for four years so that 204 observations were received; for better data quality, an outlier test was carried out so that the total data used in this study were 187 observations. The data analysis technique used is panel data regression analysis, which shows the relationship between the independent variable and the dependent variable of more than one object. Panel data regression is a regression by combining both cross-section and time series data in an equation. This regression was developed to overcome various problems when performing regression with cross-section or time series data separately. These problems include the adequacy of data availability, heteroscedasticity problems often encountered in cross-section data, and autocorrelation problems often in time series data. This regression was also developed for reasons of efficiency in estimating. To find out that the obtained regression equation has estimation accuracy and is consistent, it is necessary to test the classical assumption. In the classic assumption test panel data, only the multicollinearity test and the heteroscedasticity test Basuki & Prawoto (2016). The model used is as follows:

$$ICD = \alpha + \beta_1 TOIo_{it} + \beta_2 CD_{it} + \beta_3 OC_{it} + \beta_4 Prof_{it} + \varepsilon$$

Where :

ICD	= Intellectual Capital Disclosure
α	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	= Regression Coefficient
TOI	= Type of Industry
CD	= CEO Duality
OC	= Ownership Concentration
Prof	= Profitability
ε	= error

In this study, the disclosure index consists of 36 items with a maximum cumulative score of 57. The identification process for intellectual capital disclosure uses four numerical code systems with a score of 0 if it is not disclosed in the annual report, a score of 1 if it is disclosed in narrative form, and a score of 2 if it is disclosed in the form of a narrative. Numeric, and a score of 3 when expressed in monetary form. The calculation of the intellectual capital disclosure assessment is determined by comparing the acquisition value of intellectual capital disclosure with the maximum number of intellectual capital disclosures carried out by the Ulum company (2017). Calculate the type of industry using a dummy with criteria 0 for low IC intensive industry and 1 for high IC intensive industry. The calculation of CEO duality uses a dummy with criteria 0 if there is no family affiliation between directors and commissioners and 1 if there is a family affiliation between directors and commissioners. Calculate ownership concentration by comparing the most significant number of shareholdings with the number of outstanding shares. What the same time, profitability in this study uses return on assets by comparing net income with total assets.

IV. RESULT / FINDING

The descriptive statistical analysis aims to explain the characteristics of all variables in this study. The following are the results of descriptive statistical analysis with a ratio scale:

Table 1. Descriptive Statistics on Ratio Scale

	ICD	OC	PROF
Mean	0.562343	0.591948	0.057649
Std. Dev	0.112494	0.093177	0.051755
Maximum	0.280700	0.831500	0.211900
Minimum	0.789500	0.429300	-0.057200
Observation	187	187	187

Source: Data processed, 2022

The average value of intellectual capital disclosure of companies included in the Kompas100 index on the Indonesia Stock Exchange in 2017-2020 is 0.562343 (56.23%). The results show that companies' disclosure of intellectual capital tends to be low because it is below 60%. The variable concentration of company ownership included in the Kompas 100 index on the Indonesia Stock Exchange during 2017-2020 has an average value of 0.591948 (59.19%). This indicates that company ownership tends to be concentrated or centralized. While the company's profitability variable included in the Kompas100 index on the Indonesia Stock Exchange in 2017-2020 is 0.057649 (5.76%), which shows the company's ability to utilize assets to generate net profit has not been maximized.

Table 2. Descriptive Statistics with Nominal Scale

Variable	Criteria	Total	Presentage (%)
Industry Type	0: High IC Intensive Industry	112	59,89%
	1: Low IC Intensive Industry	75	40,11%
	Observation	187	100%
CEO Duality	0: No CEO Duality	126	67,37%
	1: There is a duality between CEO	61	32,63%
	Observation	187	100%

Table 2 shows that the variable type of industry, 112 samples or 59.89% of companies included in the Kompas100 index on the Indonesia Stock Exchange in 2017-2020 are included in the category of high IC intensive industry. While the CEO duality variable, as many as 126 samples or 67.37% of companies included in the Kompas100 index on the Indonesia Stock Exchange in 2017-2020 did not apply CEO duality in their management.

This study carried out classical assumption testing, namely multicollinearity and heteroscedasticity tests. Multicollinearity testing aims to see the linear relationship between independent variables. If the correlation value is < 0.80 (80%), then there is no multicollinearity problem between independent variables in the regression model. The results show that each variable has a correlation value below 0.80 (80%) type of industry is 0.245191, CEO duality is -0.307454, ownership concentration is -0.088506, and profitability is - 0.239380. From these results, it can be concluded that this study does not have a correlation problem between independent variables. Next is the heteroscedasticity test. This test is carried out to determine the issue of variance inequality on different independent variables in the regression model. The data can be categorized as good if there is no heteroscedasticity or homoscedasticity problem and has a probability value of > 0.05% (5%). Based on the results of heteroscedasticity testing on the independent variables in this study, all independent variables have a probability value of > 0.05 (5%), so it can be concluded that there is no heteroscedasticity problem in the regression model in this study.

Selection of panel data regression model, consisting of common effect model, random effect model, and fixed effect model. Then three stages of testing are needed to determine the model to be used: the Chow test, the Hausman test, and the Lagrange multiplier test.

a. *Chow Test*
   In the chow test, the models tested are the common effect model and the fixed effect model. If the probability value is > 0.05 (5%), then the common effect is the appropriate model to use. Suppose the chi-square cross section value is < 0.05 (5%), then the fixed effect model is more suitable for research. The following are the results of the chow test for this study:

Table 3. Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	2.181004	(46,136)	0.0003
Cross-section Chi-square	103.328351	46	0.0000

   The result of the probability value (cross-section chi-square) is 0.0000. This value is smaller than the p-value of 0.05 (5%), so based on the decision-making criteria, H0 is rejected. The panel data regression model suitable for this research is the fixed effect model.

b. *Hausman Test*
   In the Hausman test, the models tested are the random effect model and the fixed effect model. The criteria for the provisions in this test are if the probability value is > 0.05 (5%), then the appropriate model is a random effect. The suitable model is a fixed effect if the probability value is < 0.05 (%).

Table 4. Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.432989	4	0.2457

Source: Data processed, 2022

Based on the results obtained, the probability value of a random cross-section is 0.2457 or greater than 0.05 (5%). The decision-making criteria, then H0 is accepted, and the random effect model is appropriate for this research.

c. *Lagrange Multiplier Test*
The Lagrange multiplier test was carried out due to differences in the Chow and Hausman test results. Then the Lagrange multiplier test is needed to determine the outcome of the panel data regression model that will be used in the study. The models to be tested are random effects and fixed effects models. The significance level in the lagrange multiplier test is 0.05 (5%).

Table 5. Lagrange Multiplier Test

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
    (all others) alternatives

| | Test Hypothesis | | |
	Cross-section	Time	Both
Breusch-Pagan	13.85418	0.284464	14.13864
	(0.0002)	(0.5938)	(0.0002)

Source: Data processed, 2022

The probability value of the Breusch-Pagan cross section is 0.0002 or less than 0.05 (5%). The random effect model is the most suitable panel data regression model for this study.

Based on the results of testing the three models that have been carried out, namely the Chow test, Hausman test, and the Lagrange multiplier test, it can be concluded that the best model to be used in this study is the random effect model.

Table 6. Hasil Uji Model Random Effect

Dependent Variable: ICD
Method: Panel EGLS (Cross-section random effects)
Date: 03/23/22   Time: 12:25
Sample: 2017 2020
Periods included: 4
Cross-sections included: 47
Total panel (unbalanced) observations: 187
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.644803	0.048764	13.22292	0.0000
JINDS	0.053781	0.015414	3.489105	0.0006
DCEO	-0.064778	0.015379	-4.212055	0.0000
KPEM	-0.123399	0.075552	-1.633300	0.1041
PROF	-0.375365	0.139972	-2.681715	0.0080

Effects Specification				
			S.D.	Rho
Cross-section random			0.048182	0.2222
Idiosyncratic random			0.090158	0.7778

Weighted Statistics				
R-squared	0.210974	Mean dependent var		0.384733
Adjusted R-squared	0.193633	S.D. dependent var		0.101171
S.E. of regression	0.090497	Sum squared resid		1.490529
F-statistic	12.16607	Durbin-Watson stat		2.113754
Prob(F-statistic)	0.000000			

Unweighted Statistics				
R-squared	0.182164	Mean dependent var		0.562343
Sum squared resid	1.925044	Durbin-Watson stat		1.636644

Source: Data processed, 2022

Based on the table above, the adjusted R-squared is 0.193633 (19.36%) and the probability value (F-statistic) is 0.000000 < = 0.05 (5%). From the results obtained, it can be interpreted that the variable type of industry, CEO duality, ownership concentration, and profitability can explain the disclosure of intellectual capital by 19.36%. At the same time, the other 80.64% is explained by other factors that are not in the study. Furthermore, the probability value (F-

statistic) means that the type of industry, CEO duality, ownership concentration, and profitability simultaneously affect intellectual capital disclosure.

V. DISCUSSION

The following is a discussion of the research results, namely:

a. Based on the results of the panel data regression test, the type of industry has a coefficient value of 0.053781 with a probability value of 0.0006 <0.05. This shows that the type of industry partially has a significant positive effect on intellectual capital disclosure. Companies with high IC intensive industries tend to disclose more intellectual capital than companies with low IC intensive industries. In other words, the more companies utilize technology in their operational activities, the more disclosure of intellectual capital. From the results obtained, it can be seen that companies on the Kompas100 index listed on the Indonesia Stock Exchange in 2017-2020 that are included in the high IC intensive industry category tend to disclose more intellectual capital than companies in the low IC intensive industry category. This is because the company has an obligation to meet the information needs of the stakeholders for the disclosure of the use of intellectual capital owned by the stakeholders. The results of this study are supported by the results of previous studies conducted by Rezki (2018) and Sariningsih & Saputro (2020), which state that the type of industry has a positive effect on intellectual capital disclosure.

b. Based on the results of the panel data regression test, the coefficient value of the CEO duality variable is -0.064778 with a probability value of 0.0000 <0.05, this indicates that CEO duality has a significant negative effect on intellectual capital disclosure. These results are from the research hypothesis, which states that CEO duality negatively impacts intellectual capital disclosure. The application of CEO duality can interfere with independence in decision-making because the CEO prioritizes personal interests, so the delivery of information about the company is not optimal. This result is in line with Alfraih's research (2018) and also (Laurencia & Meiden, 2020), which states that CEO duality has a negative effect on intellectual capital disclosure. This is because the duality of the CEO can limit the company's disclosure of intellectual capital due to a conflict of interest and also reduces the independence of the board of directors in making decisions.

c. Based on the results of the panel data regression test, the coefficient of ownership concentration variable is -0.123399 with a probability value of 0.1041 > 0.05; this indicates that ownership concentration does not affect intellectual capital disclosure, which suggests that the more concentrated or not ownership is, the company will continue to disclose intellectual capital to the fullest. This disclosure is the company's obligation to meet the information needs of stakeholders, which will then be used to assist in making investment decisions. In addition, the company also discloses intellectual capital to report on the realization of the use of intellectual capital owned. This is not in line with the research hypothesis, which states that ownership concentration positively affects intellectual capital disclosure. The absence of the influence of concentration of ownership is also due to the company's obligation to meet the information needs of stakeholders, which will then be used to assist in making investment decisions. In addition, the company also discloses intellectual capital to report on the realization of the use of intellectual capital owned. These results align with research conducted by Widiatmoko & Indarti (2018) and Maulana et al. (2020), which state that ownership concentration does not affect intellectual capital disclosure.

d. Based on the results of the panel data regression test, the variable coefficient value is -0.375365 with a probability value of 0.0080 <0.05, indicating that profitability negatively affects intellectual capital disclosure. The lower the profitability value, the higher the intellectual capital disclosure value. Conversely, intellectual capital disclosure will be more deficient if the profitability value is high. This is because the company continues to strive to disclose its intellectual capital even though profitability has decreased. Because the disclosure of intellectual capital to stakeholders is something that the company must do to meet the information needs and form of realization of the use of intellectual capital owned by the company. Disclosure of intellectual capital can also illustrate to stakeholders the value and competitive ability of the company in the future so that companies continue to maximize the disclosure of their intellectual capital even though the company's profitability declines. In addition, disclosure of intellectual capital is also voluntary or voluntary, so companies do not disclose their intellectual capital to the fullest. This study's results align with Murhadi (2009) that profitability has a significant negative effect on

intellectual capital disclosure. Companies tend to limit intellectual capital disclosure when profitability increases and expand intelligent capital disclosure when profitability decreases.

VI. Conclusion and Recommendation

This study aims to determine the industry type, CEO duality, ownership concentration, and profitability effect on intellectual capital disclosure. The study's results found evidence that the kind of industry has a significant positive impact on intellectual capital disclosure, and CEO duality and profitability significantly negatively affect intellectual capital disclosure. In contrast, ownership concentration does not affect intellectual capital disclosure. In addition, this study also has several practical implications, namely for companies to use and utilize technology optimally so that the intellectual capital disclosed is maximized. At the same time, investors can consider investing in companies with high IC-intensive industry categories because companies with these categories tend to disclose capital. Intellectual property is more than companies with low IC intensive industry category.

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Analysis the Effect of Macroeconomics on Equity Mutual Funds Performance in Indonesia During the Covid-19 Pandemic

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Abstract

Mutual funds are one type of investment that many people are interested in, because they are carried out by investment managers where investors can feel more secure. There are seven types of mutual funds, stock mutual funds are the type of mutual funds that can provide the biggest returns. However, mutual funds cannot be separated from system risk, the purpose of this study is to analyze the effect of macroeconomic factors such as inflation, exchange rates, JCI, and the case of Covid-19 on the return of stock mutual funds in Indonesia. A sample of 172 mutual funds were selected using purposive sampling technique and tested in this study, data were collected from Thompson Reuters and Bank Indonesia. The method used in this research is multiple linear regression analysis. The result of this research is JCI and exchange rate have a negative significant effect and inflation have a positive significant effect on equity mutual funds performance in Indonesia, while the covid-19 cases has no significant effect on equity mutual fund performance.

Keywords—Covid-19; Equity Mutual Funds; Exchange Rate; JCI; Inflation; Macroeconomic,.

I. INTRODUCTION

The condition of the Covid-19 pandemic greatly affects the condition of the Indonesian capital market which in turn will affect the investment decisions taken by investors. One of the actions taken is to look for saver investments to avoid greater losses. The form of investment that is then widely ogled and in demand by the public is mutual funds. There are 7 types of mutual funds; Money market funds, equity funds, fixed income funds, balance and income funds, asset allocation funds, index funds, and specialized sector funds. In the selection of mutual funds, there are several indicators that can be used as a reference for assessment, including return and Net Asset Value (NAV).

The increase in mutual fund managed funds was supported by the increase in the number of investors and the issuance of new products. OJK noted that the number of capital market investors as of December 30, 2021 reached 7.49 million people, an increase of 92.99 percent from the end of 2020 which reached 3.88 million people. More than 50% of the number of investors is dominated by domestic investors under 30 years old.

However, Mutual Funds are also inseparable from risk, there are 2 risks that must be faced, namely; systematic risk and non-systematic risk. Systematic risk or market risk will have an impact on all investors without exception and without anyone being able to control it because it is a risk associated with overall market conditions and cannot be avoided by diversification. In Covid-19 pandemic situatuin the systematic risk faced by Mutual Funds is increasing, where macroeconomic conditions are affected by the Covid-19 pandemic, suchs as the decrease of JCI, Rupiah weakened agains US Dollar, and inflation, where Covid-19 was the reason of this situation. Where on these factors can affect the capital market, and become a challenge for mutual funds, especially equity mutual funds.

This research try to find out and explain how JCI, Inflation, Exchange rate, and Covid-19 cases affecting the equity mutual fund performance during Covid-19 pandemic.

II. LITERATURE REVIEW

No	Researcher	Title	Year	Research Results
1	Aang Syahdina dan Andi Setiyawan	Determinants of Mixed Mutual Fund Performance Factors in Indonesia	2021	The results is inflation had a significant negative effect, the JCI had a significant positive effect, and gold prices had no significant effect on the performance of mixed mutual funds.
2	Khoirunnisa Azzahra dan Baiq Fitri Arianti	Macroeconomic Determinants That Affect	2021	The resuls is inflation had no significant effect, the rupiah exchange rate had a significant positive effect,

		Net Asset Value of Sharia Mutual Funds		Bank Indonesia Syariah Certificates (SBIS) had a significant negative effect on the Net Asset Value of Islamic Mutual Funds.
3	Larisa Yarovaya et al	Human Capital efficiency and equity funds' performance during the COVID-19 pandemic	2021	The results is equity funds that ranked higher in human resource efficiency outperformed the other mutual funds. Most mutual funds show negative returns and Jensen's alpha. However, mutual funds with higher Human Capital Efficiency (HCE) continued to show resilience with significant positive risk-adjusted returns and Jensen's alpha.
4	Chandra Setiawan dan Ni Putu Kanila Wati	Factors Affecting the Performance of Sharia Equity Funds in Indonesia	2019	The results is stock selection skills, percentage change in AUM, and inflation rate had a significant positive effect on the performance of Islamic equity mutual funds in Indonesia, while market timing ability had a positive but not significant effect. In addition, the percentage change in the exchange rate has a significant effect on the performance of Islamic equity mutual funds, but in a negative direction.

A. Previous Research

B. Mutual Fund

Based on Law No. 8 of 1995 article 1 paragraph 27, it is stated that mutual funds are containers used to collect funds from the investor community and then subsequently invested in securities portfolios by Investment Managers. In the financial dictionary, a mutual fund is defined as a diversified portfolio of financial assets, listed as a publicly traded investment company, which selling shares to the public at the offer price and withdrawals at the net asset value (Adler Manurung, 2003). Bodie (Bodie at al, 2005,) divides mutual funds into 7 types, namely: Money Market Funds, Equity Funds, Fixed Income Funds, Balance and Income Funds, Asset Allocation Funds, Index Funds, Specialized Sector Funds.

To find out whether or not the investment performance of a stock mutual fund portfolio managed by an investment manager is good or not, it is strongly influenced by the investment policies and strategies carried out by the appointed investment manager. Therefore, we need to understand the benchmark or calculation of the price of share mutual funds, as well as to know the development of the investment value of equity mutual funds which we can see from the increase in Net Asset Value because investment performance in managing a portfolio of equity mutual funds is reflected in it (Soemitra, 2009). This is because an increase in NAV indicates that the shareholder's investment value per unit of investment increases, whereas if there is a decrease in NAV, it means that the value of shareholder's investment per unit of investment decreases

From the NAV we could see the return of the mutual fund, which can also be indicate as the mutual fund performance. The rate of return on an investment in mutual fund is measured as the increase or decrease in net asset value plus income distributions such as dividends or distribution of capital gains (Bodie et al, 2014), the formula as below;

$$\text{Rate of return} = \frac{\text{NAV}_1 - \text{NAV}_0 + \text{Income and capital gain distributions}}{\text{NAV}_0}$$

C. Equity Fund

Equity funds investing primarily in stocks, Equity funds are typically riskier and respond more dramatically to changing economic conditions than income funds. (Body, et al). Equity mutual fund is a type of mutual fund that invests at least 80 percent of its assets in the form of equity securities or shares. Because the majority of the portfolio is in stock securities, the nature and movement of these mutual funds are similar to the nature and movement of stocks. The risk is relatively higher than money market mutual funds and fixed income funds, but has the highest potential return (high risk high return).

D. Macroeconomic

Macroeconomics is an economic variable that relates to aggregate economic variables, such as the rate and rate of growth of national output, interest rates, unemployment, and inflation. (Pyndick. et al 2013).

E. Composite Stock Price Index

According to IDX, JCI stands for Composite Stock Price Index, which is a stock chart that shows the average movement of all stocks on the stock exchange. With the JCI chart, the public and capital market participants can see a summary of the IDX's capital market conditions in real-time without having to analyze each stock instrument one by one.

F. Inflation

Inflation is an event that shows an increase in the price level in general and continuously, in the aggregate in an economy (Murni, 2013). This increase will result in a decrease in people's purchasing power and also an increase in the company's operational costs. This increase in operating costs will result in a decrease in company profits which has an impact on the possibility of a decrease in shareholder income and also a decrease in share prices. This of course makes investing in equity funds less attractive and will cause the price of mutual funds to fall. If inflation occurs continuously, it will cause a decline in overall economic conditions and be able to reduce the performance of the Indonesian capital market and the investment power of its investors (Dalimunthe and Lestari, 2019).
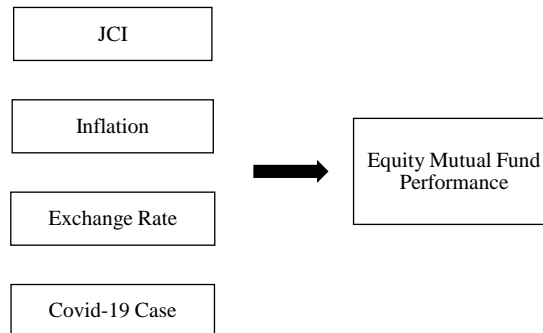
G. Exchange Rate

One of the functions of international trade is to maintain the balance of the international market by following the rules for equalizing payment instruments that have been formalized. The transaction tool is the exchange rate. Understanding the exchange rate in general is the value or price of a country's currency measured or expressed in the currency of another country. The definition of the exchange rate according to the Regulation of the Minister of Finance No.114/PMK.04/2007 Article 1 is the price of the rupiah against foreign currencies. A sharp increase in the exchange rate of the rupiah against the rupiah will lead to two sides of gain and loss. Losses can be felt by importers because the raw materials needed must be purchased at high prices. This can lower stock prices on the Stock Exchange and have a negative impact on the Net Asset Value (NAV) of equity funds. This opinion is in line with the statement that the rupiah exchange rate has a negative effect on the Net Asset Value (NAV) of equity funds (Saraswati, 2013).

H. Covid-19

According to the World Health Organization (WHO), COVID-19 is an infectious disease caused by a newly discovered coronavirus. This new virus and the diseases it causes were unknown before the outbreak began in Wuhan, China, in December 2019. COVID-19 is now a pandemic occurring in many countries around the world.

I. Framework

Where:

Y= Dependent variable Equity Mutual Fund Performance
X1= JCI independent variable
X2= Independent Variable Exchange Rate of US Dollar against Rupiah
X3= Independent Variable Inflation
X4 = Independent Variable Covid-19 Case

2.10 Hypothesis
From introduction and literature review above, this study hypothesis as below;
X1 => Y
H$_0$: There is no significant effect of the JCI on Equity Mutual Fund Performance.
H$_1$: There is a significant effect of the JCI on Equity Mutual Fund Performance.

X2 => Y

H0: There is no significant effect of US Dollar Exchange against Rupiah on Equity Mutual Fund Performance.

H1: There is a significant effect of US Dollar Exchange against Rupiah on Equity Mutual Fund Performance.

X3 => Y

H0: There is no significant effect of Inflation on Equity Mutual Fund Performance.

H1: There is a significant effect of inflation on Equity Mutual Fund Performance.

X4 => Y

H0: There is no significant effect of the Covid-19 case on Equity Mutual Fund Performance.

H1: There is a significant effect of the Covid-19 case on Equity Mutual Fund Performance.

III. RESEARCH METHODOLOGY

In conducting this research, the determination of the sampling technique used is a probability technique, namely purposive sampling. This technique is carried out by the researcher first determining the criteria that must be possessed by the sample, so that the sample selection is based on these criteria. Where in this study the criteria are as follows;

a. Equity Mutual Funds registered in The Financial Services Authoritybefore 2020
b. Equity Mutual Funds that have historical Net Asset Value (NAV) data since 2020
   From the purposive sampling, There are 172 equity mutual funds meet the criteria and selected for this study.

The data collected by researchers in this study were obtained based on:

Documents

In this study, researchers will use secondary data in the form of monthly Net Asset Value (NAV) equity mutual funds, JCI, Inflation, Exchange rate, and Covid-19 monthly data. This research uses time series data. According to Widarjono (Basuki and Yuliadi, 2015:165), panel data regression has several advantages, including having a greater degree of freedom, and reducing problems when omitted-variables occur because more data is available.

This study uses the panel data regression model equation which is formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

where:

Y: Mutual Fund Performance

X1: JCI

X2: Dollar Exchange Rate against Rupiah

X3: Inflation

X4: Cases of COVID-19

This test is conducted to determine whether the residual values are normally distributed or not. The test procedure is carried out using the Kolmogorov-Smirnov test, with the following conditions:

Hypothesis used:

H0 : residual is normally distributed

H1: residual is not normally distributed

If the value of sig. (p-value) > 0.05 then H0 is accepted, which means normality is met.

Multicollinearity test is conducted to find out that there is no very strong relationship or there is no perfect linear relationship or it can also be said that the independent variables are not interrelated. The test method is to compare the correlation values obtained from the Panel regression calculation, if the correlation value between variables < 0.8 then there is no multicollinearity.

This autocorrelation test is used to determine the correlation between residuals ordered by time (as in time series) or space (as in cross section data). In the context of regression, the classical linear regression model assumes that there is no autocorrelation in the remainder ( ). This shows that the classical model assumes that the residual elements associated with the observations are not affected by the residuals associated with any other observations.

This test can be performed using the Durbin-Watson test (DW-test). The hypothesis that underlies the test is:

$H_0 : \rho = 0$ (there is no autocorrelation among the remainders)

$H_1 : \rho \neq 0$ (there is an autocorrelation among the remainders)

The Durbin-Watson statistic formulated by the d statistic is:

$$d = \frac{\sum (e_t - e_{t-1})^2}{\sum e^2}$$

Heteroscedasticity test is used to determine whether there is an inequality in the value of the residual deviation due to the size of the value of one of the independent variables. Or there is a difference in the value of variance with the increasing value of the independent variable. The test procedure was carried out by the Glejser test. Testing the homogeneity of residual variance is based on the hypothesis:

H0 : homogeneous residual variance

H1 : variance is not homogeneous

F-testing or model testing is used to determine whether the results of the regression analysis are significant or not, in other words the model that is suspected to be appropriate or not. If the result is significant, then H0 is rejected and H1 is accepted. Meanwhile, if the results are not significant, then H0 is accepted and H1 is rejected. It can also be said as follows:

H0 is rejected if F count > F table

H0 is accepted if F count < F table

t test is used to determine whether each independent variable partially has a significant effect on the dependent variable. It can also be said if t count > t table or -t count < -t table then the result is significant and means H0 is rejected and H1 is accepted. Meanwhile, if t count < t table or -t count > -t table then the result is not significant and means H0 is accepted and H1 is rejected.

In this study, there were 172 stock mutual funds tested, the 172 mutual funds were then divided into 10 groups based on the largest and smallest NAV, then each group was tested with independent variables; JCI, Rupiah exchange rate, Inflation, and Covid-19 cases.

IV. RESULT/FINDING

Table 4. 1

Source: Processed data

Based on Table 4.1, the results of descriptive statistics for each variable are as follows:

a. The JCI variable has the lowest value of 4716,400 and the highest value of 7210,830. The JCI variable has an average of 5935,486 with a standard deviation of 728,8787.
b. Rupiah exchange variable has the lowest value of 14084.00 and the highest value of 15157.00 Rupiah exchange variable has an average of 14435.92 with a standard deviation of 252.1540.
c. Inflation variable has the lowest value of 0.013200 and the highest value of 0.034700. Inflation variable has an average of 0.018400 with a standard deviation of 0.510883.
d. The Covid case variable has the lowest value of 6311c and the highest value of 1231386. The Covid case variable has an average of 241810 with a standard deviation of 334784.2.
e. Mutual Fund Performance variable has the lowest value of -0.045900 and the highest value of 0.086400. The Mutual Fund Performance variable has an average of 0.010872 with a standard deviation of 0.034489.

The results of the calculation of the normality test obtained the value of sig. as follows;

Series: Residuals	
Sample 2020M04 2022M04	
Observations 25	
Mean	-3.02e-16
Median	0.002809
Maximum	0.041558
Minimum	-0.044418
Std. Dev.	0.020949
Skewness	0.021855
Kurtosis	2.741075
Jarque-Bera	0.071826
Probability	0.964724
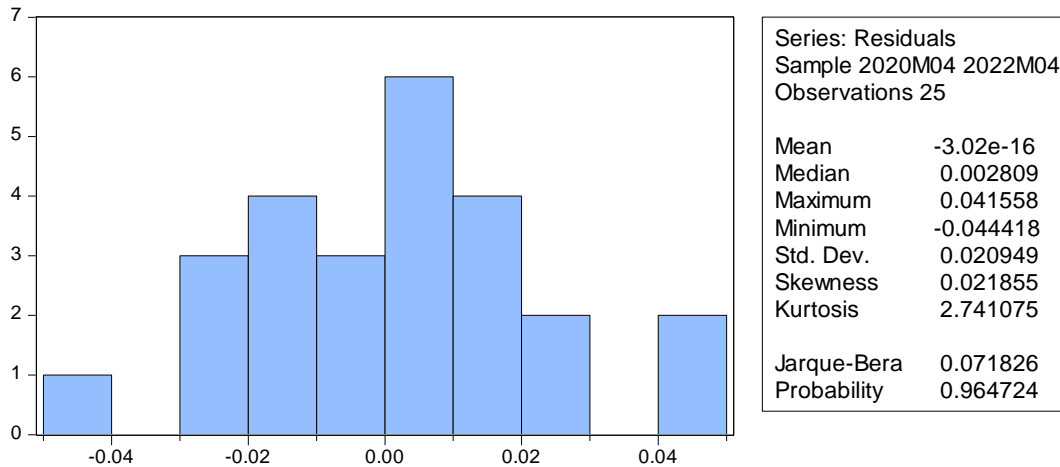
Fig 2. (Source, Processed data)

From the

	Mutual Fund Performance	JCI	Exchange Rate	Inflation	Covid-19 Case
Mean	0.010872	5935.486	14435.92	0.018400	241810.7
Median	0.007200	5985.520	14374.00	0.016300	125303.0
Maximum	0.086400	7210.830	15157.00	0.034700	1231386.
Minimum	-0.045900	4716.400	14084.00	0.013200	6311.000
Std. Dev.	0.034489	728.8787	252.1540	0.510883	331387.8
Observations	25	25	25	25	25

calculation results obtained the value of sig. of 0.071826 or greater than 0.05; then the condition of H0 is accepted, the assumption of normality is met.

The results of the multicollinearity test can be seen in table 4.2 that each independent variable have a VIF value less than 10. From the test results it can be concluded that there is no multicollinearity between the independent variables. Thus the assumption test of the absence of multicollinearity can be fulfilled.

Table 2.

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
JCI	8.44E-11	143.1547	2.042833
Exchange Rate	5.32E-10	5263.774	1.541290
Inflation	0.000112	18.52197	1.336158
Covid-19 Cases	2.34E-16	1.841551	1.193149

Source: Processed data

For Durbin Watson is 2,025 which lies between 1,766 and 2,234, it can be concluded that the assumption of no autocorrelation has been fulfilled. Which can be seen on table below;

Table 3.

Model	Durbin-Watson
1	2.025

Source: Processed data

From the heteroscedasticity test the prob value of all variables is > ($\alpha = 0.05$), which can be seen on table below;

Table 4.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.315181	0.184351	1.709674	0.1028
IHSG	2.06E-06	4.66E-06	0.441704	0.6634
Nilai Tukar	-2.00E-05	1.17E-05	-1.711294	0.1025
Inflasi	-0.010951	0.005372	-2.038304	0.0550
Kasus Covid-19	-1.04E-08	7.75E-09	-1.348598	0.1925

Source: Processed data

It can be concluded that the remainder has a homogeneous (constant) variance or in other words there are no symptoms of heteroscedasticity.

Regression analysis is used to calculate the affect of independent variables to dependent variables, the independent variables, namely JCI (X1), Rupiah Exchange (X2), Inflation (X3), Covid-19 Cases (X4) an the dependent variable, namely Mutual Fund Performance (Y). The results of regression can be seen on table below;

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JCI	-3.03E-05	9.19E-06	-3.300631	0.0036
Exchange Rate	-0.000117	2.31E-05	-5.067394	0.0001
Inflation	0.028591	0.010599	2.697477	0.0139
Covid-19 Cases	2.42E-09	1.53E-08	0.158178	0.8759
C	1.826106	0.363702	5.020881	0.0001

Table 3.

R-squared	0.631030	Mean dependent var	0.010872
Adjusted R-squared	0.557236	S.D. dependent var	0.034489
S.E. of regression	0.022949	Akaike info criterion	-4.534230
Sum squared resid	0.010533	Schwarz criterion	-4.290455
Log likelihood	61.67788	Hannan-Quinn criter.	-4.466617
F-statistic	8.551251	Durbin-Watson stat	2.024589
Prob(F-statistic)	0.000342		

Source: Processed data

The regression equations obtained based on Table 4.5 are as follows:

$$Y = 1.826 - 0.00000303\ X1 - 0.000117\ X2 + 0.028591\ X3 - 0.00000000242\ X4$$

From the above equation can be interpreted as follows:

a. The regression coefficient b1 is -0.00000303, which means Mutual Fund Performance will increase for every decrease in X1 (JCI). So if the JCI decreases, the Mutual Fund Performance will increase by 0.00000303 units assuming the other variables are held constant.
b. The regression coefficient b2 is -0.000117, which means Mutual Fund Performance will increase for every decrease in X2 (Rupiah Exchange).
c. The regression coefficient b3 is 0.028591, which means Mutual Fund Performance will increase for every increase in X3 (Inflation).
d. The regression coefficient b4 is 0.00000000242, which means Mutual Fund Performance will decrease for every increase in X4 (Covid Cases).

The results of the regression frome table 4.5 can be concluded as follows;

a. JCI has probability value < 0,05 and t stat > 2,086, which means JCI has a negative significant effect on mutual fund performance
b. Rupiah exchange rate has probability value < 0,05 and t stat > 2,086, which means Exchange rate has a negative significant effect on mutual fund performance
c. Inflation has probability value < 0,05 and t stat > 2,086, which means Inflation has a negative significant effect on mutual fund performance
d. Covid-19 Cases has probability value > 0,05 and t stat < 2,086, which means Covid-19 Cases didn't have a significant effect on mutual fund performance

To determine the contribution of the independent variables (JCI (X1), Rupiah Exchange (X2), Inflation (X3), and Covid cases (X4)) to the dependent variable (Mutual Fund Performance) adjusted R2 value is used. From the analysis

in Table 4.5, the adjusted results are obtained. R (coefficient of determination) is 0.557. This means that 55% of the Mutual Fund Performance variable will be influenced by the independent variables, namely the JCI (X1), Rupiah Exchange (X2), Inflation (X3), and Covid Cases (X4). While the remaining 45% of Mutual Fund Performance variables will be influenced by other variables that are not discussed in this study.

V. DISCUSSION

JCI has a significant negative effect on mutual fund performance, this can be indicated by panic selling and panic buying by investors. So investors tend to sell mutual fund units when prices fall and buy when prices go up, quoted from Kontan.co.id, Investors withdrew Rp 167.9 trillion in funds in March 2020, the total net asset value (NAV) also decreased by around 8.5 % which is also affected by the withdrawal of funds by investors. In addition, individual investors also experience psychological pressure related to liquidity problems, which triggers panic selling.

The rupiah exchange rate has a significant but negative effect on mutual fund performance. When the rupiah exchange rate strengthened against the US dollar, it actually became an attraction for foreign investors to invest in Indonesia, but in the midst of the Covid-19 pandemic, it was the opposite. This is not because foreign investors do not trust Indonesia, but because of fears of a global recession that will occur, so that when the rupiah strengthens foreign investors tend to withdraw their funds. Quoted from Bisnis.com, foreign funds leaving the money market reached Rp. 142.56 trillion in 2020. This can have a negative impact on mutual fund performance.

Inflation has a significant positive effect on mutual fund performance, when inflation increases it is usually bad news, and the capital market is no exception. However, when inflation increases during the Covid-19 pandemic, mutual fund performance tends to increase as well, this can be caused by global inflation, not only in Indonesia. So that this momentum can be used by companies or issuers to improve their business margins by increasing the selling price of their products, so that it will have a positive effect on the value and performance of the mutual fund.

The Covid-19 case does not significantly affect the performance of mutual funds, so the increase in Covid-19 cases will not have much effect on the performance of the mutual fund. In fact, the increase in Covid-19 cases is the basis or reason for the enactment of regulations or rules that limit community activities or activities that also limit economic activities.

VI. CONCLUSION AND RECOMMENDATION

Conclusion

a. The results showed that the JCI variable had a negative and significant effect on the performance of stock mutual funds.
b. The results of the study show that the Rupiah exchange variable has a negative and significant effect on the performance of stock mutual funds.
c. The results show that the inflation variable has a positive and significant effect on the performance of stock mutual funds.
d. The results of the study show that the Covid case variable has a negative and not significant effect on the performance of stock mutual funds.

Recommendation

a. Company can further improve their products in the midst of the Covid-19 pandemic, especially on inflation, because the inflation variable has a significant positive influence on the performance of stock mutual funds.
b. Investors don't need to be doing panic selling and panic buying in the midst of the Covid-19 pandemic, even though market conditions appear to be decrease, because market conditions in the Covid-19 pandemic tend to improve over time.
c. This study could be a reference for further study by accommodating the limitations of the research previously mentioned by adding other macroeconomic variables or company internal variables that can affect the performance of stock mutual funds.

Study Limitiations

a. This study only uses data for 2 years during the Covid-19 pandemic, there is no comparison of the effects before and during the Covid-19 pandemic
b. This study does not include the company's internal factors to measure the performance of stock mutual funds.
c. This study only studying the effect of 3 macroeconomic factors on the performance of stock mutual funds.

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Determinants Of Capital Adequacy Ratio Before And During The Covid-19 Pandemic: Evidence From Asean Banking Sector

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Abstract

This paper examines the factors that influence the capital adequacy ratio in ASEAN banking before and during the Covid-19 pandemic. Panel data regression is used to analyze the effect of bank-specific and macroeconomic variables on CAR by adding incorporating the period of the Covid-19 pandemic. This study used the Lerner index to assess the effect of market power on CAR. Results of this study indicate that loan to deposit ratio, and inflation negatively affects CAR. In contrast, loan quality and the increase in GDP significantly increase CAR. In addition, CAR significantly increased during the Covid-19 period. The increase of CAR during the pandemic may be caused by a reduction in the main activities of banks in providing credit so that the cash flow can be used to increase capital. The results of this study will assist banks in determining their capital adequacy ratio, especially in crisis conditions, and become a reference for more in-depth research on capital adequacy during a crisis.

Keywords—Commercial banks; capital adequacy ratio; Covid-19 pandemic; ASEAN

I. INTRODUCTION

Banking plays an essential role in developing a country's economy and overall development. Banks have the primary function of carrying out financial intermediation by collecting funds from the public in the form of savings as surplus units and channeling them in the form of a credit to deficit units. With such an important role, banks must prepare and ensure their security for any national and international economic changes. The government also needs policies and regulations to support the banking system (Dao & Nguyen, 2020).

The spread of disease outbreaks will lead to a decline in economic activity in a country, region, or even the world and will ultimately impact banking performance. Sy & Copley (2015) shows that the Ebola virus has significantly affected bank performance in African countries. Several banks stopped their activities due to risk aversion, and credit growth experienced a significant decline. The surge in deposit withdrawals occurred because of a decline in confidence in the ability of banks to supply capital and the threat of high non-performing loans.

The Covid-19 pandemic has had a massive impact and produced crises in various industries, including the banking sector. Restrictions are made to suppress the spread of the virus so that business activities will be disrupted, resulting in a decline in credit distribution and ultimately impacting banking profitability. This phenomenon is in line with a study by (Özlem Dursun & Schandlbauer, 2021), where general lending declined at the start of an unprecedented crisis, and banks with higher exposure to COVID-19 reduced their lending significantly.

Data on banking performance in ASEAN-5 countries from 2017 to 2021 shows that the Non-Performing Loan (NPL) increased from 3.2% in 2019 to 3.5% in 2020. This increase was due to bad loans caused by a disruption of economic activity. In this situation, banks will reduce their lending to be more careful, resulting in a decrease in the LDR ratio from 90.9% (2019) to 80.7% (2021). Loans are the main activity of banks, so the decline in credit growth will decrease bank profitability, as indicated by the ROE ratio from 7.2% (2019) to 3.5% (2020). In conditions of uncertainty because of the Covid-19 pandemic, banks will face more significant risks, so they will increase their capital adequacy to absorb these risks. Data shows that there is an increase in CAR in ASEAN-5 banking from 20.2% (2019) to 22.2% (2020) and 24.1% (2021). The increasing CAR is in line with de-Ramon et al. (2021) research that banks emphasize increasing capital after the crisis.

There are two dominant theories related to bank capital and risk level, namely the franchise value theory and the moral hazard theory. Franchise value is the value that will be lost if the bank goes bankrupt. To avoid the possibility of franchise value, banks will behave very carefully by holding capital and reducing their own risk which is set internally to match the actual level of capital and risk (Diamond and Rajan, 2020). Furthermore, moral hazard theory argues that banks have an incentive to bet on the risk because of information asymmetry, and deposit insurance in the banking system protects banks from disciplinary actions of depositors and equity holders (Jensen and Meckling, 1976). Banks with high capitalization will reduce moral hazard incentives and implement good management practices because shareholders are actively involved in controlling and controlling cost management and capital allocation (Fiordelisi, Marques-Ibanez, and Molyneux, 2011).

This arrangement is included in the provisions related to the obligation to provide minimum capital by banks referring to the BASEL provisions which were first issued in 1988 and are continuously being refined by Basel II and Basel III. Banks are required to provide a minimum capital based on RWA which also regulates additional capital buffers in the form of capital conservation and counter cycle buffers as well as additional capital costs. From the regulator's point of view, an increase in the capital adequacy ratio has a positive and security effect on the banking sector. Determination of bank capital for RWA according to regulations always has a negative effect on the possibility of a crisis (Cardot-Martin et al., 2021).

The regulation regarding the minimum capital adequacy requirement by banks refers to the BASEL provisions which were first issued in 1988 and are continuously being refined by Basel II and Basel III. Banks are required to provide minimum capital based on RWA which also regulates additional capital buffers in the form of Conservation capital and counters cycle buffers as well as additional capital costs. From the regulator's point of view, an increase in the capital adequacy ratio has a positive and security effect on the banking sector. Determination of bank capital for RWA according to regulations always has a negative impact on the possibility of a crisis (Cardot-Martin et al., 2021). On the commercial bank side, the high amount of capital that must be provided will lead to limited business expansion (Raza et al., 2019). The results of the negative relationship between the amount of capital and performance provide recommendations for banks to improve market performance by managing and utilizing capital effectively and efficiently (Dao & Nguyen, 2020).

ASEAN has inherited a more liberal financial system than other developing regions that offer a competitive banking industry and less stringent cross-border capital flows. According to World Bank data, Southeast Asia showed faster economic growth compared to other developing economic regions from 2009-2017, however, the increasing global advantage added to the economic uncertainty of the ASEAN economy which has a long history of economic relations with the Western world. After the Asian financial crisis, banks in ASEAN increased their capital adequacy ratios to a higher level. World Bank data shows that in 2019 the average capital-to-asset ratio of banks in ASEAN was 11%, almost the same as banks in the United States and much higher than banks in Europe, China, and India. With these conditions, banks in ASEAN can handle the crisis caused by the Covid-19 pandemic well and can even assist policymakers in overcoming problems in the decline (Zurich, 2021).

One of the functions of capital is to absorb emerging risks caused by aggressive credit growth or in crisis conditions. Determination of bank capital for RWA according to regulations always has a negative effect on the possibility of a crisis (Cardot, Labondance, and Refait, 2021). Therefore, the role of capital during the COVID-19 pandemic is very important so that banks can survive. However, the determination of the capital adequacy ratio must be carried out efficiently because only maintaining a high capital adequacy ratio will result in lower profitability (Dao and Nguyen, 2020). Previous studies were conducted to look at the determinants of the bank's capital adequacy ratio so that the banking industry can determine a more efficient capital ratio by the company's strategy Kodra and Salko (2016); Ahmad and Albaity (2019); Sudiyatno et al. (2020); Smaoui, Salah, and Diallo (2020); Thoa, Anh and Minh (2020). The results of empirical studies conducted show that there is a different relationship between each variable to the capital adequacy ratio and most of the research is carried out under normal economic conditions. With the current abnormal conditions caused by the Covid-19 pandemic, banks must adjust their capital management policies to anticipate emerging risks.

Empirical research related to bank capital during the Covid-19 pandemic has been carried out by Cao, Y., & Chou, J. (2022) who evaluated the role of bank capital according to regulations in strengthening the resilience of bank credit

activities during the crisis caused by the Covid-19 pandemic. Toh, M. Y., & Zhang, Y. (2022) examined how banks in ASEAN adjust their capital and risk amidst the economic uncertainty caused by the Covid-19 pandemic. The results show that banks are pursuing stability amid increasing economic uncertainty mainly by accumulating more capital buffers. However, to find out the factors that influence the capital increase, further research needs to be done.

The remainder of this article is divided into four sections. Section 2 presents a literature review on the capital adequacy ratio and its determinants. Section 3 describes the methodology and variables. Section 4 analyzes the estimated model. Finally, in Section 5, the conclusion of the article is presented.

II. LITERATURE REVIEW

Capital adequacy is a regulation that establishes a framework for banks and depository institutions in managing their capital. Internationally, the Basel Committee encourages all countries to implement capital requirements. In 1988, the Basel Committee introduced the Basel Capital Accords, a capital measurement system. This regulation contains the need for banking institutions to have a minimum capital of 8% and the calculation of capital uses the forward-looking concept, which considers the credit risk contained in the portfolio of banking assets.

Then, in 2004, Basel II was published which was motivated by changes in the banking industry and the financial crisis that occurred from 1997-to 1998. Basel II emphasizes increasing the scope of regulation not only on minimum capital requirements but also on supervisory review processes and market discipline. In addition, it also adds operational risk calculations in calculating bank risk.

In 2010, the Basel Committee was officially introduced to Basel III as a result of the global financial crisis in 2007-2009. Basel III regulates three things, namely improving the quality of capital by relying on Tier 1 and adding the obligation to provide capital reserves (buffers), changes in the calculation of RWA, especially for market risk, and the obligation of banks to manage liquidity risk by preparing stable and liquid funds as indicated by the LCR ratio and NSFR.

Franchise value theory, which was first introduced in 1990 by Keeley, states that banks in a less competitive environment will benefit greatly because banks can enjoy the benefits of market power and their franchise value and can avoid taking excessive risks to provide returns for their customers. its customers. Franchise value is defined as the present value of future profits that are expected to be obtained by the company as a going concern (Demsetz, Saidenberg, and Strahan, 1996). Franchise value arises from two main sources, first, competition has been limited by regulations, giving banks greater access to profits or so-called "market-related". Second, franchise value arises from "bank-related" sources such as differences in efficiency and variations in the value of loan relationships. Companies that are successful in building franchise value will try to maintain it. As a result, companies with large amounts of franchise value may tend to operate more safely than those with little or nothing.

The capital adequacy of a bank depends on several factors, namely the type of assets owned and the level of risk, asset quality, total assets, and the bank's ability to increase capital. According to Mishkin (2018), there are several strategies for managing bank capital. Strategies to reduce capital are carried out in several ways including buying back some shares, paying higher dividends to shareholders, and increasing bank assets by keeping capital at a fixed value. The strategy to increase capital can be done in several ways, such as issuing shares to increase capital, reducing dividend payments to shareholders to increase retained earnings, reducing bank assets such as selling securities or reducing loans, and using the proceeds to reduce liabilities.

Previous studies to analyze the determinants of the capital adequacy ratio (CAR) have been carried out using several independent variables including GDP, ROE, LDR, ROA, firm size, and NPL conducted in various countries. Aktas et al. (2015) examine the determinants of the bank's capital adequacy ratio (CAR) of 71 commercial banks in Southeast European countries. The results show that the variables of bank size, leverage, bank risk, and GDP growth have a significant negative effect on CAR. While the variables that have a positive and significant effect are ROA, liquidity, and NIM.

Kalifa & Bektaş (2018) examined the impact of bank-specific factors and macroeconomic variables on the capital adequacy ratio of 28 Islamic banks. The result is that ROA, credit risk, leverage, market capitalization, and exchange

rate have a significant positive effect on CAR, namely. ROE, bank size, and inflation have a significant negative effect, while GDP has no significant effect on CAR.

Smaoui et al. (2020) in their research examine several determinant variables of the capital adequacy ratio in 122 Islamic banks around the world. The results show that the variables of bank size and Deposit to Total Assets have a negative and significant effect on CAR. The variables that have a positive significant effect are Law and Order and Lerner Index. The variables NLTA, liquidity, ROA, inflation, GDP, and credit growth have no significant effect on CAR.

Dao & Nguyen's research (2020) related the determinants of the capital adequacy ratio and profitability in banking in Vietnam using several independent variables. The results show that there is a positive significant effect for the variables of credit growth, GDP, and Equity to Deposit Ratio (ETD) on CAR. Meanwhile, the ROA, TOBINQ, LTD, CTI, and bank size variables have a significant and negative effect on CAR.

A. Hypothesis Development

The profitability reflects the net result of all financing policies and operating decisions of the company, one of which is measured by the ROE ratio to assess the rate of return to shareholders (Brigham & Houston, 2019). The balance of profit and/or profit for the current year is included in the bank's core capital which is included in the calculation of the capital adequacy ratio. So the relationship between ROE and the capital adequacy ratio is expected to be positive. The results of Kalifa & Bektaş's research (2018) on the capital adequacy ratio in Islamic banks show that profitability has a significant effect on the capital adequacy ratio although negatively. Thus, the hypothesis is as follows:

H1: Profitability has a positive effect on the capital adequacy ratio

One of the ways to measure cost efficiency at a bank is the BOPO ratio, which compares operating costs with operating income. Banks that perform operations efficiently will increase the ability to earn profits, where the profit becomes one of the core capital increases in banking. Therefore, the relationship between the BOPO ratio and the level of capital adequacy ratio is expected to be negative. The results of Lotto's (2019) research on the capital adequacy ratio in banks in Tanzania show a positive and significant effect of bank efficiency on the capital adequacy ratio. The proposed hypothesis is:

H2: Cost efficiency has a positive effect on the capital adequacy ratio

LDR is a ratio that represents the level of bank liquidity which indicates the level of lending by banks using third-party funds and their core capital. Banks will lower their capital when they have more liquidity i.e. when they fund a larger portion of illiquid assets with liquid liabilities (Distinguin et al., 2013). Therefore, the relationship between liquidity and capital adequacy ratio is expected to be negative. The results of research conducted by Dao & Nguyen (2020) on banking in Vietnam show that there is a significant influence between liquidity and CAR. Likewise, Ahmad & Albaity's research (2019) shows that there is a significant influence of bank liquidity on the capital adequacy ratio. Thus, the hypothesis is:

H3: Liquidity has a negative effect on the capital adequacy ratio

Credit quality is usually measured using the Non-Performing Loan (NPL) ratio which shows the number of non-performing loans to total loans. High NPLs require large reserves which can reduce company profits and capital (Kodra & Salko, 2016). Therefore, the relationship between credit quality and the bank's capital adequacy ratio is expected to be negative. Empirical research conducted by Kartal (2019) also shows that there is a significant and negative relationship between NPL and the capital adequacy ratio in Turkish banking.

H4: Credit quality has a negative effect on the capital adequacy ratio

The dividend Payout Ratio shows the number of dividends paid by the company to the bank which comes from the company's net profit. High dividend payments to shareholders will reduce the portion of retained earnings which will ultimately reduce the bank's capital level (Mishkin, 2018). So that the relationship between the Dividend Payout Ratio and the bank's capital adequacy is expected to be negative.

H5: The dividend Payout Ratio has a negative effect on the capital adequacy ratio

Large and well-established companies will find it easier to gain the trust of investors so that it will be easier for them to cover their capital needs from external sources. In addition, large companies also have better risk management techniques so they will need less capital to maintain the same level of uncertainty (Klepczarek, 2015). Therefore, the relationship between bank size and capital adequacy ratio is expected to be negative. Empirical research conducted by Kodra & Salko (2016), Aktas et al. (2015) and Kalifa & Bektaş (2018) also shows a significant and negative relationship between bank size and capital adequacy ratio.
H6: Bank size has a negative effect on the capital adequacy ratio

The level of market power can be measured by the Lerner index which is an indicator of the level of market power with a strong position to measure banking competition (Berger et al., 2009). A low Lerner Index indicates low market power or more competitive competition. Market forces will affect bank stability (Danarsari et al., 2018) and the more stable a bank will set lower the capital. So the relationship between market power and capital adequacy is expected to be negative in line with research conducted by Allen et al. (2011).
Hypothesis 7: Market power has a negative effect on the capital adequacy ratio

GDP growth (GDP) indicates improving economic conditions that will encourage credit growth. The growth of a bank's assets is expected to occur because of an increase in credit demand which is part of economic activity (Kodra & Salko, 2016). Credit risk is one of the components in the calculation of Risk-Weighted Assets (RWA), as a divisor in the bank's capital adequacy ratio. So that the relationship between GDP growth and the capital adequacy ratio is expected to be negative. This theory is in line with Kodra & Salko's (2016) research on banking in Albania and Huang & Pan's (2016) which shows a negative relationship between GDP and CAR.
H7: GDP growth has a negative effect on the capital adequacy ratio

Inflation is one indicator that is of concern to the government, especially the central bank. High inflation often has a negative effect on a country so the central bank intervenes by increasing interest rates, which will encourage companies and banks to borrow less (Smaoui et al., 2020). Low credit will result in high bank liquidity and high capital adequacy. So, the effect of inflation on capital adequacy will be positive. However, research conducted by Kalifa & Bektaş (2018) on 28 Islamic banks shows different results where inflation has a significant negative effect on CAR.
H8: Inflation has a positive effect on the capital adequacy ratio

III. RESEARCH METHODOLOGY

The study was conducted to analyze the effect of some variables that have been set on the bank's capital adequacy. This study used panel data regression of 63 banks in five ASEAN countries from 2017 to 2021, with a total of 315 observations. To determine the most appropriate panel data regression model, several tests the Chow test, Hausman test, and the Brush-Pagan Lagrange Multiplier test were conducted. The result advised using panel data regression with a fixed-effect model.

In addition, to examine the effect of the Covid-19 pandemic, this study uses a dummy variable, using a value of zero for the period before the Covid-19 pandemic (2017-2019) and taking a value of one for the duration of the Covid-19 pandemic (2020-2021). The model is as follows:

$$CAR_{it} = \alpha + \beta 1 ROE_{it} + \beta 2 BOPO_{it} + \beta 3 DPR_{it} + \beta 4 NPL_{it} + \beta 5 LDR_{it} + \beta 6 SIZE_{it} + \beta 7 LERNER_{it} + \beta 8 GDP_t + \beta 9 INF_t + D*Covid + \varepsilon_{it} \quad (1)$$

Where CAR_{it} is the dependent variable Capital Adequacy Ratio; $ROEi_t$ is the independent variable Return on Equity; $BOPO_{it}$ is Efficiency Ratio; DPR_{it} is the Dividend Payout Ratio; NPL_{it} is Non-Performing Loan, LDR_{it} is Loan to deposit ratio, $SIZE_{it}$ is bank size (natural logarithm of total assets), $LERNER_{it}$ is Lerner Index which represents market power, GDP_t is Gross Domestic Gross Growth, INF_t is inflation and D*Covid is the dummy period of the Covid pandemic.

IV. RESULT AND DISCUSSION

Table 1 shows a description of the data which includes 10 (ten) variables, namely CAR, return on assets (ROE), BOPO ratio, non-performing loan (NPL), loan to deposit ratio (LDR), dividend payout ratio (DPR), bank size (SIZE), Lerner Index, GDP growth (GDP), and Inflation (INF) as well as the Covid-19 dummy variable.

Table 1: Variable Description

	Abbrev	Formula
Dependent variable		
Capital Adequacy Ratio	CAR	Total Equity / Risk-Weighted Assets
independent variable		
Return on Equity	ROE	Net Income / Total Equity
Efficiency Ratio	BOPO	Operating Expenses/Operational Income
Loan to Deposit Ratio	LDR	Total Loans / Total Deposits
Non-Performing Loan	NPL	Non-Performing Loan / Total Loan
Dividend Payout Ratio	DPR	Dividend / Earning After Tax
Bank Size	SIZE	ln (Total Asset)
Market Power	LERNER	$(P_{it} - MC_{it})/P_{it}$ Marginal Cost (MC) is derived from the translog of the cost function (labor, funds dan fixed capital) (Repková, 2012).
GDP growth	GDP	GDP (t) - GDP (t-1) / GDP (t-1)
Inflation rate	INF	$(CPI_{x+1} - CPI_x) / CPI_x$

Data in Table 2 shows that during the observation period the average CAR of ASEAN banks was 21.5% or much higher than the minimum capital requirement. The lowest CAR of 9% is the CAR of PT Bank Pembangunan Daerah Banten Tbk which in 2019 experienced difficulties with negative performance and a high level of NPL so that the CAR level is almost close to the regulator's minimum obligation. When compared with CAR between countries, banks in Indonesia have a higher CAR than other countries in ASEAN-5 with an average CAR of above 20%, this indicates that banks in Indonesia are more stable in facing risks. Meanwhile, the lowest CAR is in the Philippines with an average CAR of 15.9%.

Table 2: Descriptive Statistics

	CAR	LDR	ROE	NPL	BOPO	DPR	SIZE	LERNER	GDP	INF	DCOVID
Mean	0,215	0,871	0,060	0,032	0,847	0,258	32,742	0,249	0,028	0,022	0,400
Median	0,190	0,864	0,081	0,027	0,804	0,250	32,883	0,291	0,044	0,025	0,000
Maximum	0,849	1,609	0,215	0,223	2,877	0,916	36,519	0,578	0,072	0,052	1,000
Minimum	0,090	0,120	-0,903	0,000	0,497	0,000	27,464	-0,878	-0,096	-0,011	0,000
Std, Dev,	0,086	0,187	0,105	0,022	0,229	0,234	1,931	0,193	0,039	0,014	0,491
Skewness	3,041	0,355	-4,167	2,822	4,052	0,562	-0,269	-2,050	-1,591	-0,366	0,408
Kurtosis	16,397	4,912	30,235	20,302	29,201	2,595	2,283	9,518	4,619	2,776	1,167
Jarque-Bera	2841,080	54,620	10647,260	4347,093	9872,306	18,719	10,548	778,283	167,366	7,693	52,865
Probability	0,000	0,000	0,000	0,000	0,000	0,000	0,005	0,000	0,000	0,021	0,000
Sum	67,577	274,284	18,857	10,145	266,913	81,118	10313,810	78,383	8,901	6,976	126,000
Sum Sq, Dev,	2,335	11,012	3,429	0,156	16,476	17,134	1170,709	11,685	0,479	0,062	75,600
Observations	315	315	315	315	315	315	315	315	315	315	315

Source: Data, processed

Profitability which is represented by the ROE indicator shows that the average ROE of banks in ASEAN in the research period is 6%. The average banking performance between countries shows a significant difference where the lowest is banking in Indonesia with an average ROE of 3.4% while the highest is Singapore at 10%. It can be explained that in Indonesia, there are many banks, many of which have recorded losses, while in Singapore, there are only three large banks with good performance.

The level of bank efficiency is measured by the BOPO ratio which is a comparison between operating costs and operating income. The data results show that the average BOPO ratio from 2017-to 2021 is 84.7%. Meanwhile, the liquidity ratio represented by the LDR ratio has an average of 87,1% or is at a safe level. Credit quality is represented by the NPL ratio, which compares the number of non-performing loans with total loans. The data shows that the average NPL for banks in ASEAN is 3.2%. This value occurred due to an increase in NPL at the beginning of the COVID-19 pandemic to 3,5%, but it improved again the following year to 3.4%.

The dividend Payout Ratio shows the level of dividend payments made by the company to its shareholders. A high DPR indicates the bank's performance is in good condition but will reduce the company's growth because retained earnings will be smaller. The average DPR for banking in ASEAN is 25.8%. This can show a good thing for bank growth, but it also shows that there are still many banks that have low performance, so they do not pay dividends. Market power is measured by the Lerner Index which shows a bank's ability to set prices above its marginal cost. The average Lerner Index of 0.249 shows that the market strength of banks in ASEAN is relatively low or the market is quite competitive.

For the variables GDP growth and inflation are macroeconomic variables that affect the adequacy of banking capital. In general, countries in ASEAN-5 have the same pattern for these two variables, where at the beginning of the pandemic, namely in 2020, all countries had negative economic growth due to the inhibition of economic activity which eventually resulted in deflation. However, in 2021, along with the declining number of Covid-19 cases and economic activity starting to run, GDP and inflation have shown positive numbers.

Based on the Chow and Hausman tests, the fixed-effect model (FEM) model with the General Leased Squared (GLS) procedure was chosen as the best model. Estimation using the GLS method is used to overcome the problem of heteroscedasticity to be able to produce estimators that have BLUE criteria (Damodar, 2009).

Table 3 shows the results of the estimation of the empirical model. Based on the regression results, the probability value of F is 0.000, which indicates that simultaneously the independent variables affect CAR. The adjusted R2 value of 0.8578 shows that the regression model can explain the CAR diversity of 85.8%. The results of the regression analysis show that the LDR, NPL, GDP growth, Inflation, and Covid-19 dummy variables have a significant effect on CAR. Meanwhile, the ROE, BOPO ratio, DPR, SIZE, and Lerner Index, have no significant effect on CAR.

Table 3: Factors affecting Capital Adequacy Ratio

Variable	Coefficient	Prob.
C	0,690892	0,0184
LDR	-0,072122***	0,0000
ROE	0,053264	0,3800
NPL	0,489053***	0,0000
BOPO	0,006128	0,8255
DPR	-0,010577	0,3523
SIZE	-0,013381	0,1356
LERNER	-0,007846	0,6576
GDP	0,141554***	0,0000
INF	-0,349149***	0,0020
DCOVID	0,022127***	0,0000

Root MSE	0,036811	R-squared	0,890414
Mean dependent var	0,478204	Adjusted R-squared	0,857809
S.D. dependent var	0,285942	S.E. of regression	0,041998
Sum squared resid	0,426844	F-statistic	27,309760
Durbin-Watson stat	1,624310	Prob(F-statistic)	0,000000

* Significant at 10%

** Significant at 5%

*** Significant at 1%

The LDR variable coefficient shows a value of -0,072122 which indicates a negative influence on CAR. LDR is one of the ratios to measure liquidity where a high value indicates low liquidity and vice versa. High liquidity indicates the bank's ability to meet the withdrawal of funds that will be made by customers so that the bank will reduce and keep capital low to be more efficient. The results of the regression analysis show different results from the existing theory and research conducted by Distinguin et al. (2013) which states that liquidity has a negative effect on CAR. This can be explained because a high level of liquidity or a low LDR indicates a decrease in the bank's credit portfolio so that risk-weighted assets will decrease which in turn will increase the bank's CAR value. LDR in the study period experienced a significant downward trend due to more selective lending because of uncertain conditions. The Bank takes more careful steps to maintain franchise value, especially in uncertain economic conditions by increasing its capital adequacy ratio.

NPL represents credit quality that compares the number of non-performing loans with total loans disbursed by banks. The results of the regression analysis show the NPL coefficient value of 0.489053 which means that there is a positive effect of NPL on CAR. This is not in line with the existing theory where a high NPL will require a large reserve burden so that it will reduce the bank's ability to increase capital. This condition occurs because low credit quality (high NPL) indicates the high risk that must be faced by banks, so banks must adjust their capital adequacy according to existing risks to protect their franchise value (Diamond and Rajan, 2020).

Based on the results of the regression analysis, it was found that the effect of GDP growth on CAR showed positive results. This is not in line with existing theory and previous research conducted by Kodra & Salko (2016) and Huang & Pan (2016) which showed a negative relationship between GDP and CAR. When GDP growth is negative, companies will experience difficulties in fulfilling their obligations to banks so that the quality of bank credit will decline, and banks must form loss reserves. This will ultimately result in a decrease in capital adequacy reserves.

In the first year of Covid-19 in ASEAN (2020), the GDP growth of all ASEAN countries experienced negative growth with an average of -4.3%. Furthermore, although in 2021 GDP growth in ASEAN has been positive (an average of 3.7%), the Covid-19 pandemic still occurs, although with a smaller effect, so banks view risks as still occurring. According to the franchise theory, banks would safeguard their franchise values from current risks to boost their capital adequacy and prepare for potential threats. Additionally, a higher capital adequacy ratio might lessen the moral hazard that management faces when pursuing corporate expansion by taking significant risks to make significant profits to make up for a drop in earnings from the previous year.

The inflation variable has a coefficient value of -0,349149 which shows a negative effect on the capital adequacy ratio. This is different from the existing theory where high inflation conditions will trigger the issuance of central bank policies to increase interest rates. With high-interest rates, bank credit will decrease and cause the CAR to be larger because credit is one of the calculations in the RWA. However, the results of this analysis are in line with research conducted by Kalifa and Bektaş (2018) on 28 Islamic banks showing that inflation has a significant negative effect on CAR. Low inflation indicates low prices of goods, one of which is caused by a decrease in public demand due to a decrease in purchasing power. The decline in people's purchasing power will pose a risk to the business world which can lead to bad loans. With the magnitude of this risk, the bank will protect its franchise value, one of which is by increasing its capital adequacy.

The Covid-19 dummy variable is intended to see the effect of the Covid-19 pandemic on the bank's capital adequacy ratio. The results of the regression analysis show that there is a significant and positive effect of the pandemic on the capital adequacy ratio. This is in line with de-Ramon et al. (2022) research that after the crisis, banks put more emphasis on increasing capital. Even though there is an increase in several indicators during the pandemic that in theory or research during normal conditions will affect the decrease in CAR, banks will increase their capital to anticipate the increased risk during a crisis (Hadjixenophontos & Christodoulou-Volos, 2018).

If you pay attention to the characteristics of the financial structure of each country, a country with bank-based characteristics such as Indonesia, its banking sector is more affected by the crisis caused by Covid-19. This can be seen from the decrease in LDR reaching 14.5% and an increase in NPL by 0.7% from before the pandemic, which then with the increasing risk of banks having to anticipate increasing the capital adequacy ratio significantly by 6.4%. Meanwhile, for countries with market-based characteristics such as Singapore, the impact is lower with a low decrease in LDR (3.5%) and a stable NPL (increase of 0.1%) so that banks only make adjustments to the capital adequacy ratio that is not too material by 0.7%. This is in accordance with research by Bats and Houben (2020) which shows that market-based financial structures are more resilient in dealing with systemic risks than bank-based ones.

V. CONCLUSION AND RECOMMENDATION

The results of the study show that efficiency, credit quality, GDP growth, and inflation have a significant effect on CAR in banking in ASEAN-5 before and during the Covid-19 pandemic. The effect of these ratios is not in line with existing theory and previous studies. Rising NPLs and deteriorating macroeconomic conditions as indicated by negative GDP growth and declining inflation indicate an increase in risk for banks.

The increased risk caused by the Covid-19 pandemic has become a consideration for companies to increase their capital adequacy ratio as an anticipatory measure to protect franchise value, which is sourced from the company's cash flow due to a decrease in bank activity in lending. This is proven by the results of the analysis where the Covid-19 dummy variable has a significant and positive effect on the capital adequacy ratio.

The results of this study can be used as a reference for banks in determining their capital adequacy ratio, especially in crisis conditions caused by disease outbreaks by considering determinant factors such as LDR, NPL, GDP growth, and inflation. So that banks can manage their capital at a safe level in the face of crisis by paying more attention to risk aspects in addition to the level of efficiency and the company's business strategy.

This study has limitations, namely the variables that affect the level of banking CAR only consist of 10 variables, and other variables are not included in this study that affect banking CAR. In addition, this study only includes listed conventional banks in ASEAN-5. For further study, it might be interesting to include Islamic banks that conduct different business models. The research was conducted using the panel data regression method with GLS which has not been able to anticipate endogeneity problems that usually appear in banking data. Further research should also use methods such as dynamic panel data that can anticipate endogeneity problems properly.

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Model Of Msmes Behavior In Using Chatbot Technology: Indonesia's Perspective

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Abstract
This study aims to explain, and predict the intentions of Micro, Small and Medium Enterprises (MSMEs) in Palu City, Palangkaraya City, Manado City, Palngkaraya City and Ambon City to apply chatbot technology in running their business. Explained by using the Technology Acceptance Model (TAM). Although many theoretical perspectives have been proposed to explain and predict this phenomenon. This study develops a Technology Acceptance Model (TAM) by including subjective norm variables as an antecedent of perceived usefulness (PU) and computer enjoyment as an antecedent of perceived ease of use (PEOU) in explaining and predicting attitudes and intentions to use chatbot technology. This study involved 405 respondents who are MSME actors in the five big cities which were obtained using purposive sampling technique. The data analysis technique applied in this research is Covariance-based Structural Equation Modeling (CB-SEM. Indicate that the five hypotheses proposed are well supported, indicating that the TAM model developed in this study has the ability to understand, explain, and predict well the behavior of MSME actors in adopting Artificial Intelligence technology systems, namely chatbot technology. Behavioral intentions can be explained and predicted well by the attitude of MSME actors towards the use of chatbot technology and implication of this study can be used as a basis for internet technology service providers in identifying and understanding the antecedent factors of prospective users' intentions in adopting the new internet system and technology.

Keywords— TAM; PU; PEOU; SEM; MSME

I. INTRODUCTION

AI (Artificial Intelligence) technology increasingly has an important role in various companies' businesses around the world as they enter the industry 4.0 era. According to the results of the Accenture research institute, it is predicted that AI can increase company productivity by 40% in 2035 and provide Gross Added Value (GVA) in 16 industries of USD 14 trillion (Fachrizal, 2019). urthermore, by adopting AI technology, the value for profit sharing in the industry will increase by 84% in the education sector, 74% in accommodation and food services, 71% in construction, 59% in wholesale and retail, and 55% in the health sector (Fachrizal, 2019). Fachrizal (2019) also emphasized that in the manufacturing industry itself, AI can save 20%-50% overall inventory costs and reduce the potential for supply chain prediction errors by 50%, as well as logistics costs by 5-10%.

Therefore, the benefits of implementing AI technology are enormous, so companies in Indonesia need to implement this technology which in turn can advance the company's business. Afrillia (2022) in his writing states that McKinsey's Global Survey Research the State of AI in 2021, shows evidence that during 2021 the adoption rate of machine learning, computer vision, and natural language processing (NLP) reached 57 percent, an increase of 45 percent from 2020. Furthermore, this shows that the application of artificial intelligence continues to increase, and business actors are starting to feel many benefits (Afrillia, 2022).

One form of industry in Indonesia that has the potential to apply chatbot technology for business continuity is Micro, Small and Medium Enterprises (MSMEs). MSMEs have been proven to be able to survive in economic situations and conditions that experienced ups and downs during the 1997-2021 monetary crisis, the 2008 banking crisis, and the 2020-2021 COVID-19 pandemic.

However, the results of a survey conducted by Pancake on MSMEs in Indonesia show that only 15% of businesspeope have used chatbots (Amalia, 2021). Even though all business actors have digital marketing or sales

channels, such as Facebook, Instagram and Whatsapp and more than 65% of respondents have heard or know about artificial intelligence (AI) and automation technology (Amalia, 2021). Based on the author's initial interview with 100 MSME actors, 21 people said they didn't know its use, 23 people said it was complicated, 33 people said it depended on their friends, and 23 said they weren't comfortable. Thus, this phenomenon can be explained by using the Technology Acceptance Model (TAM). Although many theoretical perspectives have been proposed to explain and predict this phenomenon, the technology acceptance model (TAM) proposed by Davis (1986) is the most widely used theoretical model to explain the intention and behavior of new technology acceptance by users.

Thus, this phenomenon can be explained by using the Technology Acceptance Model (TAM). Although many theoretical perspectives have been proposed to explain and predict this phenomenon, the technology acceptance model (TAM) proposed by Davis (1986) is the most widely used theoretical model to explain the intention and behavior of new technology acceptance by users.

The research gap that will be discussed in this study relates to the TAM model itself, especially regarding the inconsistency of the relationship between the variables contained in the model. Furthermore, several studies have found a very high correlation between the predictor and the criterion or dependent variable, namely behavioral intention, even though several meta-analyses that have been conducted have shown conflicting results (Feng et al., 2021).

For example, some researchers such as Khor (2014), and Yen et al (2010) found a very strong correlation (that is, greater than 0.9) between PU and intention as well as between PEOU and intention. However, the results of the meta-analysis conducted by Rana et al. (2015) and Sumak et al. (2017) found a weak correlation (about 0.10 between the PEOU and intention variables). Furthermore, Sumak et al (2017) also found a weak correlation (around 0.30) between the PU and intention variables. Therefore, through this research, any substantial gaps in the TAM study will be addressed and filled following the background of this research.

The original TAM model showed that the influence of external variables on intention was mediated by corebeliefs namely, PEOU and PU (Davis et al., 1989). However, Legris et al (2003) stated that although a number of external variables had been tested in previous studies, the existing literature revealed no clear pattern with respect to the external variables included in the TAM model. Legris et al (2003), Yousafzai et al (2007a), and Yousafzai et al (2007b) state that several variables need to be considered for inclusion in the TAM model that has been proposed by Davis (1985) with the aim of increasing the model's predictive ability on intention to adopt a new technology. Furthermore, according to these researchers, these variables include subjective norms, image, output quality, and job relevance which are considered capable of influencing PU. The variables that affect PEOU are computer enjoyment, computer anxiety, and computer self-efficacy.

Based on the research gap discussed, the TAM model used and developed in this study will add subjective norm variables as predictors of PU and computer enjoyment as predictors of PEOU. Furthermore, PU and PEOU predict attitudes towards the use of chatbot technology, and attitudes will predict intentions to use them. Thus, this study aims to understand, explain, and predict the intentions of MSME actors in Palu City, Palangkaraya City, and Ambon City to apply chatbot technology in running their business.

II. LITERATURE REVIEW

In this study, the development of the TAM model was carried out by adding subjective norm variables as an antecedent of perceived usefulness (PU) and computer enjoyment as an antecedent of perceived ease of use (PEOU) which in turn formed attitudes towards the use of new technologies that had an impact on the intention to use new technologies, namely chatbots.

A. Subjective norms and their influence on perceived usefulness

In the TRA (Ajzen and Fishbein, 1980) and TPB (Ajzen and Madden, 1986) models, subjective norms have a direct influence on behavioral intentions as in this study. However, in this study also formed a relationship between the influence of subjective norms on the intention to utilize chatbot technology indirectly through perceived usefulness. Based on the influence of subjective norms on behavioral intentions mediated by perceived usefulness, there are two processes underlying the relationship, namely internalization and identification. Identification according to Hopp

(2013) and Igwe et al (2020) is a process that shows the incorporation of individual beliefs with the beliefs of the reference group regarding the behavior to be displayed. The concept of internalization here is following that proposed by Baierl et al (2014) that internalization as a process is an informational social influence. In other words, it is an influence because it receives information from other parties as evidence that shows a reality Baierl et al (2014).

As in the context of this study, if the reference group (other people who are considered important) states that chatbot technology is useful, then MSME actors in the cities of Ambon, Palangkaraya, and Palu, as individuals will have confidence in chatbot technology, and subsequently, that belief will shape their beliefs. intention to use the technology. According to the type of power according to French and Raven's taxonomy (1958), namely expert power, that internalization is based on that power (Baierl et al., 2014). The basis for this statement is a reference group (other people who are considered important) who approve or suggest individuals behave in a certain way and are considered to have expertise and credibility related to the behavior displayed (Baierl et al., 2014).

The TAM model developed in this study, states that the internalization process in relation to the influence of subjective norms on behavioral intentions mediated by perceived usefulness, will occur in the context of using a technology system that is voluntary or mandatory (Wang, 2017). Thus, when the perception of MSME actors in the cities of Ambon, Palangkaraya, and Palu regarding the benefits of chatbot technology is formed because of the reference group, then this is the result of a response to persuasive social information.

H1: Subjective norms have a positive effect on the perception of MSME actors regarding the usefulness of using chatbot technology.

B. Computer enjoyment and its effect on perceived ease of use

Most of the research on perceived acceptance of new technologies has been conducted from the perspective of extrinsic motivation. Davis et al (1992) investigated the relativity effect of extrinsic and intrinsic motivation on intentions to use computers in the office. Furthermore, Davis et al (1992) describe perceived usefulness as extrinsic motivation while perceived computer enjoyment as intrinsic motivation. Furthermore, they found that computer enjoyment and perceived usefulness (PU) mediate the effect of perceived ease of use (PEOU) on intentions to use computers. The results of the research of Davis et al (1992) are that PU has an important role related to the individual's intention to use computers in the office. Computer enjoyment has a significant effect on motivation to use in addition to enjoyment.

Computer enjoyment is the extent to which an activity in using a computer is considered enjoyable without considering any performance consequences (Davis et al., 1992). This is a form of intrinsic motivation that refers to the pleasure and satisfaction of doing the behavior (Doll and Ajzen, 1992). van der Heijden (2003) shows that computer enjoyment has a significant and positive effect on people's attitudes and intentions to adopt websites. In addition, in a study on the intention to use mobile games in a wireless broadband access environment, Ha et al (2007) stated that computer enjoyment should be one of the characteristics of computer games and it should be considered when analyzing the system. Therefore, the two hypotheses that we propose in this study are:

H2: Subjective norms have a positive effect on the perception of MSME actors regarding the usefulness of using chatbot technology.

C. Perceived usefulness, perceived ease of use, and their influence on attitudes towards technology use

Various theoretical perspectives have been applied to provide an understanding of the determinants of the use of a technology. Many researchers in the field of information systems (IS) have suggested the behavioral intention model in social psychology as a potential theory. These theories serve as the basis for conducting research on the determinants of behavior in the use of a technology. For example, Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) and Theory of Planned Behavior (Ajzen, 1991).

Based on these two theories, the Technology Acceptance Model (TAM) (Davis et al., 1989), which is an adaptation of TRA, has emerged as a strong and robust mode l for use in research in the field of information systems. The TAM

model states that the antecedents of technology use are formed by two beliefs/two perceptions: perceived usefulness (PU) and perceived ease of use (PEOU) of a new technology adopted.

Figure 1 shows that a person's acceptance of a technology is hypothesized by his voluntary intention to use the technology. Furthermore, intention, in turn, is determined by a person's attitude towards the use of technology and his perception of its usefulness. Attitude is a positive or negative evaluation carried out by individuals on the behavior to be displayed (Fishbein and Ajzen, 2010).

Therefore, in accordance with the background of this research, namely the context of technology acceptance, it is necessary to measure attitudes and beliefs regarding the use of technology rather than attitudes and beliefs that are directed at the technology itself. This is because individuals may have a positive view of a technology without having a favorable tendency towards its use. Based on this description, the hypotheses proposed in this study are:

H3: The perception of MSME actors regarding usability has an effect on attitudes towards the application of chatbot technology

H4: The perception of MSME actors regarding the ease of use has an effect on attitudes towards the application of chatbot technology

Attitudes toward behavior have been described in various social psychology literature as "an individual's positive or negative feelings (evaluative effect) about attempting to perform a behavior (Fishbein and Ajzen, 1975). Ajzen and Fishbein (1980) argue that attitudes toward a behavior influence subsequent intentions. will affect behavior with respect to the object, namely its use DeLone and McLean (1992) stated that user satisfaction in the application of a new technology as an attitude towards the object.In research in the field of information systems to date, most researchers assess that the attitude formed is an attitude on the output of a system application, Brown et al (2002) stated that one of the social psychological factors that is often neglected in research in the field of information systems is the attitude towards the use of the system which forms the intention to use it. This theory based on the relationship between attitude and behavioral intention is:

H5: The attitude of MSME actors towards the use of chatbot technology has an effect on the intention to implement it.

Based on the literature review and the development of the hypothesis, the research model is as follows:
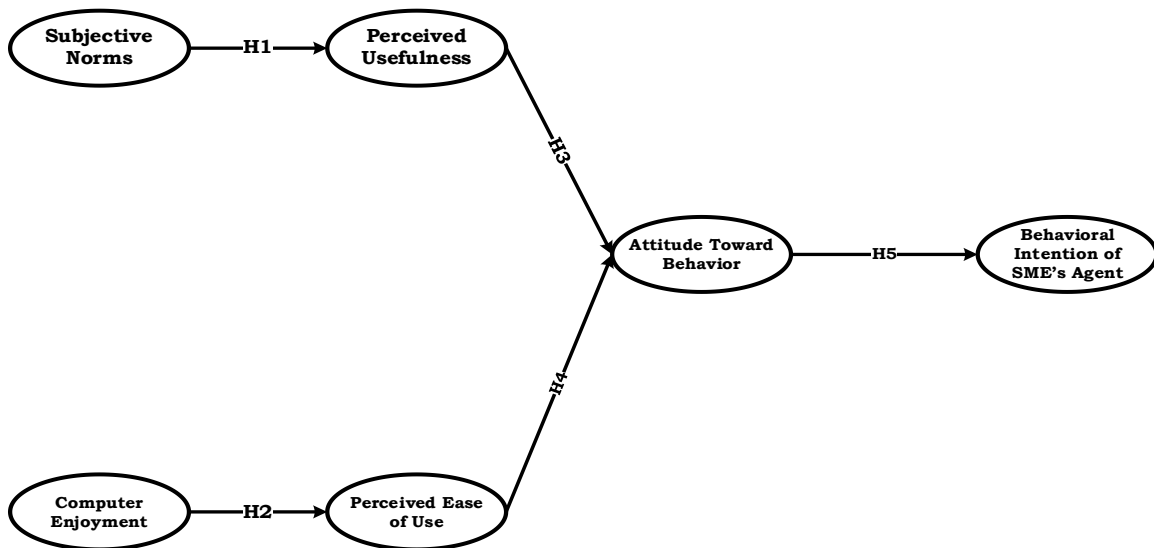
Fig 1. Research Model

III. RESEARCH METHODOLOGY

A. Qualitative Stage

This study used an exploratory sequential research design. It consisted of two stages, namely the qualitative stage which conducted in Oct-Dec 2021. The determination of respondent was based on the following considerations: (1) understanding the use of internet network technology, (2) MSME actors, and (3) willing to be involved in research.

The author conducted initial interviews with 100MSME actors in Ambon City, Palangkaraya City, and Palu City through a google form filled out with the help of co-authors who were in the relevant government agencies in each of these cities. This is in accordance with Kripendorff (2004) which states that a minimum of 50 respondents who are involved in the preliminary study will produce good ideas or ideas as initial information to go to the next stage. The results of the initial interviews were used by the authors as the basis for forming a questionnaire to perform confirmatory factor analysis with the help of the IBM SPSS 23 application.

After the questionnaire was formed, the authors redistributed the questionnaire to MSME actors in the three cities with the help of co-authors from local government agencies. The first distribution was carried out in November 2021 with a total of 150 questionnaires. However, only 123 copies were returned, and which deserve further analysis. The results of the questionnaire were then analyzed by factor analysis and resulted in six factors.

The factor loading value for each question/indicator in the distributed questionnaire is 0.6 – 0.7. As stated by Hair et al (2014) and Cooper and Schindler (2015) that the loading indicator factor value above or equal to 0.6 is acceptable for confirmatory research. For example: if my friend applies chatbot technology in his business then I will do the same (0.78) (subjective norm); I feel comfortable interacting with customers through chatbots (0.69) (computer enjoyment); the application of chatbot technology in business will provide a significant difference (0.81) (Perceived Usefulness/PU); chatbot technology is very easy to operate (0.83) (Perceived Ease of Use/PEOU); I think the application of chatbot technology is very useful (0.75) (Attitude); i plan to implement chatbot technology in my business (0.89) (intention to implement chatbot technology).

Thus, in this phase, six variables were produced with a total of 17 indicators. Intention to apply chatbot technology (3 indicators), attitude (4 indicators), PU (3 indicators), PEOU (2 indicators), computer enjoyment (3 indicators), and subjective norms (2 indicators). The results of this exploratory stage are used as a basis for smoothing the improvement of the questionnaire which will be redistributed when the quantitative stage.

B. Measurement

The development of the measurement scale in the study was carried out by combining the results at the qualitative stage with the measurement scales used by previous researchers, such as: indicators for variables of perceived usefulness, perceived ease of use, and behavioral intentions adapted from Davis (1989) and Davis et al (1989). Indicators of subjective norm variables were adapted from Taylor and Todd (1995), for computer enjoyment adapted from Doll and Ajzen (1992), while intentions and attitudes were adapted from (Ajzen and Fishbein, 1980; Ajzen, 1991; Fishbein and Ajzen, 2010). The measurement scale for each indicator used in the study is 1-7 which has two continuums.

Validity and reliability in this measurement to ensure that the indicators of each construct in this study are valid and reliable. The validity test uses a construct validity test (discriminant and convergence) which is indicated by an AVE value of more than or equal to 0.5 (covergence validity) (Hair et al., 2014). for the discriminant validity test is indicated by the results of the Principal Component Factor Analysis. if the indicators of each construct are separate according to the construct being measured, then the discriminant validity is good (Hair et al., 2014). See Table 2

C. Population, Sample, and Sampling Technique

The population in this study were MSME actors located in five cities in Indonesia, namely: Ambon, Makassar, Manado, Palu, and Palangkaraya. The main reason the author chose the five cities is because the majority of MSME actors in the five cities have not implemented chatbot technology in their business. The sample size used in this study was 500 respondents obtained through purposive withdrawal techniques. The determination of the sample size in this study is closely related to the data analysis technique used. The data analysis technique used in this research is Structural Equation Modeling (SEM). There are no clear directions for determining the appropriate sample size for using SEM. Hair et al (2014) stated that the minimum sample size used when conducting SEM analysis was 300-500 for a research model consisting of 5-7 constructs.

D. Quantitative stage

This stage the author carried out in December 2021-January 2022 by redistributing 200 questionnaires to MSME actors in three cities (Ambon, Palu, and Palangkaraya) using a google form assisted by co-authors in relevant government agencies. The results at the confirmatory stage produce good (discriminant) construct validity test results with a loading factor value between 0.72 - 0.94. Thus, the questionnaire that has been formed is ready to be distributed to MSME actors who are the main targets in this study. The distribution of the questionnaire was carried out in February- April 2022.

IV. RESULT / FINDING

The number of questionnaires distributed initially was 500 copies. But only 410 copies returned, and the number of questionnaires that were worthy of further tested were 405 questionnaires. Thus, the response rate in this study was 81%. In accordance with what was stated by Aaker et al (2013) and Hair et al (2014) that the minimum response rate that was best in avoiding non -response bias was 80%.

Table 1. Responden Profile

Profile	Amount	Persentation
Gender		
Man	264	65,19
Women	141	34,81
Age (years)		
< 25	6	1,5
25 – 35	95	23,46
36 – 45	100	24,69
46 – 55	104	25,68
> 55	100	24,69
Level Of Education		
Senior High School	114	28,15
D3	32	7,90
Bachelor	186	45,93
Magister	73	18,02
Length of Business (years)		
1 – 5	34	8,40
6 – 10	84	20,74
11 – 15	113	27,90
> 15	172	42,47
Cost		

0 – 1.000.000	0	0	
1.000.001 – 2.500.000	0	0	
2.500.001 – 5.000.000	98	24,20	
5.000.001 – 10.000.000	156	38,52	
Above 10.000.000	151	37,28	

Based on Table 1, the majority of MSME owners in this study are male with the age of 46-55 years. The majority have high school education and the duration of their business has been running for more than 15 years. Most have a monthly expenditure of Rp. 5.000,001 – Rp. 10,000,000.

Reliability Validity Test Results

Table 2. Reliability Validity Test Results

Variable	Item	Load Factor Value	Average Variance Extracted (AVE)	Composite Reliability (CR)	Cronbach Alpha (α)
1	**Intention to apply chatbot technology**				
	• I plan to implement chatbot technology in my business.	0,86	0,522	0,884	0,766
	• I will apply chatbot technology in my business				
	• I want to implement chatbot technology in my business.	0,88			
		0,87			
2	**Perceived Ease of Use**				
	• I think chatbot technology is very easy to operate.	0,94	0,659	0,862	0,771
	• I think chatbot technology is very easy to access anywhere.	0,83			
3	**Subyektif Norm**				
	• I'm sure my friends recommend using chatbot technology	0,86	0,636	0,889	0,876
	• I'm sure my friends also use the chatbot technology.	0,73			
4	**Computer Enjoyment**				
	• I feel comfortable interacting with customers via chatbot	0,91			
	• Using chatbot technology when interacting with customers is something fun.	0,85	0,556	0,822	0,739

No	Construct / Indicator	Loading	AVE	CR	Cronbach
	I think the application of chatbot technology in business is something different compared to other parties.	0,82			
5	**Perceived Usefulness**				
	• With our chatbot technology it is easy to understand customer desires.	0,72	0,579	0,833	0,822
	• With chatbot technology, we are able to determine the level of customer satisfaction with our products	0,77			
	• With chatbot technology, we can get input for product development	0,80			
6	**Attitude**				
	• Implementing chatbot technology in business is something that is not useful/beneficial.	0,76	0,529	0,833	0,712
	• Implementing chatbot technology in business is something that is not wise/wise	0,79			
	• Implementing chatbot technology in business is something negative/positive	0,80			
	• Implementing chatbot technology in business is not a good thing	0,84			

Based on Table 2, it shows that the results of the validity and reliability tests of the constructs and their indicators used in this study are good. The loading factor value is in the range of 0.72 – 0.94. The AVE value above 0.5 indicates that the constructs used in this study have good convergence validity. Composite Reliability and Cronbach Alpha values above 0.6 indicate that the constructs in this study have good reliability.

Structural Model Test Results

Data analysis in this study applied Structural Equation Modeling (SEM) with the help of IBM SPPS AMOS 23 software. The selection of SEM estimation techniques for this study was based on the consideration that the data contained outliers and were not normal. Thus, the Maximum Likelihood (ML) estimation technique was determined to be used. This is because it is very suitable for the assumption of data normality that is not met (Tabachnick and Fidell, 2019; Kock, 2019; Ringle and Sarstedt, 2016).
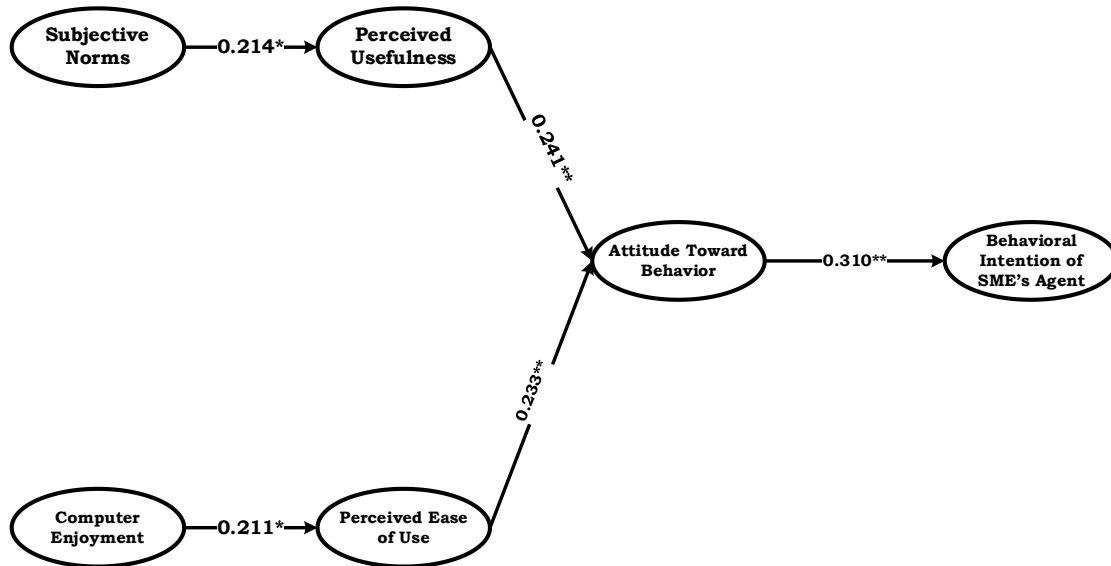
Fig 2. Structural model test results
Notes: * significant at p < 0.05; ** significant at p < 0.001

Table 3. The Goodness of fit model

Type goodness of fit model	Index goodness of fit model	Recommended value	Result	Information
Absolute fit measures	Chi-square statistic (χ^2 or CMIN)	Small	21,801	Good
	P	$\geq 0,05$	0,104	Good
	GFI	$\geq 0,90$	0,913	Good
	RMSEA	$\leq 0,08$	0,060	Good
	Normed χ^2 (CMIN/DF)	$2 \leq$ Normed $\chi^2 \leq 5$	1,551	Good
Incremental fit measures	CFI	$\geq 0,90$	0,921	Good
Parsimonious fit measures	AGFI	$\geq 0,90$	0,933	Good

Table 4. Estimated Structural Parameters

Path Hypothesis	Path coefficient	t-value	Conclusion
H1	0.214	2.013*	Supported
H2	0.211	2.002*	Supported
H3	0.241	2.329**	Supported
H4	0.233	2.200**	Supported
H5	0,310	3.100**	Supported

The results of this study indicate that the TAM model developed can explain and predict the intentions of MSME actors in the cities of Ambon, Makassar, Manado, Palu, and Palangkaraya to want to apply chatbot technology in their

business. The technology acceptance model (TAM) which was originally developed by Davis (1986) is one of the most widely applied technology acceptance models in the field of information systems and technology research.

TAM was developed by adapting the theory proposed by Ajzen and Fishbein (1980) namely the Theory of Reasoned Action (TRA) to explain the causal relationship between the user's internal beliefs (usability and ease of use), and attitudes, intentions, and usage behavior. computers (Davis et al., 1989). Although, in the last 20 years TAM has become well established as a model capable of explaining and predicting user acceptance of the technology (Venkatesh, 2000), several studies have tried to validate the developed TAM model with all its original constructs including this study.

The Technology Acceptance Model is a trendy model for understanding, explaining, and predicting the use of new information technology systems. To date, there have been many impressive studies on the application of the TAM model. Although several studies have confirmed the ability of the TAM model to explain and predict new information systems and technologies, there is still some skepticism among researchers regarding the application and theoretical accuracy of this model. As a result, the authors interested in conducting research on TAM may have reached a saturation level, so future research will focus on developing new models that will take advantage of the strengths of the TAM model while improving its weaknesses.

This study uses the TAM model which was developed by combining two additional variables, namely subjective norms, and computer enjoyment. In general, the two main variables in the TAM model, namely perceived usefulness and perceived ease of use, can explain and predict the attitude of MSME actors towards the use of chatbot technology. Furthermore, the attitude of being able to explain and predict the intentions of MSME

V. Discussion

The first hypothesis in this study states that subjective norms have a positive effect on the perception of MSME actors regarding the usefulness of using supported chatbot technology. The direct relationship between subjective norms and behavioral intentions in TRA and TPB is based on the principle of compliance. The TAM model in this study includes two additional theoretical mechanisms that subjective norms can influence intentions indirectly through perceived usefulness. The two mechanisms are internalization and identification as proposed by Venkatesh and Davis (2000). Internalization refers to the process when an individual feels that people important to him think he should accept and use the system.Furthermore, Venkatesh and Davis (2000) incorporate the beliefs of the important person into their belief structure. This internalization is equivalent to that referred to by Deutsch and Gerard (1955) as quoted by Sharma et al (2016), namely informational social influence (as opposed to normative), which is defined as "the influence of receiving information from others as evidence of the existence of reality. . In this case the internalization process, unlike compliance in general, will occur depending on the context of using the system which is voluntary or mandatory. That is, when the use of the system is carried out following the mandate of the organization, the user's perception of use may increase in response to persuasive social information.

The second hypothesis in this study states that computer enjoyment has an effect on the perception of MSME actors regarding the ease of using supported chatbot technology. In Table 4, the value of the t statistic (Critical Ratio) is above 1.96. In other words, the more positive the computer enjoyment, the more positive the perception of MSME actors regarding the ease of using chatbot technology will be.

Davis et al (1992) in their research stated that computer enjoyment is a level when computer system activities can affect a person other than the value of the facility itself. Another definition of computer enjoyment (Carroll & Thomas, 1988; Malone, 1981) is the level of computer use activity that affects him. It does not depend on something that has been done before.

It can be said that it will be easier for MSME actors when they happily assume that the system (chatbot technology) will have ease of use. As a result, it can lead to enjoyment if users use the system (Venkatesh & Davis 2000). This is further emphasized by van der Heijden (2003) who shows that perceived enjoyment has a significant and positive influence on people's attitudes and intentions to adopt new technology because it is also perceived as helpful.

The third hypothesis which states that perceived usefulness affects the attitude of MSME actors towards the use of chatbot technology is supported. Table 4 shows the critical ratio (t-statistic) value that exceeds 1.96. In other words, the more positive the perception of the usefulness of chatbot technology, the more positive the attitude of SMEs towards its application will be.

As in the previously stated TAM study, the first fundamental relationship is perceived ease of use and perceived usefulness will have an impact on increasing user attitudes towards use. Eriksson et al (2005) in their research stated that the perceived benefits will be influenced by the level of individual trust further, Pikkarainen et al (2004) in their research also found that the perceived usefulness of information systems is the most influential factor in determining its use. Researchers such as Davis (1989), Eriksson et al (2005), and Guriting and Ndubisi (2006) found that perceived usefulness had a significantly stronger relationship with usage behavior, compared to the effect of perceived ease of use on user behavior.

In this study, MSME actors who feel the benefits of implementing chatbot technology in their business will form a positive attitude towards the technology. Regardless of whether mandatory or voluntary, the application of chatbot technology has benefits that will be felt by MSME actors when entering an increasingly complex world of competition in the future.

The fourth hypothesis states that perceived ease of use affects the attitude of MSME actors towards the application of supported chatbot technology. This can be seen in Table 4 which shows the critical ratio (t-statistic) value of more than 1.96. In other words, the more positive the perception of the ease of using chatbot technology, the more positive the attitude of SMEs towards its application will be.

Fishbein and Ajzen (1975) state that attitudes toward actual use is determined by the expectation of how easily a user thinks he or she can use the system. Although Fishbein and Ajzen (1975) have recommended the use of the self-declared term evaluation, it has become a point of considerable debate in psychology. TAM argues that PEOU has a direct positive effect on attitudes toward system use (Venkatesh and Davis, 2000).

The fifth hypothesis which states that the attitude of MSME actors towards the use of chatbot technology affects the intention to implement it in business is supported. The results in Table 4 show the value of the critical ratio (t statistic) which exceeds 1.96. In this case, the more positive the attitude of MSME actors towards the use of chatbot technology, the more positive their intention to implement it in business will be.

The Theory of Planned Behavior (TPB) is a development of The Theory of Reasoned Action (TRA) which was created to overcome the limitations of the original TRA model in dealing with behavior that is beyond the control desired by the individual. Both TPB and TRA have the same goal of understanding human behavior through identifying and analyzing the determinants of behavioral intention. Ajzen and Madden (1986) introduced the TPB in an attempt to provide a better conceptual framework for the TRA model regarding individual behavior that is out of control at will.

Attitude toward a behavior is defined as a person's general feeling to like or dislike the behavior" (Ajzen & Fishbein, 1980; Schifter & Ajzen, 1985; Ajzen & Madden, 1986; Ajzen, 1991). Attitude toward a behavior is a function of salient underlying beliefs. from a person that performing a behavior will lead to a certain outcome, and evaluation of the outcome i.e., the degree of desirability regarding the outcome of the behavior.

In this study, the attitude of MSME actors towards the use of chatbot technology was positively formed as a result of their perceptions/beliefs about the usefulness and ease of using the technology. Furthermore, this attitude will affect his intention to want to apply chatbot technology in his business.

VI. CONCLUSION AND RECOMMENDATION

In this study broadly speaking, the TAM model developed can explain and predict the behavior of people who adopt a new information technology system. The background of the research, namely the behavior of MSME actors in the cities of Ambon, Manado, Makassar, Palu, and Palangkaraya.

Furthermore, the results of this study indicate that the five hypotheses proposed are well supported, indicating that the TAM model developed in this study can understand, explain, and predict well the behavior of MSME actors in the

cities of Ambon, Manado, Makassar, Palu and Palangkaraya are related to the behavior of adopting a new information technology system, namely chatbot technology.

Behavioral intentions can be explained and predicted well by the attitude of MSME actors towards the use of chatbot technology. Furthermore, these attitudes can be explained and indicated perceived usefulness and perceived ease of use. Several additional variables which in this case are considered as antecedents of perceived usefulness (PU), namely subjective norms and antecedents of perceived ease of use (PEOU), namely computer enjoyment, can explain both variables (PU and PEOU) well

A. Managerial Implications

The results of this study can be used as a basis for internet technology service providers in identifying and understanding the antecedent factors of prospective users' intentions in adopting the new internet system and technology. To increase the intention of potential users of the technology services offered, service providers must focus on the usefulness and ease of use of the system. Service providers do not need to reproduce features that are redundant, but preferably features that are user-friendly so that users can feel more useful and easier when using them. Furthermore, service providers must consider reference group factors and fun factors that can influence potential users to want to adopt the new technology system. Therefore, the resulting technological system must be able to be accessed and used by various levels of society so that the system can be well received.

B. Limitations And Suggestions

This study only measures up to the behavioral intention. Thus, the actual behavior of MSME actors in the cities of Ambon, Manado, Makassar, Palu, and Palangkaraya has not been seen in adopting chatbot technology applications. Henceforth, it is hoped that the research carried out can measure up to the stage of actual behavior.

This research is cross-sectional in nature to determine the causal path of several variables being measured. Future research is expected to be able to be carried out longitudinally so that it can be carried out until the measurement of actual behavior. In addition, future research should consider experimental or longitudinal studies so that better conclusions regarding causality can be drawn.

This study only covers the people of Palu City in the scope of Central Sulawesi Province. In the future, it is hoped that the research carried out will be able to cover all districts/cities in Central Sulawesi Province and even throughout Indonesia so that generalization of research results can be carried out.

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Factors Affecting Employment in the Tourism Sector: A Case Study from West Java Province

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Abstract
This purpose of this study is to prove the influence of the number of foreign tourist visits, the number of domestic tourist visits, the number of restaurants and hotels, and the level of income of the population on the employment of labor in the tourism sector in West Java Province. This study uses panel data regression, which is a combination of time series data and cross section data from 27 districts/cities in West Java Province in 2018-2020. Partially, foreign tourist visits and the level of income of the population, the number of restaurants and hotels has a significant effect on employment, while the number of domestic tourist visits and the number of tourist attractions has no significant effect on employment in the tourism sector in West Java Province.

Keywords—Employment, Number of Foreign Tourists Visits, Number of Domestic Tourists Visits, Number of Restaurants and Hotels, Population Income Levels

I.INTRODUCTION

Tourism is an industry that has the potential to become an instrument for increasing employment because the tourism industry is a labor-intensive industry and its development is currently fairly fast. The Tourism Industry is one of the highest job creators in the world requiring diverse skill levels and opening up opportunities for young workers, women and migrants to enter quickly into the workforce (ILO, 2011: 4).

One of the efforts to increase job opportunities is through development in the tourism sector in general. Tourism development is expected to be one of the reliable foreign exchange earners outside of non-oil and gas. Therefore, in the context of developing the world of tourism, it is necessary to increase efforts in the form of the tourism industry, both by the government, all relevant levels such as the Department of Arts and Culture, the Tourism Office, and private companies engaged in the tourism industry. To support these efforts, in this case through cooperation between the government and the private sector, various policies such as promotion, service quality, and quality of tourism objects through integrated sectoral cooperation are carried out in an effort to increase the number of foreign and domestic tourist visits where the impact is expected to expand employment opportunities. and business opportunities.

Tourism development programmed by both the government and the private sector will be directed at efforts to increase the number of tourist visits because it is a significant source of income. and tourist attraction. With the support of tourism, the number of tourists visiting is expected to increase, which in turn leads to the creation of jobs and business opportunities, and can also affect the level of community productivity in economic activities, especially in the tourism industry.

Tourism is one of the leading sectors for West Java Province. Besides West Java having very beautiful natural beauty, West Java also has great potential to develop its regional income through one of the tourism sectors. This will have an impact on the absorption of labor to fill vacancies in job positions, especially in the tourism sector.

II.LITERATURE REWIEW

According to (Bassam, 2018) found that the variable number of restaurants and the amount of GRDP had a positive and significant effect on employment in the tourism sector in East Java in 2010-2016. While the variable number of hotels, the number of tourists, has a negative and significant effect on employment in the tourism sector in East Java in 2010-2016. As can be seen, the concept of GRDP itself is the added value generated by all business units in a certain

area, the result of which is the value of the final goods and services of a sector in the economy. So that it can be interpreted that the number of hotels and the number of tourists have the maximum effect on employment in the tourism sector in East Java in 2010-2016.

(Toreh, 2019) found that the variables of the number of hotels, the number of restaurants, the number of tourists, and the number of GRDP have a positive and significant effect on the employment of the tourism sector in the Riau Islands in 2012-2017. These results indicate a positive relationship between the independent variable and the dependent variable. The increase in the number of restaurants and hotels is proportional to the increase in the number of tourists. GRDP in the sector has increased every year, in relation to the production function, the increase in output will increase if there is an increase in the workforce in it. Currently, demand in the tourism sector continues to grow accompanied by the growth in the number of the tourism industry, resulting in employment.

(Pertiwi, 2018) shows that the results of tourism objects and PAD have a positive and significant effect, the number of tourists has a negative and insignificant effect, the number of hotels has a negative and significant effect on employment in the tourism sector in Yogyakarta in 2006-2015. In this study, it shows that the number of tourist attractions increases the quantity of labor demanded. The number of tourists does not have an influence on the employment, possibly due to the labor absorbed not due to an increase in the number of tourists but the workforce being absorbed due to an increase in the number of tourist attractions. In addition, the increase in the number of tourists occurs at certain times. The number of hotels is not able to absorb energy optimally because the required workforce is not appropriate, for example workers who have special education provisions in the hospitality sector such as being able to communicate in foreign languages or have special expertise in the hospitality sector.

Therefore, special education is needed in the hotel sector such as vocational high schools in the hotel sector so that the workforce is absorbed by the increasing number of hotels. Meanwhile, the increase in PAD indicates that the amount of value added output in the economic unit of the tourism sector in the Special Region of Yogyakarta is also increasing. The greater the output generated from the tourism sector, it will encourage the tourism sector to increase the demand for labor so that regional income can be increased. So that the absorption of labor will increase, such as if the original regional income increases, it can be used to open new tourism objects such as creating tourist villages whose funds are from local revenue.

III. RESEARCH METHODOLOGY

To determine the magnitude of the influence of an independent variable on the dependent variable, this study uses a panel data regression model, which is a combination of time series data with cross section data from 27 regencies/cities in West Java Province in 2018-2020. The dependent variable in this study is Employment (PTK), while for the independent variables there are 4 variables, namely, Number of Hotels (JH), Number of Restaurants (JR), Number of Tourist Attractions (JW), Population Income Level (TPP). The object of this research is West Java during the period 2018-2020, the data used is sourced from the official website of the Central Statistics Agency (BPS). The econometric model is as follows:

$$_{log}PTK_{it} = \beta 0 + \beta 1_{log}JH_{it} + \beta 2_{log}JR_{it} + \beta 3_{log}JW2_{it} + \beta 4_{log}TPP_{it} + e_{it}$$

where :

$_{log}PTK$	: Employment
$_{log}JH$	: Number of Hotels
$_{log}JR$	: Number of Restaurant
$_{log}JW$	: Number of Tourist
$_{log}TPP$	: Income Level of Population
ß0	: Constant or intercept
ß1, ß2, ß3, ß4	: Independent Variable Regression Coefficient
i	: Cross Section Data in 27 West Java regencies/cities
t	: Time Series data for the period 2018-2020
e	: eror terms

IV. RESULT / FINDING

The results of panel data regression estimation on econometric models using Pooled Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect Molde Model (REM) approaches are shown in Table 1.

Tabel 1.. Results Summary

Variable	Coef		
	PLS	FEM	REM
C	82.927,31	959.642,2	836.100
Log(JH)	167.926,9	1.615,283	16.524,91
Log(JR)	84.638,27	13.451,51	21.479,13
Log(JW)	-50.546,37	10.833,10	11.935,19
Log(TPP)	44.004,37	-33.013,15	-30.683,16
R^2	0,363624	0,997902	0,112025
Adjusted R^2	0,311675	0,995166	0,039537
F-Stat	6,999618	364,7281	1,545430
Prob.F Stat	0,000154	0,000000	0,203811

In determining the best estimation model, the Chow test and Hausman test are used. *Chow* test can be seen in Table 2.

Table 2.Chow Test

Effect Test	Statistic	d.f.	Prob.
Cross-section F	267,490990	(26, 23)	0,0000

Because *the p-value* for F (0.0000) (0.05), it is rejected. So the best model to use is the *Fixed Effect Model* (FEM). Test *Hausman* is a test used to determine the *Fixed Effect Model* or *Random Effect Model* in estimating panel data. *Hausman Test* can be seen in Table 3.

Tabel 3. .Hausman Test

Test Summary	Chi-sq.Statistic	Chi-sq.d.f.	Prob.
Cross-section random	15,122168	4	0,0045

Because *the p-value* for F (0.0045) (0.05), it is rejected. So the best model to use is the *Fixed Effect Model (FEM).*

The coefficient of determination (R^2) indicates the predictability or goodness of the estimated model. From the Table 4.1. it can be seen that R^2 of the estimated model, namely Fixed Effect Model (FEM) is 0.9979. This means that 99.79 percent of the variation in Labor Absorption in West Java Province is explained by variations in Log(JH),

Log(JR), Log(JW), and Log(TPP). While the rest, which is 0.21 percent, is explained by variations of other variables that are not included in the model.

Simultaneous significance test (F test) was conducted to determine the significance of the effect of all independent variables on the dependent variable simultaneously or together. Based on Table 4.1, it can be seen that the F-statistical probability value is 0.0000 (<0.01) which means H_0 is rejected, so it can be concluded that together Log(JH), Log(JR), Log(JW), and Log(TPP) has a significant effect on Employment.

Based on Table 4.1, it can be seen that the probability t-statistics for Log(JW) 0.0501 ($\leq$ 0.10) and Log(TPP) 0.0772 ($\leq$ 0.10) so that Log(JW) and Log(TPP) has significant effect on Employment, while Log(JH) 0.9381 (> 0.10) and Log(JR) 0.2255 (> 0.10) so that Log(JH) and Log(JR) has no significant effect on Employment.

V. DISCUSSION

The results of the validity of the effect (t test) on the econometric model indicate that the number of hotels has no significant effect on the employment in the province of West Java. This proves that the results of this study are in accordance with the initial hypothesis and are in line with the results of research by Julianto (2016) which states that the number of hotels has a negative effect on employment in West Java. This is in line with the number of tourists who come. Because there are various tourists from other regions whose attendance cannot be ascertained.

The results of the validity of the effect (t test) on the econometric model show that the number of restaurants has no significant effect on employment in West Java Province. This proves that this study is in line with the results of research by Astina (2013) which states that the number of restaurants has no significant effect on employment in West Java. This happens because the small number of restaurants results in a small absorption of labor, so the scope covered is smaller.

The results of the effect validity test (t test) on the econometric model show that the number of tourists has significant influence on employment in West Java Province. This proves that the results of this study are in accordance with the initial hypothesis and are in line with the results of research by Toreh (2019) regarding the Effect of Number of Hotels, Number of Restaurants, Number of Tourists, and Total GRDP on Employment in the Tourism Sector in Riau Islands in 2012-2017. Which shows that the number of tourists has a significant influence on the employment of the tourism sector in the Riau Islands in 2012-2017.

The results of the effect validity test (t test) on the econometric model indicate that the Population Income Level has significant influence on Employment in West Java Province. This proves that the results of this study are in accordance with the initial hypothesis and in line with the results of research by Sulistiawati (2012) Population income or wages have a significant effect on employment in West Java Province. Because this variable is one of the important variables in the formation of employment.

Table 4. Constant Effect

	District / City	Effect	Constant
1	Bogor	1610362.	2.570.004,2
2	Sukabumi	225133.1	1.184.775,3
3	Cianjur	166013.4	1.125.655,6
4	Bandung	798558.8	1.758.201
5	Garut	250652.8	1.210.295
6	Tasikmalaya	56908.82	1.016.551,02
7	Ciamis	-180527.3	779.114,9
8	Kuningan	-341294.3	618.347,9
9	Cirebon	122746.6	1.082.388,8

10	Majalengka	-184312.6	775.329,6
11	Sumedang	-222649.5	736.992,7
12	Indramayu	73359.82	1.033.002,02
13	Subang	-42641.88	917.000,32
14	Purwakarta	-414853.2	544.789
15	Karawang	202169.7	1.161.811,9
16	Bekasi	839369.8	1.799.012
17	Bandung Barat	-158659.0	800.983,2
18	Pangandaran	-619443.6	340.198,6
19	Bogor City	-367519.4	592.122,8
20	Sukabumi City	-660677.9	298.964,3
21	Bandung City	349578.9	1.309.221,1
22	Cirebon City	-679734.5	279.907,7
23	Bekasi City	492297.5	1.451.939,7
24	Depok City	293448.1	1.253.090,3
25	Cimahi City	-485782.9	473.859,3
26	Tasikmalaya City	-450934.3	508.707,9
27	Banjar City	-671569.2	288.073

Based on the results of the constants above, it is known that the one with the lowest constant is in Banjar City with a constant value of 228,073, which means that Banjar City has the lowest employment compared to districts/cities in West Java Province. Meanwhile, the highest constant is in Bekasi City with a constant value of 1,451,939.7, which means that Bekasi City has the highest employment compared to other regencies/cities in West Java Province.

VI. CONCLUSION AND RECOMMENDATION

It was found that the variable number of restaurants and the amount of GRDP had a positive and significant effect on employment in the tourism sector in East Java in 2010-2016. While the variable number of hotels, the number of tourists has a negative and significant effect on employment in the tourism sector in East Java in 2010-2016. So it can be interpreted that the number of hotels and the number of tourists have the maximum effect on employment in the tourism sector in East Java in 2010-2016. Finding that the variables of the number of hotels, the number of restaurants, the number of tourists, and the number of GRDP have a positive and significant effect on the employment of the tourism sector in the Riau Islands in 2012-2017.

The increase in the number of restaurants and hotels is proportional to the increase in the number of tourists. Currently, demand in the tourism sector continues to grow accompanied by a growth in the number of the tourism industry, thereby absorbing labor. Shows that the results of tourism objects and PAD have a positive and significant effect, the number of tourists has a negative and insignificant effect, the number of hotels has a negative and significant effect on employment in the tourism sector in Yogyakarta. In this study, it is shown that the number of tourist attractions increases the quantity of labor demanded.

The number of tourists does not affect the absorption of labor, possibly because the labor absorbed is not due to an increase in the number of tourists but the workforce is absorbed due to an increase in the number of tourist attractions. In addition, an increase in the number of tourists occurs at certain times. Meanwhile, the increase in PAD indicates that the total value-added output in the economic unit of the tourism sector in the Special Region of Yogyakarta is also increasing.

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Improvements of the layout of retail Store And Warehouse Facilities At SMEs In Pot Selling Shop

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Abstract

A proper and good retail store layout can create good customer experience and it can create customer loyalty and repeat purchases from customer. In addition, the layout of warehouse facilities needs to be considered because it can avoid losses caused by unsold old products, defective products, lost products, and invalid data collection. The arrangement of these facilities layouts applies at the level of SMEs or large companies, and since SMEs have had an important role in improving the economy in a country, the management of facility layout in SMEs needs to be managed properly. The aim of this Business Coaching (BC) process is to help SME Pot Selling Shop management that store and sell pots in offline and online store outlets to improve the layout of its retail stores and product storage areas. This study use three data collection method, namely in-depth interview, observation, and documentation. In depth interview conducted with owner, employees, and customers and observations performed on offline shop and online trading processes. Through this study, the new layout design can reduce product defects due to storage and and improve the experience of customers who come directly to the store to buy products. To create sustainable process and continous improvement for the SMEs employee, we conduct the 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) methodology for better store management.

Keywords—Business Coaching; Customer Experience; Retail Layout; SMEs; Warehouse Layout; 5S.

I. INTRODUCTION

Small and Medium Sized Enterprises (SMEs) constitute an essential component of social-economical structure of a country. They create the driving force for proper urbanization, trade operation, optimum distribution, and industrialization (Hakim & Masyhur, 2019; Pudjowati et al., 2018). The growth in the number of SMEs will increase the number of jobs and can contribute to the movement of the economy in Indonesia. Each year an average increase of number SMEs in Indonesia up to 2.5% per year (kemenkopukm.go.id).

On 11 March 2020, COVID-19 was designated as a pandemic. Indonesia first reported 2 positive cases on March 2, 2020 and a positive case continued to increase (Susilawati et al., 2020). The second wave of the Delta and Omicron variant of Covid-19 pandemic that appeared in mid-2021 until now made more stringent restrictions on community activities in Jawa and Bali (beritasatu.com, 2021). The Covid-19 pandemic hit Bali's economy ad tourist industry. Bali is in a very deep slump where all services are oversupply because Covid-19 (Gusti Ayu Diah Yuniti et al., 2020.).

The situation of the COVID-19 pandemic in Indonesia has begun to improve. The number of positive and daily patients continued to decline. In addition, the hospital occupancy rate (RS) has also been below 10 percent and the positive rate has returned to normal below five percent (arahkata.pikiran-rakyat.com, 2022). The Indonesian government said the daily cases of Corona had fallen very significantly. This decline occurred in almost all provinces in Java and Bali (detik.com, 2022).

Since the restrictions on people's mobility in Indonesia have decreased, it requires the preparation of an attractive customer journey to increase the traffic of incoming buyers and create an attractive customer experience at retail sales stores (Khan et al., 2020). Customer journey management (CJM) involves understanding and managing customer's experience throughout their shopping journey (Grewal & Roggeveen, 2020).

Semesta Pot, one of the SMEs in Indonesia that has an offline store in Ciledug, Jakarta and stores its products for sales online in the same place. The current condition is that there is no product layout that is neat and grouped so it is not uncommon to have trouble finding products and defective products are found in stores. Layout is one of the key decisions that determines the long-run efficiency of operations. Layout has strategic implications because it established an organization's competitive priorities in regard to capacity, processes, flexibility, and cost, as well as quality of work life (Heizer et al., 2017; Mowrey et al., 2018).

In this paper, we focus on retail layout design for the store that serve customer who come to the store. We group the product, create customer journey to build a good customer experience in buying the products. We also make design improvements in the product storage warehouse. This is because the stored products are products that will be sold in offline stores or those sold online through e-commerce. Product quality needs to be maintained properly to maintain the trust of customers who buy products at this store. Clearly the retail store provides a critical interface between retailers and shoppers (Dunne et al, 1995). A better customer experience will improve the performance of MSMEs as one of the drivers of the economy in Indonesia.

II. LITERATURE REWIEW

A. Types of Layout

Layout decisions include the best placement of machines, offices and desks, or services centers. An effective layout facilities the flow of materials, people, and information within and between areas (Heizer et al., 2017).

B. Office Layout

Office layout require the grouping of workers, their equipment, and spaces to provide for comfort, safety, and movement of information. The main distinction of office layouts is the importance placed on the flow of information. On the other hand, some layout considerations are universal. They have to do with working conditions, teamwork, authority, and status. (Heizer et al., 2017). Sustainable office design layout gave big impact to the employees in the organization because they work in the office for a long period of time and because it should be convenient and comfortable. Although convenient workplace conditions in many organizations were requirements for improving productivity and quality of outcomes, working conditions in many organizations may present lack of safety, health and comfort issues such as improper lighting and ventilation, excessive noise and emergency excess (Ahmad et al., 2020).

C. Retail Layout

Retail layouts are based on the idea that sales and profitability vary directly with customer exposure to products. The operations manager can change exposure with store arrangement and the allocation of space to various products within that arrangement (Heizer et al., 2017). Five ideas are helpful for determining the overall arrangement of many stores: (1) Locate high-draw items around the periphery of the store. (2) Use prominent locations for high-impulse and high-margin items. (3) Distribute what are known in the trade as "power items". (4) Use end-aisle locations because they have a very high exposure rate. (5) Convey the mission of the store by carefully selecting the position of the lead-off department (Heizer et al., n.d.). The physical layout of a retail store affects the attitude and behavior of shoppers as well as the performance of the store. An important role of the layout is to expose customers to products (Mowrey et al., 2018).

D. Servicescapes

To provide a good service layout, a firm considers three elements: (1) Ambient conditions, which are background characteristics such as lighting, sound, smell, and temperature. (2) Spatial layout and functionality, which involve customer circulation path planning, aisle characteristics and product grouping. (3) Signs, symbols, and artifacts (Heizer et al., 2017).

E. Warehouse And Storage Layout

A warehouse is one of supporting and an important part of a production system. Good conditions and arrangements in the warehouse are expected to avoid corporate losses and minimize the costs incurred and speed up operations and services at the warehouse (Muharni et al., 2019). Warehousing has a function to maximize the utility of various resources in order to fulfill customer demand or maximize customer demand within the limited resources (Tompkins, J.A. et al., 2003). The objective of warehouse layout is to find the optimum trade-off between handling cost an costs associated with warehouse space. Consequently, management's task is to maximize the utilization of the total "cube" of the warehouse—that is, utilize its full volume while maintaining low material handling costs. We define material handling costs as all the costs related to the transaction. This consists of incoming transport, storage, and outgoing transport of the materials to be warehoused. These costs include equipment, people, material, supervision, insurance, and depreciation (Heizer et al., 2017).

III. RESEARCH METHODOLOGY

The SME, that have been operating for almost 4 years, started their business by selling plant pot products online using e-commerce. Over time, sales have grown and finally have offline stores that function as warehouses for storing products that will be sold online or offline, retail stores, and offices to carry out the product packing process and online business operations. The main products sold at these SMEs are plastic pots, then added with plant seeds, planting media, and farming equipment. Since the rules for restricting people's mobility due to the pandemic effect have decreased, many direct activities have taken place. This has resulted in many offline store locations reopening their stores and starting to fix the layout of their respective stores.

This study applied a qualitative research method. The data collected are primary data from in depth interviews, observations, and documentations. In depth interviews is a process of digging in depth, open, and free information with problems and research focus and is directed at the research center (Moleong, 2005). The interviewees include the owner of the SME, the SME's employees, and direct buyers. The duration of interviews is about two hour for six months during the business coaching before and after the solution implementation. There were 5 buyers who were interviewed to find out their shopping experience at SME retail stores. The purpose of this interview is to get the real condition of the SME from more than one perspective.

Observation is a technique in which to monitor behavioral and non-behavioral activities and conditions (Cooper and Shindler, 2014). Behavioral observations carried out include analyzing conversations, body movements from being studied, tone of voice, to the choice of words chosen by employees. In non-behavioral observation, this includes the analysis of the physical state of a place, the analysis of a process, also the analysis of historical records. The observation activities are about six months to record the improvement of the solution implementation.

The documentation method is looking for data about things or variables in the form of notes, transcripts of books, newspapers, magazines, inscriptions, quick methods, legends, and so on (Arikunto, 2011). In this paper, the documentation collected is in the form of placing products that are stored in warehouses, placing products in retail stores, and office layouts to serve online and offline customers which are currently applicable daily. This is done to get a portrait of the current condition plan so that the repair process can then be carried out. The following is the condition of the existing shop layout:

Fig. 1. Existing shop layout (source: author)

The analysis tools used to analyze data collected are BMC Analysis, PESTLE Analysis, Porter's Five Forces, Segmentation Targeting and Positioning Analysis, and SWOT Analysis. Gap analysis is carried out after analyzing the results of the data collected and carrying out the Pareto process to get priority for solving problems that arise and determine the problems to be solved. The following is a recap of the results of the analysis of the collected data:

Table 1. Gap Analysis of Data Collected.

Analysis Method	Ideal Condition	Actual Condition	GAP
Fishbone	Customers are easy to find the desired product	Customers have difficulty in finding the item they are looking for.	Need to group products and provide clear information regarding product locations
Fishbone	Old pot products can be sold soon	There are pot products that have benn in the warehouse for a long time	There need to be a place to store old products so they can be sold immediately.
BMC	There are detailed financial reports related to expenditure and income transactions.	There has been no preparation of financial statements in the form of profit and loss.	Need to create a financial reporting system
BMC	The stock of products in the field matches those in the Inventory application system.	The inventory application has not been fully integrated with the cost of capital for product sales and offline sales.	There needs to be an ideal product placement to simplify the product stock validation process on site with the system.
BMC	Customers feel comfortable and easy in finding the desired product.	Customers need to inquire about the availability of goods and inquire about product prices.	There needs to be clear product location and price information.
Five Force of Competition	Have an interesting and eye-catching offline store and have clear information.	Do not have complete information in store for each product.	There needs to be clear product location and price information.
Five Force of Competition	Marketing activities that are consistent and acceptable to Indonesian society as a whole.	The marketing process is not optimal to face the tight online sales competition.	Passive and unattractive use of social media.
STP	Carry out optimal marketing strategies through social media.	Have not done product promotion marketing on social media actively.	Need to do a marketing strategy through social media.
SWOT	The existence of a detailed and detailed financial reporting system	There is no detailed financial report yet	It is necessary to carry out daily financial records of online and offline transactions.
SWOT	Products storage system with FIFO (First In First Out) system.	Improper product storage	It is necessary to prepare a store layout using the FIFO principle.

Source: Author

IV. RESULT / FINDING

We use the Activity Relationship Chart (ARC) to connect all activities that occur in SME. The terminology used in ARC are A, E, I, O, U, and X, where A means absolute, E is very important, I means important, O means

sufficient/ordinary, U means not important, and X means unwanted (Apple, 1990). Activities that occur in SME are (1) Receive Goods from Supplier, (2) Product Packing, (3) Payment on Cashier, (4) Invoice Printing for Online Order, (5) Online Service, (6) Product Storage, and (7) Submission of Product Storage. The following is the result of the ARC analysis:
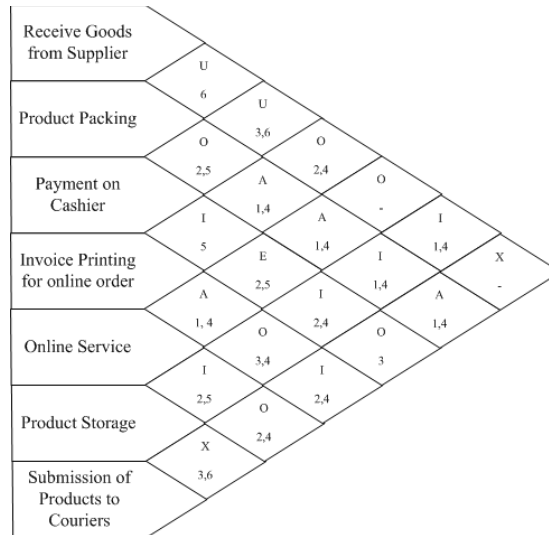

Fig. 2. ARC Analysis (source: author)

Based on the in depth interview and analysis result, the SME need to improve the layout of warehouse facilities and the retail stores. This is because there is no structured and orderly product placement system. This causes defective products and old products that are not immediately sold. In addition, there are many differences in the number of products contained in the SME logistic system with the number of real products in the warehouse.

The second thing that must be addressed is that repairs are needed in retail stores. It takes the preparation of a layout design to improve the customer journey that comes directly to the store. This is because the results of interviews with visitors who come still feel confused during the product purchase process and product payment process. There is no sign of product and price instructions found in retail stores. This causes customers to feel confused about finding the product they are looking for at the initial visit to the store. After getting the product you are looking for, the location of the cashier for payment processing tends to be difficult to find.

Improvements in the warehouse are carried out by implementing the FIFO (first in first out) system to ensure that products that initially enter the warehouse can be sold to retail stores first if they are not sold immediately online. A special place is prepared in retail stores to place products that have not been sold for a long time with a product bazaar system so that they do not become defective products if stored for a long time. There are sample products that are hung throughout the store as an example so that visitors can point to the desired product directly without having to go to the warehouse. The location of products with frequent transactions are placed at the front to facilitate the process of placing stock and customers immediately know the existence of these products. The implementation of 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) has also contributed to the continuous improvement process in terms of organization of durable products and non-durable products such as growing media.

V. DISCUSSION

The result of the achievement of implementation is in the form of a percentage obtained from the difference in the value of the presentation of the initial condition of SMEs with the final percentage of the results of the implementation of Business Coaching. The following is a table of the evaluation of the solution implementation achievements:

Table 2. Gap Analysis of Data Collected.

Category	Implementation	Initial Presentation	Final Presentation	Achievement Presentation
Retail Store Setup	Pot Rack Positioning	0%	100%	100%
	Old pot products can be sold soon	0%	100%	100%
	Iron shelf location repair	0%	80%	80%
	Labeling and table of pot price information	0%	80%	80%
	Hanging pot laying	0%	100%	100%
Warehouse Setup	Bubble wrap arrangement	0%	100%	100%
	Arrangement of planting media	0%	100%	100%
	Put the big black pot	0%	100%	100%
Office Setup	Rearrangement of office position	0%	50%	50%
Overall Average				91%

Source: Author

The improvements made have reached 100%, meaning that the implementation is in accordance with the initial plan and is in accordance with the design agreed. There are several activities that still do not get 100% achievement percentage, because the implementation process need to be completed in next stage due to the problem lack of time and budget.

VI. CONCLUSION AND RECOMMENDATION

The final result of this business coaching research are improvement product storage systems by coaching the SME owners and employees of the new design layout and importance of a good and orderly facility layout. The final layout of retail store affects the attitude and behavior of shopper as well as the performance of the store. For the warehouse layout, defective products have been minimized because regular placement makes defective products easily visible. Improvements to the office have made the packing process easier to monitor and does not interfere with the retail store area. Customers who previously made purchases feel a change and a more pleasant experience in shopping for products at this SMEs. Those Changes that have occurred starting from retail stores to the process of storing products in warehouses can reduce costs for defective products which in turn can increase the efficiency of MSME operational costs. This can be useful for MSMEs in facing the increasingly widespread digital era.

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Estimating The Effect of Investment, Money Supply, and Interest Rates on Economic Growth in Indonesia in 2010-2020

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Abstract

This study is entitled "Estimating The Effect of Investment, Money Supply, and Interest Rates on Economic Growth in Indonesia Over The Period 2010-2020 ". The purpose of this study is to determine how the influence of investment, money supply and interest rates on economic growth in Indonesia. The data used in this study is secondary data type time series from 2010 to 2020 obtained from Badan Pusat Statistik (BPS). The quantitative analysis method used in this study is OLS (Ordinary Least Square) by treating Indonesia's economic growth as a variable, investment arrangements, money supply and interest rates as independent variables.. The results of this study indicate that investment has a significant effect in the short and long term. The amount of money has a significant effect in the short and long term. Interest rates have a significant effect in the short and long term on economic growth in Indonesia over the period 2010 to 2020.

Keywords—Economic Growth, Money Supply, Interest Rate, Investment

I. INTRODUCTION

Economic growth is the process of changing the economic conditions of a country on an ongoing basis towards a better state over a certain period. Economic growth can also be interpreted as a process of increasing the production capacity of an economy which is realized in the form of an increase in national income.

Economic growth is one of the macroeconomic indicators that shows the level of welfare of the people of a country. No exception for developing countries such as Indonesia, economic growth will always be the center of attention to see the level of the country's economy. To be able to achieve a high level of economy but remain stable is not easy, it must be followed by the ability of macroeconomic variables to overcome every problem (Seprillina, 2013).

Various countries are not always able to achieve economic growth in accordance with the development of the production capacity possessed by the increasing factors of production. In many countries, there are often situations where economic growth which is actually much lower than the achievable growth potential, particularly in Indonesia. Economic growth is a long-term macroeconomic problem. In actual economic activity, economic growth means the development of the production of goods and services in a country, such as the increase and number of goods produced by industrial goods, infrastructure development, the increase in the number of schools, the increase in the production of the service sector and the increase in the production of capital goods (Sukirno, 2011).

According to Sadono, the term investment can be interpreted as investment or company spending to buy capital goods and production production equipment to increase the ability to produce goods and services available in the economy. Meanwhile, according to Sayekti, investment is an expenditure to buy goods and production equipment with the aim of replacing and especially increasing capital goods in the economy that will be used to produce goods and services in the future.

Money supply is all types of money in the economy, namely the amount of currency in circulation plus demand deposits in commercial banks. Money supply in a broad sense is also known as economic liquidity or M2. Because M2 includes time deposits, the liquidity is lower. The narrow definition of money in circulation is abbreviated as M1 and is the most liquid money, because this money can be used immediately (Sukirno, 2012; 267). (Langi et al, 2014).

The interest rate is a measure of the investment profit that can be obtained by the owner of capital and is also a measure of the cost of capital that must be incurred by the company for the use of the owner of capital. For investors, the deposit interest rate is profitable because the interest rate is relatively higher than other forms of deposit, in addition

to the risk-free deposit interest. A low interest policy will encourage people to choose investment and consumption instead of saving, on the other hand, a policy of increasing deposit interest rates will cause people to prefer saving rather than investing or consuming.

II. LITERATURE REVIEW

Santos and Nurcahyaningtyas (2016) in their research entitled "factors effecting economic growth in Indonesia in 1986-2013". by using estimation test using the ordinary least square (OLS) method on the partial adjustment model (PAM) and classical assumption test. found that, economic growth in Indonesia during 1986-2013, human resource investmen has not been able to show a significant effect on economic growth. However, on the independent variable the money supply and export activities are significant to economic growth.

(Linda, 2013) found that the monetary policy using the money supply and interest rate instruments SBI has an influence on economic growth in Indonesia. Money supply instruments and SBI interest rates in the short term and long-term both affect economic growth but have different effects. For instruments, the money supply against Economic growth in the short term has a positive effect, while in the long term the money supply instrument responded negatively by economic growth. Meanwhile, the SBI interest rate instrument in short term has a negative effect on economic growth while in the long term it has a positive influence on economic growth. The two monetary policy instruments, the rate policy instrument SBI interest rates are more effective in influencing economic growth by speed time three (3) quarters. This is because if you use response of the money supply instrument on economic growth will requires a longer time, namely at the speed of four (4) quarter.

Differences in effectiveness of money supply instruments and SBI interest rates in affect economic growth is caused by the ability of the response o the banking sector and the real sector which serve as a bridge to influence economic growth is more likely to respond more quickly to rate policy SBI interest rates rather than looking at the condition of the money supply. When you see the condition of the money supply that increases in the long run, is not necessarily the banking sector intervenes in its policy by determining prices or interest rates in the banking sector with a decision to increase or lowered. So that economic growth is increased faster when monetary authorities use the SBI interest rate instrument as an intervention the policy. However, in this case, it cannot be used as a benchmark by Bank Indonesia in intervening in monetary policy. BI must continue to see conditions the Indonesian economy at that time, if there is a state of the economy after the recession, So, to restore economic growth, it is better to use policies Expansive monetary expansion is increasing the money supply so that what happens is a decrease in interest rates and can increase economic growth. This is right for use by BI in its policy interventions. And not closing possibility that the two monetary policy instruments can be used in affect economic growth together.

(Budiyanto, 2021) found that monetary policy boosted economic growth in Indonesia by 83.6%. In particular, the results show that inflation has a significant negative effect to economic growth. The money supply (M2) and the exchange rate are important variables that affect Indonesia's economic growth. At that time At the same time, interest rates do not have a large or negative impact on economic growth Indonesia. The financial sector in Indonesia should be more regulated and supervised by ministry of finance and central bank to achieve monetary policy efficiency. Economic growth should be a major consideration when implementing policies monetary

According to (Afriza, 2022) found that the money supply has no effect on economic growth, the BI rate and the rupiah exchange rate have a negative effect on economic growth, and inflation has a positive effect on economic growth. The government and monetary authorities should be able to maintain the stability of the BI Rate by lowering lending rates in order to increase consumption and capital expenditures, which are the main drivers of economic growth. Furthermore, the government and monetary authorities are expected to be able to maintain the rupiah exchange rate by increasing domestic output in order to reduce import activities and increase consumption of domestic products so as to encourage economic growth. In addition, the government and monetary authorities should also not always suppress the inflation rate because an increase in inflation can encourage job creation so that the unemployment rate can be reduced and cause wages to increase which in turn can develop economic growth.

III. RESEARCH METHODOLOGY

To determine the magnitude of the influence of the independent variable on the dependent variable, this study uses the OLS (Ordinary Least Square) model. the dependent variable in this study is economic growth, while for the independent variables there are three, namely, investment, interest rates, money supply. The object of this research is Indonesia in 2010-2020, the data used is sourced from the official website of the Central Statistics Agency (BPS). The econometric model is as follows:

$GROWTH_{it} = \beta_0 + log\ \beta_1\ INVES_{it} + log\beta_2\ JUB_{it} + \beta_3\ INRATE_{it} + E_{it}$

where,

GROWTH	: Economic Growth
INVES	: Investment
JUB	: Money Supply
INRATE	: Interest Rate
log	: e .-Based Logarithmic Operator
E	: Error term (error factor)
β_0	: Constant
$\beta_1 \ldots \beta_3$	: Regression coefficient of independent variable
it	: Indicates Region and Year

Variable	Coef	Error	t-Stat	Prob
C	0.102476	0.022322	4.590715	0.0025
INVES	1.000000	9.110000	1.099939	0.3077
JUB	-1.530000	8.320000	-1.832709	0.1095
INRATE	-0.000906	0.002209	-0.410001	0.6941
R^2	0.735327			
Adj. R^2	0.621896			
f.statistik	6.482577			
Prob(F-statistic)	0.019782			
Durbin-Watson Stat	1.256549			

IV. RESULT / FINDING

Growth = 0.102476 + 1.000000inv* – 1.530000jub* – 0.000906sb*

$\qquad\qquad\qquad\qquad$ (0.3077)$\qquad$(0.1095)$\qquad$(0.6941)

$\qquad R^2 = 0.735327$ DW-stat = 1.256549 f-stast = 6.482577 Prob. F-stat = 0.019782

a. Multicolinearity Test (VIF)
   inv = 40.31536 jub = 38.64269 sb = 1.551977

b. Jarque-Bera Test
   JB = 1.690779 Prob.JB = 0.429390
c. Breuch Godfrey Test
   $X^2(4) = 10.12990$ Prob. $X^2(4) = 0.0383$

d. White Test
   $X^2(9) = 10.99503$ Prob. $X^2(9) = 0.2760$
e. Ramsey Riset Test
   F(1,6) = 5.825336 Prob. F(1,6) = 0.0523

f. t-stat Test

Variable	Prob. t-Stat	α	Result
INV	0.3077	0.10	Significant
JUB	0.1095	0.10	Significant
SB	0.6941	0.10	Significant

the result of the test explain that the investment plays an important role in determining the amount of output and income. The economic power that determines investment is the return on investment costs determined by interest rate and tax policies, as well as expectations about the future (Samuelson and Nordhaus, 1993). With increasing investment, especially domestic investment in public goods, it is hoped that it will encourage the growth of the private sector and households in allocating existing resources in an area.

The results of the test explain that the money supply has a positive and significant effect on economic growth in Indonesia. The results of this study indicate that if the money supply increases, economic growth will increase. On the other hand, if the money supply decreases, economic growth will decline. This research is in line with previous research conducted by Santos and Nurcahyaningtyas (2016). This research is supported by Keynes's hypothesis, namely money supply has a positive influence on output and economic growth.

The results of the test explain that interest rates have a significant effect on Indonesia's economic growth. Based on previous research shows that if interest rates rise, then economic growth will decrease. On the other hand, if interest rates fall, economic growth will increase. Bank Indonesia generally raises interest rates if future inflation exceeds the predetermined target, on the other hand, Bank Indonesia will lower interest rates if future inflation is estimated to be below the predetermined target. Therefore, it is hoped that Bank Indonesia will always maintain the efficiency of its financial institutions in order to remain stable and optimally to influence economic growth.

the three variables have a relationship to affect economic growth in Indonesia.The money supply is positively related to Indonesia's economic growth. This means that as the money supply increases, Indonesia's economic growth will increase. the money supply has a positive and significant effect on economic growth. Based on the Keynes hypothesis, namely, the money supply has a positive influence on output and economic growth. If there is an excess of money supply, Bank Indonesia will take a policy (lower) the interest rate. This condition encourages investors to invest, which in turn will create an increase in output and trigger economic growth. Conversely, the demand for money will have a negative relationship to output, an increase in the demand for money will have an impact on increasing interest rates and ultimately result in a decrease in output.

V. DISCUSSION

The results of the test carried out on Indonesia's economic growth explain that the interest rate variable has a significant effect on economic growth in Indonesia. The investment variable has a regression coefficient of -0.000906. The pattern of the relationship between the independent variables of interest rates and economic growth is logarithmic, so that if investment decreases by 1%, it causes a decrease in economic growth of -0.000906%.

The results of the test explain that the money supply variable has a significant effect on economic growth in Indonesia in the short and long term. The money supply variable has a regression coefficient of -1.530000 The pattern of the relationship between the independent variable money supply and economic growth is logarithmic so that if the money supply increases by 1 percent, economic growth will increase by 1.530000%. Conversely, if the money supply decreases by 1 percent, economic growth will lead to -1.530000%.

The results of the test explain that the interest rate variable has a significant effect on economic growth in Indonesia. The interest rate variable has a regression coefficient of -0.000906. The pattern of the relationship between the independent variable Interest Rate and economic growth is linear-logarithmic so that if the Interest Rate decreases

by 1 percent, economic growth will decrease by -0.000906%. The increase in the Interest Rate will have an impact on the economy and the real sector.

VI. Conclusion and Recommendation

From the results of the research and discussion that have been described, it can be concluded that all variable independent has statistically significant effect on economic growth in Indonesia during the period 2010-2020.

Based on the results of this research and discussion that have been carried out, several recomendation were put forward, among others. To the Indonesian monetary authority, namely Bank Indonesia, to always maintain financial efficiency so that monetary policy instruments can be optimally affected to influence the banking sector. If the response from the banking sector can be optimal, then economic growth will continue to increase. The government is expected to pay more attention to economic growth, so that the rate of economic growth continues to increase and is stable. And for further research, it is expected to extend the research period and to be able to use more macroeconomic variables in order to obtain results that are closer to the actual conditions.

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Marketing Plan Implementation in SME

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Abstract

MSMEs have an important role for the Indonesian economy. With the contribution of 62% of GDP, the empowerment of MSMEs is becoming very strategic, as one of the most important thing is the SME being a large source of income for Indonesian people. COVID-19 has had a significant impact on MSMEs, due to the policy of social activities restriction. Little House Baked Goods, the object of this Business Coaching, has a problem with unstable demand that caused production inefficiency, so it needs to increase its sales to increase daily production capacity. The purpose of this Business Coaching process is to help MSMEs optimize marketing channels and online consumer reviews by implementing marketing planning. This study uses qualitative research with descriptive analysis methods with data collection models such as interviews, observations, and documentation. Then collected data will be analyzed using the Business Model Canvas, Internal and External Analysis, SWOT, TOWS, Gap Analysis and Pareto to determine problems and solutions. Through this Business Coaching, the marketing plan helps MSMEs to optimize marketing channels and increase online consumer reviews in each channel.

Keywords—Business Coaching, Marketing Planning, MSME

I. INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) have an important role in the Indonesian economy. The Ministry of Cooperatives and MSMEs has developed various programs to show its support for Indonesian MSMEs. Empowerment of MSMEs is very strategic, because of its great potential in driving the economic activities of the community, as well as being a large source of income for the community in improving their welfare. Micro Enterprises are productive businesses owned by individuals and/or individual business entities that meet the criteria for Micro Enterprises as regulated in UU no. 20 of 2008. MSMEs have a significant role in encouraging economic growth, providing job opportunities, and creating a balanced market. Furthermore, the MSME business creates competition and can increase productivity across industries.

COVID-19 had a significant impact on the bakery industry. The social activities restriction policies limit business activities such as hotels, restaurants, cafes, shopping centers and also affect the bakery industry. The Ministry of Cooperatives and Small and Medium Enterprises conducted a survey of 202 bakery businesses in Surabaya and Jakarta which showed that 94% were directly affected by the Covid-19 pandemic (Kompas, 2021). The Asia bakery products market is segmented by product types, such as cakes and pastries, biscuits, bread, morning goods, and other product types and is projected to witness a CAGR of 3.5% during 2020-2025, taking into account consumption growth, trends, and the impact of Covid-19, the bakery business at the Asian level (Mordor Intelligence, 2020). The potential for development can be influenced by the increasing middle class economy, the increasing income of the millennial group, and changes in people's consumption patterns that tend to follow an urban lifestyle. Bakery daily consumption is considered as more practical, and has also changed people's consumption patterns which have an impact on increasing bakery consumption and can save the bakery industry from developing. Per capita consumption of bread, cakes and pastries jumped by nearly 60% from 2016 to 2018 (EIBN Report, 2019).

The development of the pastry industry is also supported by technological advances. Technological advances affect developments in pastry processing, sales, and consumer behavior. The machines used to produce pastries are more sophisticated and productive. Now business units can market pastry products with a wider reach, not only through stores, but also penetrate into online marketing utilizing digital advances. Now consumers no longer make purchases at direct stores, but through online channels, namely ordering through social media, e-commerce like Tokopedia, to ride-hailing applications such as Gojek and Grab.

Little House Baked Goods produces and sells pastry in Tebet, South Jakarta. The business, which was started in July 2019, has experienced inefficiency in its production process. The oven it is using has the capacity to produce 500-800 croissants per day yet only to sell 130-150 croissants per day. This is due to unstable demand and even tends to

be low daily demand. Little House Baked Goods needs to make a marketing plan to reach more market segments, so that the customer base grows. The objective of business coaching is to improve the marketing activities by creating a marketing plan. The marketing plan is created and implemented based on the marketing channels that have to be optimized, both the existing channels and the new channels. The channels are through Instagram, WhatsApp, GoFood, GrabFood, Google My Business, and Tokopedia. These channels have features that let customers provide reviews for Little House Baked Goods, related to the products and the service. The reviews are expected to make it easier for the other customer to make purchasing decisions at Little House Baked Goods.

II. Literature Review

A. Marketing Plan

A marketing plan is a written document that summarizes what the market has learned about the market place and shows how the company plans to achieve its marketing objectives (Kotler, 2007). A marketing strategy according to the American Marketing Association is a plan of action by an organization or person to sell or advertise a product or service. According to the U.S. Small Business Administration, the marketing plan must contain the central elements of the marketing strategy. The elements of marketing according to the U.S. Small Business Administration are Target market, Competitive advantage, Sales plan, Target marketing and sales, Marketing action plan, Budget, Measure and update plan, Operations, Choose how the company will receive payment.

B. Online Consumer Review

Online Consumer Reviews (OCR) contain positive or negative things about the product or company (the seller) and are made by consumers via the internet (C. Park & Min, 2009), and describe characteristics (advantages and disadvantages) of the product (Lackermair et al., 2013). Online consumer review is a form of electronic word of mouth and can be regarded as a new marketing communication and can influence and play a role in the consumer decision process (Sutanto & Aprianingsih, n.d.). Information from other consumers, like online reviews, is viewed to be more convincing because it is reputedly written by other consumers rather than brands, and is therefore considered as being more credible and trustworthy (Willemsen, 2012). The role of online customer reviews according to a number of studies consist of playing two roles at the same time, one as a source of information and the other as a source of recommendation (D. Park & Lee, 2008). (Lee & Han, 2007) stated that the OCRs as an informant are likely to be highly oriented toward customers whereas as a recommender, it comes in as a format containing various recommendations regardless of being negative or positive.

According to (Zhao & Wang, 2015) there are six requirements for Online Consumer Reviews to be effective, these are 1) Usefulness of Online Consumer Reviews, given the sheer amount of information, only comments and opinions of value will influence consumer decision making; 2) Reviewer Expertise, one of the special characteristics of Online Consumer Reviews is that they are made by anonymous individuals; 3) Timeliness of Online Consumer Review, in the information search process, consumers are faced with large amounts of relevant information associated with a certain time span; 4) Volume of Online Consumer Reviews, the number of comments or testimonials from a reviewer about a more specific product or service. 5) Valence of Online Consumer Reviews, the value of a message given in an Online Consumer Reviews can be divided into 2 categories, namely messages that focus on things that contain positive things (benefit-gain) and vice versa, namely messages that contain negative things (benefit-lost); 6) Comprehensiveness of Online Consumer Review, completeness in Online Consumer Review is used to measure how detailed and complete a review is. (Vermeulen & Seegers, 2020) has analyzed the indicators of Online Consumer Reviews, these are 1) Awareness, consumers are aware of the online consumer review feature and use this information in the selection process; 2) Frequency. consumers often use the online consumer review feature as a source of information; 3) Comparison, before buying, consumers read product reviews to be purchased one by one and compare these reviews; 4) Influence or effect, online consumer review features have an influence on product selection.

C. Channels

Cross-channel marketing is used by businesses to grow the customer base, increase exposure, and to increase the demand. The channels could be in the form of brick and mortar, mail-order catalogs, direct mail, e-mails, social media, and e-commerce. Kotler, Kartajaya, and Setiawan (2019) explain that digital marketing is not intended to replace traditional marketing. Digital marketing is a way or bridge for marketers to connect with consumers with content and in a much more varied and innovative way (Ryan & Jones, 2009). Social media is an online environment, which allows people to share information virtually with each other This interpersonal interaction allows the occurrence of strong customer and seller relationships Because there is feedback in real time at a low cost (Chung Han Kim, 2016).

According to Khan A.G. (2016), e-commerce, is the buying and selling of goods and services on the internet Other than buying and selling, many people use the internet as a source of information to compare prices or look at the latest products on offer before making a purchase online or at a traditional store.

III. RESEARCH METHODOLOGY

This study applied a qualitative research method. Qualitative research aims to describe, test, and translate themes or patterns that emerge from data (Malhotra, 2010). The three steps in conducting qualitative data analysis are as follows, (1) Data Reduction, selects the things that are needed, minimized, and set aside to focus on the things that are important, and then look for patterns and themes from the project at hand; (2) Data Display, the researcher develops the interpretation of the data through explanations, diagrams, pictures, tables, and others. Then, the interpretation of the data made can be organized so that the pattern of problems that need to be corrected can be easily recognized and identified; (3) Drawing conclusions and verification. The researcher concludes the business coaching by analyzing the results of data interpretation and its implications for research purposes.
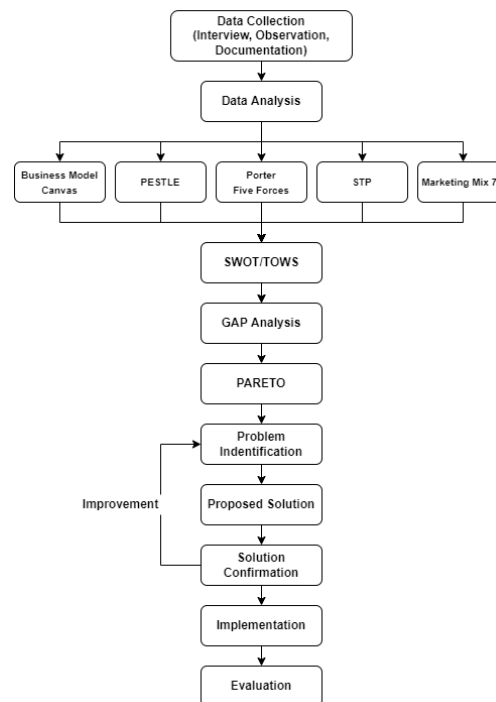

Fig. 1. Business Coaching Process

The data collected from in depth interviews, observations, and surveys. In-depth interviews were conducted with the owner and the employees of Little House Baked Goods to determine the business processes, including the internal and external problems that occurred. Observations were made during the operating hours of Little House Baked Goods to determine the customers' behaviors. A mini survey of 30 the respondents was then conducted to determine customers' opinions regarding the strengths and weaknesses of Little House Baked Goods. The supported data used in this study were the related research journals discussing marketing planning. The collected data were analyzed using Business Model Canvas, external analysis using PESTEL and Porter's Five-Forces Model, then internal analysis using STP and Marketing Mix, as well as SWOT and TOWS analysis. To set the priority and significance problems to address, the researcher discussed the findings based on SME's availability, time allocated, resources, and its short-term target using PARETO to determine the alternative solutions and implement these solutions.

The objective of business coaching is to improve the marketing activities by creating a marketing plan. The marketing plan is created based on the marketing channels that have to be optimized, both the existing channels and the potential new marketing channels. The use of each marketing channel was measured and optimized by utilizing

its respective features. The success indicators from the results of implementing the solutions provided are the level of consumer growth in the marketing channels that were optimized.

IV. RESULT / FINDING

In this business coaching, data collection is done by in-depth interviews, observation, and documentation which will be followed by a mini survey using the questionnaire method. Interviews were conducted with the owners and employees of Little House to find out the business processes to the internal and external problems faced. Observations were made during Little House's operating hours to determine consumer behavior while in the store. Then documentation is done by documenting business processes, store layouts, and capturing social media and e-commerce activities. The questionnaire was conducted on 18 consumers to find out consumer opinions about Little House products. The aim is to obtain a comprehensive conditions of the SME.

The collected data were analyzed using Business Model Canvas (BMC) analysis, external analysis using PESTEL and Porter's Five-Forces Model, then internal analysis using STP and Marketing Mix, SWOT and TOWS analysis, and GAP Analysis. Pareto analysis conducted to determine the solutions.

Table 1. GAP Analysis Summary

Analysis	Actual	Ideal	GAP
STP	The segment is too specific	Broad segmentation	Many segments are not touched, sales are stagnant
BMC	No E-Commerce channel	Maximize Tokopedia	Stagnant sales
Marketing Mix	CMO doesn't have a marketing plan	CMO has a marketing activity plan	Marketing activities are not optimal
Marketing Mix	CFO doesn't have a finance plan	CFO has a finance plan	Ineffective financial reporting
BMC	Marketing activities are not optimal, there is no marketing plan.	Marketing activities done based on marketing plan	Marketing activities are not optimal
Marketing Mix	The number of Instagram followers is low	Growing Instagram followers	Promotion on Instagram is not optimal
Marketing Mix	Low Google Review	Growing Google Reviews	No driver rating attempt
BMC	Financial reports are not optimal	Financial reports are carried out optimally	Do not have the required financial statements
BMC	Low production ratio	Minimum daily production reaches 30% of capacity	Inefficient production ratio
BMC	No monthly marketing cost	Set marketing cost	Stagnant sales
BMC	Marketing activities are not intense	Intense marketing activities	Stagnant sales
BMC	Daily, weekly, and monthly financial records have not been carried out properly	Good daily, weekly and monthly financial records	Do not have the required financial statements
Business Process	Operational activities do not run according to SOP	Operational activities are ran according to SOP	SOPs are outdated and irrelevant

Based on the gap analysis above, it can be concluded that the problems that occurred are caused by the gaps between factual and ideal conditions. Furthermore, the existing problems were assessed and weighted to measure the level of importance of the problem and the level of convenience to be carried out based on ideal conditions and the level of ability of Little House Baked Goods.

Table 2. Pareto Analysis

GAPs	Value	Weight	Score	%
Marketing Planning	9	8	72	23%
Improvement of financial reports	9	7	63	20%
Marketing Channel Optimization	8	7	56	18%
Production Efficiency	8	7	56	18%
Product Development	7	6	42	13%
SOP updates	5	5	25	8%
			314	100%

Based on the data and the analysis, Little House Baked Goods needs to make a marketing plan to reach more market segments, so that the customer base grows. The objective of business coaching is to improve the marketing activities by creating a marketing plan. The marketing plan is created based on the marketing channels that have to be optimized, both the existing channels and the new channels. The channels are through Instagram, WhatsApp, GoFood, GrabFood, Google My Business, and Tokopedia. These channels have features that let customers provide reviews for Little House Baked Goods, related to the products and the service. The reviews are expected to make it easier for the other customer to make purchasing decisions at Little House Baked Goods.

V. DISCUSSION

The implementation of this business coaching was carried out for 2.5 months, starting from April 1, 2022 to June 15, 2022. The implementation went well where SME owners and employees were very open to change and growth, so they were enthusiastic about running this program. Implementing marketing planning is the main objective of this business coaching. Marketing plan implementation is carried out by optimizing the marketing channels used and increasing online consumer reviews for each channel. The following are the achievements of the implementation of the business coaching process at Little House Baked Goods:

Table 3. Key Performance Indicators

No.	Activities	Target	Realization	Results	Percentage
1	Selling hampers products	Selling 75 hampers packages	Sold up to 75 hampers packages	Achieved	100%
2	Instagram	Gaining 1,000 followers, from 0	Gained 684 followers	Not Achieved	68%
		Planning daily and weekly post	Uploaded daily and weekly contents	Achieved	90%
		Interactive Instagram Stories	Gained consumer interactions through Instagram Stories	Achieved	90%
3	Google My Business	Gaining 60 Google Reviews, from 29	Gained Google Review	Achieved	90%
		Increasing exposure through Google Ads	Gained 20k impressions, 95 clicks, 13 local actions	Achieved	90%
4	Tokopedia	Moving Instagram and WhatsApp sales to Tokopedia	Instagram and WhatsApp sales shifted to Tokopedia	Achieved	90%
		Moving wholesales to Tokopedia	Only 50% B2B Wholesales moved to Tokopedia	Not Achieved	70%
		Contributing 5% sales	Contributed 11.7% sales	Achieved	100%
		Gaining 100 reviews	Gained 108 reviews	Achieved	100%
Performance Score					89%

In the process of selling hampers products, the sales achievement reached 100% where the sales contributed 25% of sales in April 2022. The performance score on Instagram optimization was 83%, because the increase in the number of followers on Instagram has not been in accordance with the specified target. Optimization on Google My Business

went well where Google Review and Google Ads activities reached the specified target with an average achievement of 90%. Optimization on Tokopedia has obstacles where some Little House wholesale consumers are reluctant to transfer their transactions to Tokopedia due to the delivery system which has the potential to add large shipping costs. On the average, the optimization went smoothly where the average achievement reached 90%. From the achievement of the specified target, it can be concluded that the business coaching process is running as expected.

VI. CONCLUSION AND RECOMMENDATION

Based on the results of the analysis conducted through business coaching activities, it can be concluded that the main problems experienced by Little House can be improved by implementing the marketing plan by optimizing marketing channels and increasing online consumer reviews. Based on several considerations, the optimization of Instagram and the Google My Business are carried out to support efforts to increase exposure through Instagram Ads and Google Ads. Marketing planning needs to be done because as a business, Little House does not have a marketing activity plan. Marketing planning is done by determining indicators such as target market, competitive advantage, sales plan, marketing and sales targets, marketing action plan, budget, measure and update plans, operations, and choose how Little House will receive payments. Determination of these indicators focuses on optimizing each marketing channel and increasing online consumer reviews.

The low production ratio of Little House is caused by the static level of consumer demand for Little House products. This is exacerbated by the condition of the loss of the Little House Instagram account as the main medium in conducting marketing activities. In fact, the products owned by Little House have good quality at affordable prices. Thus, it is necessary to optimize each marketing channel in order to increase demand and sales. After the optimization, it can be concluded that the level of marketing activities and the level of interactions with consumers increases along with increasing the exposure of Little House and has the potential to increase the selling power of Little House. The level of Little House consumer reviews on each marketing channel is relatively low, so it needs to be increased to get the effect of electronic word of mouth. The high level of reviews from consumers can help make purchasing decisions for prospective consumers, so that they can increase their confidence to make transactions. Based on the results obtained, consumers are enthusiastic about the invitation to do a review. The high level of consumer reviews also has the potential to increase Little House's sales. The overall percentage of efforts implementing marketing plan by optimizing marketing channels and increasing online consumer reviews has reached 89% of the set target.

Taking into account the limitations that have been faced, marketing planning need to be made and developed periodically. Marketing planning could be done weekly and monthly which is important to do as a routine guide for marketing activities to increase demand and sales of Little House. The optimization of all marketing channels is expected to be continued and managed properly. Because, marketing channels are a source of income for Little House. The moment of truth felt by consumers takes place in each marketing channel. Marketing channels need to be managed by a person in charge who is specifically responsible for each marketing channel so that their activities are optimal. Online Consumer Reviews need to be managed properly. Reviews are an important medium to maintain interaction and engagement with consumers. The large amount of information in reviews, both only valuable comments and opinions, will influence consumer decision making in making a purchase.

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Factors Affecting Continuance Intention to Reuse Telemedicine Apps

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Abstract

The main objective of this research is to identify the main factors predicting the e-satisfaction with Telemedicine Apps and customer's intention to reuse such app in Indonesia. Telemedicine Apps have been widely known as a digital-based disruptive innovation in the health sector that is convinced to be very beneficial when patients are required to maintain physical distance or unable to visit health centers because public has access to various treatment options provided through the use of wireless technology. There are important questions regarding the impact of implementing Telemedicine Apps on customer e-satisfaction and customer continuance intention to reuse such app. A survey was built using specific constructs to measure the perception of Telemedicine Apps, which is based on the UTAUT2 combined with the perspectives of perceived privacy, perceived security, and trust. The sample was composed of 235 populations who have used Telemedicine Apps and data were analyzed using Partial Least Square Approach. Trust was found to be the most significant driver of customer e-satisfaction, followed by performance expectancy and hedonic motivation. In addition, habit and e-satisfaction were identified as the strongest predictors of continuance intention. These findings extend our understanding of users' satisfaction and continuance intention in the context of Telemedicine Apps. Conclusion and implications are provided.

Keywords— Telemedicine App; Continuance Intention; E-satisfaction; UTAUT2; IS Success Model

I. INTRODUCTION

In the digital era 4.0, the development of technology and information is very rapidly, one of which is the development of the internet. The internet today affects every aspect of society (Leung & Chen, 2019). Based on the 'Global Digital Reports 2021', until January 2021, the number of internet users in Indonesia reached 202.6 million people (We Are Social, 2021). When compared to the previous year, the number was 27 million higher. The increase in internet users does not escape the increase in smartphones. The Ministry of Communication and Information stated that smartphone users in Indonesia reached 167 million of the total population of Indonesia (Media Indonesia, 2021).

Industry 4.0 completely revolutionized digital health and its entire ecosystem (Aceto et al., 2020; Arfi et al., 2021). Through the presence of the internet and smartphones, health sector companies create a digital-based service innovation with the term Telemedicine that is used by people in Indonesia. Minister of Health Regulation No. 20 of 2019 defines Telemedicine as the delivery of health services, where distance is an important element for patients and health practitioners by using information and communication technology that is used to exchange valid information regarding diagnosis, treatment, prevention of disease and injury, research and several uses related to research and education for the benefit of the health of each person and society (Persi, 2019).

The presence of Telemedicine provides many conveniences in society because Telemedicine enables people to choose better health care options, improve the quality and performance of emergency services, reduce time in making diagnoses, and save costs for doctors and patients by optimizing clinical procedures, and reducing costs trips to the hospital (Weinstein et al., 2014; Parimbelli et al., 2018; Haleem et al., 2021). Telemedicine uses technology that is believed to be very helpful for patients when patients are required to maintain physical distance or cannot visit health centers because public has access to various treatment options provided through the use of wireless technology such as laptops and smartphones (Vasquez-Cevallos et al., 2018; Kerleau & Pelletier-Fleury, 2002; Ishfaq & Raja, 2015 in Haleem et al., 2021).

Beside its advantages of being able to provide various solutions to improve the quality of services for patients and doctors, Telemedicine also has various limitations and obstacles in its implementation (Haleem et al., 2021). There are some very typical and common barriers to consider when implementing telehealth-related practices for healthcare, such as 1) lost patient privacy; 2) disclosure of patient data confidentiality; 3) the complexity experienced by the

patient; 4) misdiagnosis of the patient's illness; 5) the administration of drugs that must be carried out is controlled by a doctor; 6) fraud and abuse; 7) medical responsibility; and 8) the accuracy of patient data. In addition, when compared to conventional health services, Telemedicine is deemed inappropriate in every situation, such as imaging tests (x-rays), blood tests, and diagnoses that require professional health personnel (Harvard Medical School, 2020).

Based on a survey conducted by Statista, there are five digital health app that are most often used by residents in Indonesia, namely Halodoc, Alodokter, KlikDokter, Good Doctor, and YesDok (Statista, 2021). Currently, these Telemedicine app compete to provide the best service. The services they offer look almost the same as each other that makes users have many choices in using app which certainly can be a threat to various Telemedicine app because users have high bargaining power.

The large variety of Telemedicine app choices to obtain health services, makes users more selective in downloading app that will be used in the future. Regardless of the potential benefits of an app, its ultimate success depends on whether users use their initiative to use the app. The benefits of an app will decrease if users do not use it (Keen & Roberts, 2017; Amin R et al., 2017; Binyamin & Zafar, 2021). When users feel optimistic, innovative, comfortable, and safe about health-related communication technology, they tend to feel that the technology is useful, in accordance with their initial expectations, and arises satisfaction and continuance intention (Leung & Chen, 2019).

Users' satisfaction and continuance intention to reuse a system or technology refers to four determinants of acceptance and use of technology, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. These four determinants are described by Venkatesh et al. (2003) in the UTAUT (Unified Theory of Acceptance Use of Technology Model) model, a model that presents a theoretical framework that describes what potential factors influence acceptance (Blut et al., 2021). The basic concept underlying UTAUT is that the intention to use information technology is a direct predictor of actual use (Philippi et al., 2021). Then, Venkatesh et al. (2012) developed the UTAUT model into UTAUT2 to cover different contexts, where UTAUT2 focuses on consumers or customers. Thus, UTAUT2 explains consumer behavior with the four original constructs from UTAUT by adding three new constructs, namely hedonic motivation, price value, and habit. When associated with this research, UTAUT2 will explain consumer behavior of a service which in the context of this research is a Telemedicine app.

Another thing that affects user satisfaction and continued intention to use a system or technology is perceived privacy and perceived security. Users feel security is important, even though it is not sufficient for perceived privacy (Morton & Sasse, 2012; Nepomuceno et al., 2014; Maqableh et al., 2021). Perceived security and perceived privacy have been shown to protect users from risk and uncertainty, he also suggested that both increase user trust when using technology platforms (Culnan & Armstrong, 1999). Furthermore, perceived security and perceived privacy increase and have a positive impact on trust (Culnan & Armstrong, 1999; Flavian & Guinaliu, 2006). The more Telemedicine app that appear, this study intends to explore the relationship between the UTAUT2 model, perceived privacy, and perceived security so that users use technology, trust is the side of trust, and the e-satisfaction obtained by users in using Telemedicine app that are believed to be factors that can increase continuance intention to reuse.

II. LITERATURE REVIEW

Performance expectancy refers to the more convenient and productive benefits offered by a new system and app to users (Venkatesh et al., 2003). Customers tend to have more positive reactions and intentions to use a new system if they feel that the system will save more time and effort than the conventional one (Dwivedi, Rana, Janssen et al., 2017; Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2017; Sharma & Sharma, 2019; Tamilmani et al., 2019; Venkatesh et al., 2003). When customers feel a high degree of benefit value when using innovative apps, customers will have an experience that tends to be satisfying and enjoyable (Alalwan, 2020). Performance expectancy is a significant predictor to determine user intention to adopt new technology (Zhao & Bacao, 2020). When users perceive higher utility from an app, they will have a greater intention to use the app continuously (Yeo et al., 2017; Park et al., 2007).

H1. Performance expectancy will positively impact users' satisfaction with Telemedicine app

H2. Performance expectancy will positively impact users' continuance intention to reuse Telemedicine app

Venkatesh et al. (2003) and Alalwan (2020) provides the view that effort expectancy is also referred to as ease of use, which is how far the user gets the ease and requires little effort when using a new system. This means that the effort expectation refers to the effort required to use the system, whether it is simple or complex. With the easy technology can be easily accepted and adopted by users. Most users prefer technologies that provide flexibility, usability and ease of use (Catherine et al., 2017). In the context of the use of connected health devices, effort expectancy is associated with an increase in the perception that a system or technology has benefits. In the medical context, effort expectancy is a strong predictor of continuance intention (Alaiad & Zhou, 2014; Quaosar et al., 2018).

H3. Effort expectancy will positively impact users' satisfaction with Telemedicine app

H4. Effort expectancy will positively impact users' continuance intention to reuse Telemedicine app

Social influence provides a view of how far a person feels that other people he considers important believe that he should implement a new system (Venkatesh et al., 2003). When a system or technology is considered new to a person and he is not very familiar with it, then other people (friends, family, leaders) whose opinions or thoughts he considers important can influence the acceptance or use of the system (Alalwan, Dwivedi et al., 2017; Okumus et al., 2018). It is also known that customers are more interested in returning to their social system either to pocket more information and expand their awareness or to gain social approval for their decision to use the new system (Khalilzadeh, Ozturk, & Bilgihan, 2017; Verkijika, 2018). Research conducted by Alazzam et al. (2016), Hennemann et al. (2017), and van der Vaart et al. (2016) confirmed that based on studies in the context of health with patients, social influence is often the most important predictor of technology acceptance (Moon and Hwang, 2016; Okumus et al., 2018; Tavares and Oliveira, 2017). Because many people are not experts in health issues, they are influenced by other people they consider important in their social group (family members or experts) (Moon and Hwang, 2016; Okumus et al., 2018; Tavares and Oliveira, 2017).

H5. Social influence will positively impact users' satisfaction with Telemedicine app

H6. Social influence will positively impact users' continuance intention to reuse Telemedicine app

Technical facilities and support from others are available when needed, based on user experience and customer satisfaction when using a new system or app that is considered modern (Venkatesh et al., 2003). Users also pay more attention to the quality and ability of an app to work consistently without any perceived obstacles (Alalwan, 2020). In addition, another thing that is very important to note is service for quality customers, where this service requires the role of human support such as customer service, call centers, and delivery (Alalwan, 2020). Facilitating conditions are strong predictors of the older generation (Venkatesh et al., 2003). Facilitating conditions have a close relationship with satisfaction also proven in the research of Maillet et al. (2015) in the context of health informatics. Furthermore, Li et al. (2019) and Tao et al. (2020) prove that improving facilitating conditions can increase users' behavioral intentions towards technology acceptance because a higher level of facilitating conditions can reduce the effort required to use technology.

H7. Facilitating conditions will positively impact users' satisfaction with Telemedicine app

H8. Facilitating conditions will positively impact users' continuance intention to reuse Telemedicine app

Hedonic motivation refers to the feelings of pleasure and enjoyment that users get when using a technology (Brown & Venkatesh, 2005). Hedonic motivation can be described as intrinsic motivation such as comfort, enjoyment, pleasure obtained after using a new product, service, or service so that this feeling of pleasure can be associated with the level of innovation and novelty in using the new system (Van de Heijden 2004); Venkatesh et al., 2012). The comfortable and pleasant experience will lead to positive feelings which in turn increase user satisfaction and intention to reuse (Hsiao et al., 2016).

Hedonic motivation has a close relationship with e-satisfaction and continuance intention as proven in Alalwan's research (2020). This can happen because users get a sense of pleasure, comfort, and enjoyment when using the app. When users obtain functional benefits (eg usefulness, performance expectancy), it is sufficient to guarantee customer satisfaction which in turn will lead to further behavior, such as continuance intention (Venkatesh et al., 2012).

H9. Hedonic motivation will positively impact users' satisfaction with Telemedicine app

H10. Hedonic motivation will positively impact users' continuance intention to reuse Telemedicine app

Price value is the use of new products and systems related to financial aspects (Alalwan, 2020), where users are more likely to compare the benefits of using the new system with the financial costs paid (Alalwan et al., 2017; Dodds et al., 1991; Venkatesh et al., 2012 in Alalwan, 2020). Venkatesh et al. (2012) revealed that price value is the user's cognitive exchange between the perceived benefits of the app and the monetary cost of using it (Alalwan, 2020).

Research conducted by Baudier et al. (2020) regarding the Telemedicine cabin, proves that the price value has a positive influence when the user's perception of the benefits of using a technology is greater than the costs he incurs.

H11. Price value will positively impact users' satisfaction with Telemedicine app

H12. Price value will positively impact users' continuance intention to reuse Telemedicine app

Perceived privacy discusses the possibility that a company will process its customers' personal information in an unauthorized manner or sell it to other companies (Castañeda et al., 2007). In today's technology-driven environment, one of the most important issues is personal data and customer concerns (Miyazaki, 2000; Miyazaki, 2001). The user's privacy concerns when using the app can break the benefits of it (Keith et al., 2016). Customers may be willing to share their personal information if they are rewarded with tangible benefits (Culnan, 1999). User behavior and attitudes, such as trust, willingness to use, intention to use, and intention to disclose personal information will be influenced by perceptions of privacy.

In the context of healthcare, providers must take into account the cultural values and beliefs of their patients because these values and beliefs inform patient privacy concerns. Patients prefer to have the freedom to decide when to disclose their health information (Ngwenya et al, 2016; Xiao et al., 2015). Good handling of customer privacy can be one source of customer satisfaction (Trivedi & Yadav, 2020).

H13. Perceived privacy will positively impact users' satisfaction with Telemedicine app

H14. Perceived privacy will positively impact users' continuance intention to reuse Telemedicine app

When a person adopts technology, the gap between actual security and user-perceived security raises various questions about the effect of perceived security (Zhang et al., 2019). Perceived security is defined as the level of trust on the internet to transmit sensitive information (Salisbury et al., 2001). Meanwhile, Mekovec & Hutinski (2012) and Shin (2010) state perceived security is about how far users feel that technology service providers are able to act appropriately to ensure that customers are free from any risk when using a technology. Every company has their own security measures (anti-virus software, intrusion detection and prevention system, port scanner, vulnerability scanner) to protect their hardware, software, company data and customer data. When companies feel worried that they are wary of cyber security measures, customers are more likely to have confidence in internet services (Maqableh et al., 2021). Lighner et al. (2004) and Liao et al. (2017) found that intention to use technology in web services is continuously shaped by one important factor, namely perceived security.

H15. Perceived security will positively impact users' satisfaction with Telemedicine app

H16. Perceived security will positively impact users' continuance intention to reuse Telemedicine app

Vijayasarathy (2004) & O'Cass & Fenech (2003) in their research have tested the relationship between perceived privacy and attitude, the results obtained that both have a positive relationship. Research conducted by Mukherjee & Nath (2007) identified that the privacy and security features of websites are key antecedents of trust. Therefore, according to Flavia´n and Guinalı´u (2006), the development of trust can influence a person's intention to buy but the trust is also influenced when he feels that an app can handle their personal data securely.

The relationship between perceived security and trust has been explored in several studies. As research conducted by Tsiakis & Stephanides (2005), if the user's perceived security level on an app is too low, customers may no longer participate in using the app until a solution is implemented to rebuild their trust. That is, if the user's perceived security level in an app is high, the customer may participate continuously in using the app. Thus, it can be concluded that he trusts the app because he feels safe when using it.

H17. Perceived privacy will positively impact users' trust with Telemedicine app

H18. Perceived security will positively impact users' trust with Telemedicine app

Mayer et al. (1995) defines trust as a user can trust other parties related to him and be sure of it. His confidence with other parties is based on self-confidence (Rempel et al., 1985). In a medical context, consumers can only rely on the diagnosis made by the service provider. Handing over personal details to providers based on trust is an important factor in the acceptance of technology in healthcare. Trust is one of the determining factors in such exchanges, where uncertainty is present. Practically, trust is a prerequisite for interactions carried out in an uncertain environment (Ba & Paulov, 2002). In such situations, beliefs about the service provider (besides usability and ease of use) also become important. If service providers fail to convey trust, consumers are unlikely to engage in transactions (Heravi et al, 2018). Similarly, in terms of health care, if the patient trusts the health care provider to meet his needs, then the patient is more likely to see technology as something that is beneficial to him (Lalseng & Andreassen, 2007). Ensuring trust, by creating a positive attitude towards service providers, is likely to reduce consumers' fear of service provider opportunism.

Research conducted by Lee & Kim (2012) found that trust can increase customer satisfaction and thus positively affect reuse intention. Many studies have shown that trust as a factor influencing satisfaction has been carried out because trust offers an emotional assessment to customers, which also proves that the company is honest (Gustafsson et al., 2005). Therefore, when customer satisfaction increases, customers will appear attached to the company and its products or services (Chen et al., 2009 & Chen & Sue, 2013).

H19. Trust will positively impact users' satisfaction with Telemedicine app

Customers who are happy with their experience when using an app are more likely to have habitual behavior using the app (Alalwan, 2020). The results of previous experiences and interactions of customers can shape their perceptions and attitudes which in turn predict their intensity to act in the same way (Ajzen & Fishbein, 2005). Amoroso and Limös (2017) in their research have tested the relationship between e-satisfaction and habit, and they were able to prove that there is a relationship between the two. Furthermore, Amoroso and Limös (2017) also add that while customers are satisfied with their experience using an app, customers are expected to get used to using the app.

H20. E-satisfaction will positively impact users' habit with Telemedicine app

Habit is defined as the extent to which people tend to perform behavior automatically (Venkatesh et al., 2012 in Alalwan, 2020). Once users have had a positive experience with a new technology, the strength of the habit becomes a determinant of their future behavior and intention to use it in the future (Lin and Wang, 2006). Habits have been included in several studies on continued intention to use IT-based technology, because users who frequently use technology or apps, their behavior becomes automatically formed (Hsiao et al., 2016). When a behavior becomes a habit or well-practice behavior, it becomes automatic and is carried out without a deliberate decision (Ouellette & Wood, 1998; Lin & Wang, 2006).

The relationship between habit and continuance intention has been carried out in various studies. Hsiao et al. (2016) found that habit is a significant determinant of continued use of mobile apps. In the context of health apps, Peng et al. (2016) have proven that habit is a significant predictor of mobile health app. Habit theory supports the relationship between habit and continuance intention because previous habitual behavior can lead to favorable feelings towards behavior, thereby increasing continuance intention (Kim & Malhotra, 2005; Hsiao et al., 2016).

H21. Habit will positively impact users' continuance intention to reuse Telemedicine app

Satisfaction is a crucial and essential construct in marketing (McQuitty et al., 2003). In online marketing, customer satisfaction is considered more complicated than offline marketing because it involves the interaction between marketing and technology characteristics (Tang et al., 2005). In the context of online shopping (e-commerce), customer satisfaction consists of customer satisfaction when making purchases and user satisfaction when using IS (website). Therefore, prospective marketing and prospective IS are combined and conclude satisfaction as e-satisfaction. E-satisfaction is used to research customer satisfaction when making online purchases. Satisfaction along with continuance intention is considered the key to maintaining and maintaining a loyal relationship with users (Hsiao et al., 2016).

Users will feel satisfied if they feel that the service performance of the app they use exceeds their expectations, which in turn leads to positive action on the continuance intention to reuse an app (Zhao & Bacao, 2020). In the context of the online environment, users who have a higher degree of satisfaction tend to have a stronger continuance intention to use online channels again (Bhattacherjee, 2001; Hsiao et al., 2016). A study conducted by Alalwan (2020) proves that there is a strong relationship between e-satisfaction and continuance intention because a person's intention to use an app in the future will depend on how satisfied he is with the experience of using the new system.

H22. E-satisfaction will positively impact users' continuance intention to reuse Telemedicine app

III. RESEARCH METHODOLOGY

A. Sample And Data Collection

The empirical part of this study was conducted in Indonesia using questionnaire survey. During the one month from October to November 2021, the required data was collected from a purposive sampling size of 265 smartphone users who had already adopted and used Telemedicine app (Halodok, Alodokter, KlikDokter, Good Doctor, YesDok, and such app).

B. Measures

In the first part of the questionnaire, the main purpose of the study was explained, and Telemedicine app were clarified with examples (Halodoc, Alodokter, KlikDokter, Good Doctor, YesDok, and such app). The second part was devoted to screening questions to ensure that respondents are over the age of 18 years old and are Telemedicine users. The third part was for the main construct items and the last part was for the demographic questions. The main construct items part, Venkatesh et al.'s (2012) scale was adopted to measure PE, EE, SI, FC, HM, PV, HB, and CI. E-satisfaction was validated using scale items extracted from Anderson and Sullivan (1993), Wang, Tseng et al. (2019) and Lee and Chung (2009) in Venkatesh et al. (2012). Items for PP and PS were adapted from Balapour et al. (2020), Susanto et al. (2016), and Nepomuceno et al. (2014) in Maqableh et al. (2021). TR was tested from items suggested by Susanto et al. (2016) and Yang & Lin (2014) in Maqableh et al. (2021). All of the constructs items are measured using a seven-point likert scales ranging from 1 strongly disagree to 7 strongly agree.

As Indonesian is the official language in Indonesia, the questionnaire was translated into Indonesian. More over, the Indonesian version of the questionnaire was checked by seven peoples. A pre-test was also conducted with 30 participants with different backgrounds. The vast majority of participants reported that the language used was very clear and understandable. To check the reliability of the constructs' scale used, Cronbach's Alpha was tested for all the constructs. All constructs were able to capture a value not less than 0.60 according to Malhotra (2020) suggestions in this regard.

IV. RESULT / FINDING

The result section will begin by providing preliminary data analysis of the demographic statistics. Then, a Partial Least Square approach was mobilized using SmartPLS3 to analyse the relationships between the constructs of the model.

A. Demographic Statistics

Out of 300 distributed questionnaires, 265 (75.9%) were returned and found to be valid for more advanced analysis. More than half (80.4%) the participants were female; accordingly males accounted for 19.6% of participants. As for the age categories, the vast majority (69.4%) of respondents were within the age group of 23-27, with 12.8% in the age group of 28-32, and the smallest percentage (2.3%) in the group of those aged 40 and over. In the terms of

educational level, holders of Bachelor's degrees constituted the largest group in the current sample size, accounting for 78.1% of the total sample size, followed by those who have Master's degrees (12.5%). Regarding the average expenditure per month level, the largest part (28.7%) of the current sample was for those who have a monthly expenditure higher than 5.000.000, about 16.2% current study participants reported having a monthly expenditure level ranging from 500.000 to 1.000.000. Finally, most participants (50.2%) in the current study had experience with Telemedicine app of 1 to 2 years.

B. *Reliabilities And Validities Of The Outer Model*

The loadings of the variables, the Composite Reliability and Cronbach's Alpha, mobilized to control the reliability of the model, were above the recommended threshold of 0.6. The discriminant validity of all constructs was controlled by verifying that the square root of the Average Variance Extracted (AVE) of the construct was superior to the correlations of this construct with the other constructs. Convergent validity was confirmed as all the values of the AVE were above the recommended threshold of 0.50. Thus, results of on the analysis of the outer model confirm the validity and reliability of the research model.

Table 1. Validity and Reliability

Variabel	Item	Cronbach's Alpha	Composite Reliability	Outer Loadings	AVE
Performance Expectancy (PE)	PE1	0.888	0.923	0.862	0.750
	PE2			0.908	
	PE3			0.897	
	PE4			0.792	
Effort Expectancy (EE)	EE1	0.947	0.962	0.924	0.864
	EE2			0.903	
	EE3			0.953	
	EE4			0.937	
Social Influence (SI)	SI1	0.906	0.941	0.918	0.842
	SI2			0.930	
	SI3			0.904	
Facilitating Conditions (FC)	FC1	0.831	0.889	0.859	0.668
	FC2			0.864	
	FC3			0.848	
	FC4			0.686	
Hedonic Motivation (HM)	HM1	0.926	0.953	0.920	0.871
	HM2			0.952	

	HM3			0.928	
Price Value (PV)	PV1	0.926	0.953	0.892	0.872
	PV2			0.957	
	PV3			0.951	
Habit (HB)	HB1	0.933	0.952	0.919	0.833
	HB2			0.933	
	HB3			0.884	
	HB4			0.915	
Perceived Privacy (PP)	PP1	0.839	0.786	0.787	0.521
	PP2			0.167	
	PP3			0.840	
	PP4			0.856	
Perceived Security (PS)	PS1	0.958	0.969	0.936	0.888
	PS2			0.945	
	PS3			0.946	
	PS4			0.941	
Trust (TR)	TR1	0.945	0.957	0.881	0.786
	TR2			0.895	
	TR3			0.849	
	TR4			0.896	
	TR5			0.892	
	TR6			0.905	
E-satisfaction (SAT)	SAT1	0.957	0.966	0.916	0.852
	SAT2			0.933	
	SAT3			0.934	
	SAT4			0.907	
	SAT5			0.926	
Continuance Intention (CI)	CI1	0.935	0.958	0.938	0.885
	CI2			0.943	

CI3	0.940

1. *IV.3 Inner model*

The inner model was tested by controlling the value of R^2 and Q^2 of the endogenous variables. The relationships between constructs were controlled using the following parameters: t-value at more than the recommended threshold at 1.65 and p-value below 0.05. To explain the variance of the constructs, the R^2 were examined. Our model explains 72.2 percent of E-satisfaction, determined by Trust (Path Coef = 0.358, t = 5.111, p = 0.000) and two of the UTAUT2 variables: Performance Expectancy (H1: Path-Coef = 0.244, t = 3.710, p = 0.000) and Hedonic Motivation (H9: Path-Coef = 0.209, t = 3.335, p = 0.000). With R^2 at 0.676, our model explains 67.6 percent of Continuance Intention determined by E-satisfaction (H20: Path Coef = 0.326, t = 3.374, p = 0.000) and two of the UTAUT2 variables: Performance Expectancy (H2: Path Coef = 0.114, t = 1.723, p = 0.042) and Habit: (H13: Path Coef = 0.412, t = 4.575, p = 0.000). Our model also explains 52.4 percent of Trust, determined by Perceived Security (H19: Path Coef = 0.717, t = 19.812, p = 0.000). At last, with R^2 at 0.448, our model explain 44.8 percent of Habit, determined by E-satisfaction (H21: Path Coef = 0.669, t = 17.855, p = 0.000).

The Blindfolding procedure was mobilized to calculate the Q^2. The Q^2 of E-satisfaction, Continuance Intention, Trust, and Habit are greater than zero, indicate an acceptable predictive of relevance the model. In summary, eight hypotheses were validated and fourteen rejected as seen in Figure 1.
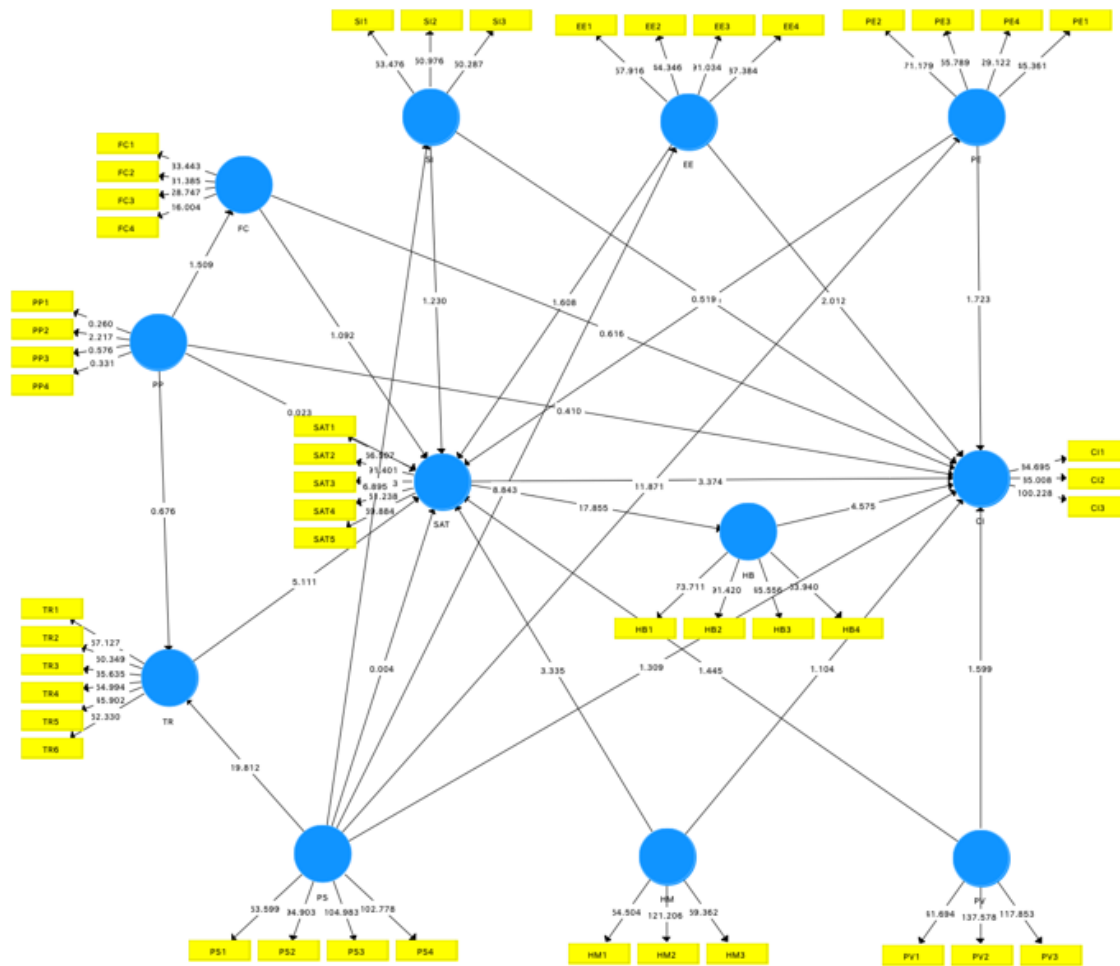
2.   Fig 1. Bootstrapping Model

V. DISCUSSION

With the growing popularity of Telemedicine app in medical context, understanding user Telemedicine apps continuance intention has become an essential topic for both practitioners and academics. This study investigates the factors that influence the Telemedicine app continuance intention of users through UTAUT2 and the integration of IS success model. The results reveal that only eight hypotheses are accepted (H1, H2, H9, H18, H19, H20, H21, H22) and fourteen hypotheses are rejected.

In discussing the hypotheses, H1 proposed that performance expectancy influences e-satisfaction, and H2 proposed that performance expectancy influences continuance intention. The findings of this research supported both of these hypotheses. This finding confirmed the significant positive impact of performance expectancy on user e-satisfaction and users' continuance intention to reuse Telemedicine app, and the result was supported by previous research studies by Alalwan (2020). This demonstrates that the ability of Telemedicine X apps that can help users accomplish tasks more quickly gives satisfaction to the use of Telemedicine X apps, and increase users continuance intention.

Hypothesis (H9) proposes that hedonic motivation positively impact users' satisfaction. This means that Indonesian users are more likely to be pleased about the usage experience of Telemedicine app. These result could be attributed to the fact that, in consumer context, functional benefits are sufficient on their own to guarantee customer satisfaction (Venkatesh et al., 2012; Alalwan, 2020). The considerable role of hedonic motivation could be explained by Telemedicine app still being a new and innovative technology in Indonesia, hence, using such app could accelerate the users' feelings of pleasure and enjoyment.

According to the results, (H18) perceived security was confirmed to have a crucial impact on continuance intention, the results showed ample support for this hypothesis. The findings confirm that perceived security is the key determinant of Telemedicine app user continuance intention. The results consistent with Maqableh et al. (2021) that found user's trust is positively influenced by perceived security. This demonstrates that the perception of higher control of Telemedicine apps and their services greatly affects the trust of the majority of users towards these apps.

H19 proposed that trust increases users' satisfaction while using Telemedicine app. The findings of this study supported previous research by Maqableh et al. (2021). They found that trust increased user satisfaction. Regarding to the result, the finding demonstrated the positive impact of trust as a key determinant of Telemedicine apps users' satisfaction. Thus, the user's trust and confidence in the telemedicine application they utilize will lead to satisfaction with the services offered by the application.

Hypotesis (H20) proposes that e-satisfaction positively impact users' habit with Telemedicine apps. This means that those users who are pleased with their experience of using Telemedicine apps are more likely to have a habitual behavior of using Telemedicine apps. In general, people who are happy about the outcomes of their prior behavior and experience are more likely to keep repeating such behavior. This is in line with Alalwan (2020) finding of a significant relationship between satisfaction and habit.

Hypothesis H21 proposed that habit influences users' continuance intention to reuse Telemedicine apps. Adopters of any new systems are more likely to cognitively evaluate the actual outcomes with the expected ones. Alalwan (2020) confirmed the impact of habit on the users' continuance intention. Alalwan argues that customers who formulate a habitual behaviour towards a new system will retain their motivation to use such a system in the future. Such results are similar to those of Amoroso and Lim (2017) and Sun and Chi (2018).

Finally, H22 proposed that e-satisfaction influences users' continuance intention to reuse Telemedicine app. According to Alalwan (2020), someone who adopts each new system, is more likely to cognitively evaluate the actual results with the expected. Thus, their future intention to reuse will be highly predictable by the extent to which they are satisfied with their experience using the new system. Maqableh et al. (2021), argues that to increase user satisfaction with continuance intention, an application can provide new services and tools to ensure that satisfaction.

VI. Conclusion and Recommendation

Based on the information and results of research that has been done, obtained several things that can be used as suggestions for companies that provide Telemedicine services that intend to develop these apps so that companies can improve their effectiveness.

First, regarding to performance expectancy, company needs to focus on continuing to carry out promotional campaigns on social media, websites, and in the Telemedicine app itself to convince users that by using the app users will save time, money, and effort when compared to having to come directly to the hospital. to make an appointment and consult a doctor, ask for a prescription from a personal doctor, buy medicine directly at the pharmacy, and so on. Moreover, Telemedicine companies can add features such as search filters that will make it easier for users to search for more specific products or services. That way, the filter search feature will limit the search results based on categories. For example, in medical services, the search can be filtered by doctor gender, doctor experience, consultation price, doctor rating, and so on. Filter search is also applied to the search for products that are sold, such as by price, generic and prescription drugs, age, and so on. Thus, users can get search results that match their needs.

Second, related to hedonic motivation, to increase the hedonic motivation of users, Telemedicine companies can focus on campaigns that promote that by using Telemedicine apps, users will experience an interesting and enjoyable experience. The campaign can be delivered by users who have used it by delivering an appealing message that the Telemedicine app is an innovative technology and part of modern medical services. The campaign can be carried out through digital media such as websites, social media (Instagram, Twitter, Youtube), as well as conventional media, such as television, radio, newspapers, and so on. In addition, Telemedicine companies can also develop gamification strategies to increase the hedonic motivation of users. The form of the gamification strategy can be in the form of challenges that must be carried out which later if the user succeeds in going through the challenge, the user will get various attractive prizes such as free consultation vouchers, free vouchers for medicine purchases, free vouchers for home care health checks, and other attractive prizes.

Concerning trust, Telemedicine apps can design a clear and detailed arrangement of terms and conditions of use as well as a privacy policy which will later be approved by the user. Furthermore, also provide an explanation that the terms and conditions of use as well as the privacy policy that has been attached must be read carefully and thoroughly before making the first transaction on the Telemedicine app so that users believe that the sensitive information they provide will not be misused by the app. In addition, Telemedicine companies need to implement good security standards, such as implementing ISO 27001, the international standard for the implementation of Information Security Management System (ISMS). The company is also obliged to provide dissemination to its users regarding guaranteed security through the company's official channel so that the trust of Telemedicine app users increases when using services or purchasing products.

Marketers should also work on the aspect of habit associated with using Telemedicine app. In this vein, there are user habits that are formed in using services on Telemedicine apps in the midst of the COVID-19 pandemic. Therefore, Telemedicine apps can design daily check-in programs to increase user habits and interest in using Telemedicine apps. The daily check-in program can be linked to shaping techniques. Shaping technique is a new behavior development technique that is carried out by continuously strengthening the approach (Martin and Pear, 2015). So that users routinely check-in on Telemedicine apps, users will receive positive reinforcers every time the user succeeds in checking-in. Positive reinforcers can also be referred to as rewards which are everything that is given as soon as possible after the user performs a behavior that ultimately increases the behavior (Martin and Pear, 2015). Through the provision of positive reinforcers, users can earn points after doing daily check-in. Points that have been accumulated can be exchanged for backup reinforcers (bigger prizes) such as discount vouchers for product purchases, discount vouchers for treatment at beauty clinics, and others. In addition to designing daily check-in programs, Telemedicine apps can also design subscription packages to increase the user's habit and sense of connectedness to the use of Telemedicine apps. Subscription packages can be in the form of unlimited consultations with doctors 24 hours a day, medical recommendations from private doctors, and prescriptions from private doctors after consultations, and so on. Thus, subscription packages for more active use can encourage users to return to using Telemedicine apps.

Finally, to increase user satisfaction based on the most influential variable, namely trust, app managers must maintain user trust by tightening the maintenance of user data and information to avoid all risks of cyber crime. The second most influential variable is performance expectancy, where the ability of the app to help users get what they want in a more comfortable and productive way will increase their satisfaction. Thus, the authors suggest that Telemedicine companies can improve the performance of these apps so that users feel more satisfied than they expected. So, users have positive actions by using Telemedicine apps on an ongoing basis in the future because this depends on their experience when using the app.

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Investigating the Effect of Brand's Social Media on Consumer Purchase Intention

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Abstract

This study examined the influence of information quality, brand familiarity, involvement, and attitude toward brand's social media on the purchase intention of superfood in the oats category within the scope of Instagram. Consumer's preference for healthy food has been on the rise through the pandemic and there has been a surge in both of social media usage and online shopping activities. Few studies suggest that the use of social media impacts eating behavior, lifestyles, and one's perception of a superfood brand. However, no studies have ever been conducted regarding the effect of brand's social media on Indonesian consumer's purchase intention in the context of superfood oat during pandemic and post pandemic era. Previous research suggested to consider various age ranges and focus on brands or product categories. Therefore, this study targeted Generation Y and Z respondents in the oats category. A convenience sampling method was conducted, and questionnaire was built using specific constructs to measure purchase intention of an oat brand. The sample was composed of 360 respondents who are active Instagram users that have consumed oats in the past year and data were analyzed by using partial least squares-structural equation modeling. This research shows that consumer's involvement on brand's social media has a negative effect on the purchase intention. Further, the results indicate that both brand familiarity and attitude toward brand's social media have significant effects on purchase intention, but the information quality of social media content does not influence purchase intention of the brand.

Keywords— Marketing; Oats Consumption; Purchase Intention; Social Media; Superfood.

I. INTRODUCTION

Covid-19 has changed people's lifestyles in a massive way. Starting from the emergence of new regulations, increasing use of the internet and social media to the habit of adopting a healthy lifestyle. The trend that has emerged recently is supported by the Covid-19 crash, namely the trend of consuming healthy food (superfood). When a market-wide lockdown came into effect in the spring of 2020 due to the COVID-19 pandemic, consumers turned to online grocery shopping due to movement restrictions and fears of being exposed to the virus from others in public spaces, causing online grocery sales to soar. Health products such as healthy foods, supplements, nutrient-rich drinks such as milk and yogurt, are the most sought-after items. Because currently consumers are more focused on products that have value for their health.

Based on a survey conducted by Hootsuite (2021), there are 4.2 billion active social media users out of a total world population of 7.83 billion. In other words, 53.6% of the population are active social media users. Meanwhile, within Indonesia, active social media users are 170 million or 61.8% of the country's population. This data shows how active the Indonesian population is as a virtual society. The use of social media is not limited to just individuals as social media can act as a platform for organizations, businesses, even brands. A brand can use social media to create content and engagement, which is when an entity is able to leverage its content to reach others and meet at social media connection points. Social media is also widely used for health promotion by health professionals, researchers, governments, and non-governmental organizations (Balatsoukas et. al., 2015). Mersey et al. (2010) noted that social media provides opportunities for businesses to participate and interact with potential customers. Prospective consumers in this case mean the audience or followers of the social media page in question, while participation means engagement or involvement. Hudson et al. (2016) suggest that when brands interact with followers on social media pages by replying to comments, solving problems, and inviting participation, consumers have stronger relationships with brands that feel connected and thus experience higher levels of relationship quality.

Social media as a low-cost and easy-to-use platform can offer a brand direct link to its consumers, so it is important to understand the factors that influence consumers to engage with brands on social media platforms and the influence of involvement on social media. In fact, in the context of Instagram, this lies in several features in Instagram stories, "Ask me a question", quizzes, polls, and reaction stickers which can increase intimacy between business actors and the audience (consumers and potential customers) as well as building relationships (even bonding) with potential

customers. In addition, the Instagram story feature that is often used by content creators to insert a CTA (call to action) function, such as "support small business" sticker, "food orders" sticker, and swipe-up-link. The Instagram post feature that is used to market a product or service is Instagram Ads which is usually accompanied by a CTA in the form of a link insertion feature and a boost post service so that the promotional content reaches Instagram users according to business targets.

Brandessence Market Research and Consulting Pvt ltd. (2021) released Global Health Food Market: Global Size, Trends, Competitive, Historical and Forecast Analysis, 2021-2027 stating that the increasing adoption of healthy food consumption habits and increasing awareness about health are the main factors driving the growth of the Global Healthy Food Market. The Brandessence report says that a healthy diet is a diet that improves, maintains, or enhances overall health. This market research found that the Health Food Market is expected to grow at a CAGR (Compound Annual Growth Rate) of 4.91% during the forecast period. The Brandessence report also reveals that the global healthy food market is divided into the United States, Mexico, Canada, United Kingdom, France, Germany, Italy, China, Japan, India, Southeast Asia, West Asia, Africa. Meanwhile, according to distribution channels, the healthy food industry is categorized into retail stores and online stores. In this paper, the thing that will be raised is the oats category superfood which is marketed online in one of the countries in Southeast Asia, namely Indonesia.

Certain terms such as "nutraceutical" and "superfood" have been used to describe compounds or foods with potential health benefits beyond basic nutritional functions (Sohaimy, 2012; Mohammadian et al., 2021). Superfoods with their health-promoting labels are believed to improve the function of the human body (Mohammadian et al., 2021). However, it should be noted that the term superfood is used as a marketing tool and there is no generally accepted definition (Driessche et al. 2018).

Fortune Business Insight (2020) reports that the global oats market has reached USD 5.18 billion and is projected to reach 6.9 billion by 2027. Furthermore, the report states that oat-based foods are increasingly popular in society as health awareness increases and the transition their lifestyle to grain-based foods that are fast and healthy. Japankuru (2021) reports that health-conscious consumers have begun to pay attention to the nutritional quality of oatmeal and its convenient shelf life. Furthermore, Japankuru (2021) reports that sales of oats have increased as consumers buy more basic breakfast ingredients that are easy for daily use, even to stock up in the event of a disaster. Japankuru (2021) also reported that a basic breakfast using oats is a coronavirus dieting trend for those who gain weight when they work from home because COVID-19 means a surge in WFH (Work From Home) activities which means an increasingly sedentary lifestyle and access which is too easy for any snacks you might have in the kitchen. It also noted that oatmeal is not the only oats-based product that has seen increased interest since the start of the COVID-19 pandemic, but almond milk and oatmilk as well.

Buchholz (2019) reported that the highest age group that consumed oats for breakfast was 15-34 years. Ridder (2019) stated that in 2019 the proportion of the age group that regularly consumed oats for breakfast in Denmark was the younger age group, namely 15 to 34 years, while the older age group (55-74 years) was the group that consumed the least. oats for breakfast. As of November 2019, 13% of Swedes aged 65 to 75 said they had eaten oatmeal for breakfast. In comparison, among the youngest age group between 16 and 24 years, the share reaches almost 12%. Previous research examined consumer behavior of oats and superfoods in all age groups and gave mixed results regarding the highest age group for oats consumers in developed countries, but the highest age group in general is 16 to 34 years, which means targeting Generation Y and Generation Z. Therefore, the author intends to look at this trend by focusing on the age group ranging from 17 to 41 years and with coverage of Indonesia as a developing country.

II. Literature Review

Referring to a previous study by McClure and Seock (2020) regarding purchase intention involving brand social media pages, the quality of information on social media content and brand familiarity is quite an impact on consumer involvement on brand social media pages and involvement also has an influence on consumer attitudes of a brand's social media. Furthermore, their research also found that involvement and attitude also influence purchase intention. According to Ajzen (1991), intentions include motivational factors that influence behavior and indicate the efforts that people will make to perform the behavior. According to Kotler (2016) the definition of purchase intention is consumer behavior when consumers are stimulated by external factors and participate in purchasing decisions based on their personal characteristics and decision-making processes. Savolainen (2011) states that the issue of information quality and credibility is increasingly important, especially in the context of the World Wide Web. Savolainen (2011) also

suggests that future research should investigate the quality of information on internet platforms other than discussion forums and how the quality of this information may affect the use of online platforms. Rieh (2002) specified information quality as "a user criterion which has to do with excellence or in some cases truthfulness in labeling". Chung and Muk (2017) found that consumer attitudes towards messages on social media were highly correlated with interactivity and information on social media pages. They also suggest that active interactions and useful information on social media pages result in positive perceptions of corporate social media pages, which leads to their impulsive shopping behavior from companies. Accordingly, the following hypotheses have been developed:

H1. Information quality of a brand's social media content will positively influence consumer's purchase intention from the brand.

Laroche et al. (1996) found empirical results that brand familiarity affects consumer confidence in the brand, which in turn affects their intention to buy the same brand. Alba and Hutchinson (1987) note that brand familiarity serves as an important source of information about the brand, which is enhanced by the accumulation of experience in the brand or frequent exposure to the brand. Consumers tend to think the brand is familiar when the brand is often advertised in the media. Previous studies have shown that brand familiarity plays an important role in consumers' perceptions of a brand or product, and in the purchase intention of that brand (Gefen, 2000; Laroche et al., 1996). A study conducted by Doong et al. (2011) show that increasing brand familiarity leads to consumers' offline brand loyalty and higher shopping intentions. Complexity in the online environment can lead to purchase avoidance; however, familiarity with the brand can increase customer participation in the brand's social media community seeking information from companies and users. Previous studies in the context of online shopping have shown that brand unfamiliarity is a greater disadvantage online than offline especially with products that require a sensory experience (Degeratu et al 2000; Danaher et al 2003; Saini and Lynch, 2016). Thus, the following hypotheses have been developed:

H2. Consumer's brand familiarity will positively influence their purchase intention.

Previous studies have found that engagement or involvement affects factors such as brand attitudes, purchase intentions, advertising attitudes, and online shopping behavior (Huang et al., 2010; Yang, 2012). For example, Bosnjak et al. (2007) studied online purchase intention and found that affective involvement is a significant indicator of online purchase intention. Huang et al (2010) who investigated the involvement of travel bloggers found that high-involvement bloggers have more positive opinions about advertising and rank it as a significant indicator of purchase intention when managing brands. Previous research (Teng, 2016) used the concept of involvement which is considered a driver to form attitudes and behavioral intentions. Hudson et al. (2016) suggest that when the brand interacts with followers on the social media page by replying to comments, solving problems, and inviting participation, consumers have stronger relationships with the brand having a feeling of connection and thus experiencing a higher level of relationship quality.

In a study on the effect of social media communication on consumer perceptions of brands, Schivinski and Dabrowski (2016) found that user-generated and company-generated social media communications significantly influence consumer brand attitudes. Kotler and Armstrong (2018) say that attitude is a person's evaluation, feelings, and tendencies towards an object. According to Mitchell and Olson (1981), brand attitude is defined as, "the consumer's overall evaluation of the brand". Brand attitude is often conceptualized as a global evaluation based on favorable or unfavorable reactions to brand-related stimuli or beliefs (Murphy and Zajonc, 1993) and is cited as a major component of being considered in consumer-based brand equity and relational exchange (Lane and Jacobson). 1995; Morgan and Hunt, 1994). Accordingly, the following hypotheses have been developed:

H3. Consumers' involvement with a brand on social media will positively influence their purchase intention from the brand.

H4. Consumers' attitude towards a brand's social media presence will positively influence purchase intention from the brand.

III. RESEARCH METHODOLOGY

This research is an empirical study using a quantitative approach which is measured on a numerical scale. Data were collected from 360 respondents which then the eligible data were 358 samples of active Instagram users who have consumed oats in the past year. This study used a questionnaire with a Likert rating scale of 7 as a tool to collect

data. Respondent data used in this study will be processed using the Partial Least Square - Structural Equation Model (PLS-SEM) method. The following is the operationalization of each variable in this study along with its meaning, source, and measurement scale.

Table 1. Operationalization.

Construct	Source
Information Quality	McClure and Seock (2020)
I find the brand's social media to be:	
● Useful	
● Specific	
● Objective	
● Valuable	
● Factual	
● Comprehensive	
● Interesting	
● Reliable	
● Official	
● Good Variety	
Brand Familiarity	McClure and Seock (2020); Ha and Perks (2005)
● The brand gives me a feeling of goodwill.	
● I have made a purchase from this brand.	
● I know the meaning of this brand.	
● I am familiar with this brand.	
● I have a clear understanding of the person who would use this brand.	
Involvement on Brand's Social Media	McClure and Seock (2020); Huang et al. (2010)
● I frequently interact with other members of this brand's social media site	
● I have an interactive communication with other members of this brand's social media	
● I cooperate with other members of this brand's social media	
● I am actively involved in the brand's social media	
● I spend a lot of time engaging in the brand's social media	
● I provide feedback related to participation in the brand's social media	
Attitude toward Brand's Social Media	McClure and Seock (2020); Huang et al. (2010)
● I like this brand's social media.	
● I think this brand's social media is reliable.	
● I think this brand's social media is friendly.	
● I think this brand's social media is valuable.	
● I think this brand's social media is of good quality.	
Purchase Intention	Park et al. (2021); McClure and Seock (2020); Hu et al. (2011)
● I have a strong possibility to buy oat products from this brand.	
● I tend to make a purchase from this brand.	
● In the future, I am very likely to make a purchase from this brand.	
● I expect I will purchase this brand in the future.	
● I intend to purchase this brand in the future.	

Source: Researcher (2022)

In the first part of the questionnaire, the main purpose of the study was explained, and the second part was devoted to screening questions to ensure that respondents are active Instagram users who have consumed oats in the past year. Thereafter, it was the main part where each respondent was required to choose an answer for each construct items with a seven-point Likert scales ranging from 1 strongly disagree to 7 strongly agree. Finally, demographic questions were given to understand respondent's profile.

As seen in the Table 1, ten construct items were adapted from Savolainen (2011) in McClure and Seock (2020) to measure information quality. Participants were asked to rank how they agree or disagree with statements such as "I find the brand's social media to be useful", "I find the brand's social media to be specific", "I find the brand's social media to be objective", etc. To measure brand familiarity, five items were adapted from McClure and Seock (2020) and Ha and Perks (2005). Consumer's involvement on brand's social media was measured with six items from Huang et al. (2010) in McClure and Seock (2020). Consumer's attitude toward a brand's social media was measured with five items which were adopted from Huang et al. (2010) in McClure and Seock (2020). Lastly, consumer's purchase intention on an oat brand was measured with two items from Park et al. (2021) which conclude "I have a strong possibility to buy oat products from this brand" and "I tend to make a purchase from this brand"; and three items from Hu et al. (2011) in McClure and Seock (2020) which concluded "In the future, I am very likely to make a purchase

from this brand", "I expect I will purchase this brand in the future", and "I intend to purchase this brand in the future". Thenceforth, the data was analyzed by using SmartPLS ver. 3.

IV. RESULT / FINDING

Data gathered from the survey was analyzed using the PLS-Algorithm function on SmartPLS which resulted in the following table (See Table 2.).

Table 2. Reliability and Validity.

	Outer Loading	Cronbach's ⟨	Composite Reliability	AVE
Information Quality		0.920	0.933	0.582
IQ1	0.790			
IQ2	0.773			
IQ3	0.802			
IQ4	0.778			
IQ5	0.799			
IQ6	0.778			
IQ7	0.676			
IQ8	0.763			
IQ9	0.697			
IQ10	0.762			
Brand Familiarity		0.815	0.868	0.569
BF1	0.785			
BF2	0.738			
BF3	0.698			
BF4	0.817			
BF5	0.728			
Involvement on Brand's Social Media		0.967	0.973	0.589
IB1	0.924			
IB2	0.936			
IB3	0.928			
IB4	0.944			
IB5	0.937			
IB6	0.891			
Attitude toward Brand's Social Media		0.877	0.910	0.670
AB1	0.765			
AB2	0.843			
AB3	0.820			
AB4	0.822			
AB5	0.841			
Purchase Intention		0.903	0.928	
PI1	0.835			
PI2	0.837			
PI3	0.852			
PI4	0.839			
PI5	0.880			

Source: SmartPLS (2022)

Cronbach's alpha values were computed to assess the internal consistency aspect of relibility of the multitem scales measuring information quality (0.920), brand familiarity (0.815), involvement (0.967), attitude (0.877) and purchase intention (0.903) (See Table 2.). The respective alpha values for all the variables included in the study deemed sufficiently reliable for use. Thus, the main-test was conducted by using SmartPLS on Bootstrapping function. PLS-SEM was implemented to examine the relationship between information quality (H1), brand familiarity (H2), involvement toward brand's social media (H3), attitude toward brand's social media (H4), and purchase intention. Thus, we developed the following hypothesis testing:
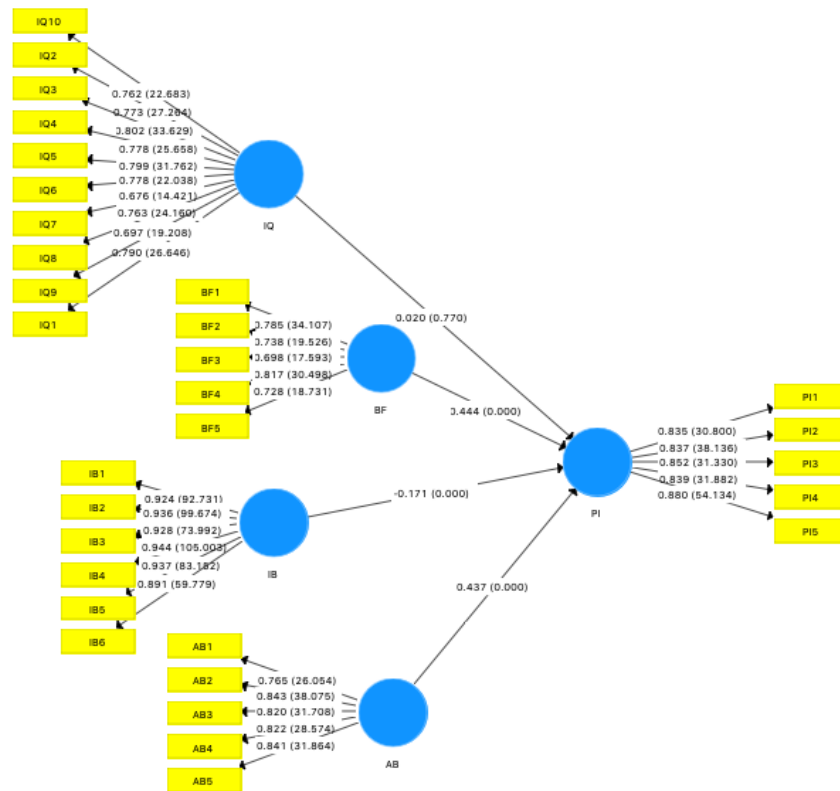
Fig. 1. Bootstrapping Result of Research Model with p-value (SmartPLS, 2022)

The main-test was conducted by using bootstrap in PLS-SEM in order to examine the relationship between information quality (H1), brand familiarity (H2), social media involvement (H3), and consumer's attitude toward a brand's social media (H4) with purchase intention. Based on the bootstrapping result above (see Fig. 1), there is a significant negative influence of involvement of brand's social media on purchase intention with path coefficient = -0.171 and $p < 0.05$, which suggests that H3 is not supported. Meanwhile, the results indicate that both brand familiarity (path coefficient = 0.444) and attitude toward brand's social media (path coefficient = 0.437) have significant and positive effects on purchase intention ($p < 0.05$) which make H2 and H4 are supported. Nonetheless, it appears that information quality of social media content does not influence purchase intention due to its insignificant result with $p > 0.05$ which denotes that H1 is not supported. Hence, H2 and H4 are the only hypotheses which are supported.

V. Discussion

In this study, it is found that brand familiarity and consumer's attitude have a positive and significant effect on consumer's purchase intention toward an oat brand in the scope of Instagram. Both brand familiarity and consumer's attitude toward a brand's social media significantly influence consumers' purchase intention, yet brand familiarity has greater influence on purchase intention as shown by the path coefficient (0.444 > 0.437); brand familiarity and consumer's purchase intention on an oat brand has stronger positive relationship. Meanwhile, information quality of an oat brand's social media content does not influence purchase intention of the brand which contradicts with the previous study (McClure and Seock, 2020) where there was a significant importance of information quality affecting future purchase intention. Also, the research showed that consumers' involvement with a brand's social media had a negative influence on purchase intention due to its coefficient path that resulted in minus score, that is -0.171 (see Fig.1). In contrast to previous study which said that there was no significant relationship between involvement and

future purchase intention (McClure and Seock, 2020), the hypothesis testing shows that consumer's purchase intention decreases with the increasing of consumer's involvement on a brand's social media.

In this study, brand familiarity and consumer's attitude toward an oat brand have positive and significant influence on purchase intention. The findings align with previous studies saying that brand familiarity plays an important role as the increasing of brand familiarity leads to higher purchase intention (Gefen, 2000; Laroche et al., 1996; Doong et al., 2011). Previous study (Wardhani and Alif, 2018) stated that the possibility of brand purchase would be higher if consumers already had positive attitude toward the advertiser's product, service, or brand. Therefore, the more positive the consumers' attitude toward brand's social media the more likely they will make a purchase from the brand. Previous studies have shown that brand attitude corresponds to consumers' overall evaluation of a brand, and it is likely to significantly influence consumers' choice of one brand over others (Colliander and Marder, 2018; Augusto et al., 2018; Wang et al., 2019). Interestingly, this study revealed that consumers' attitude toward brand's social media had less impact than familiarity with a brand on the intention of brand's oats products. These findings suggest an opportunity for brands to gain potential followers and eventual customers by targeting those who are not familiar with their brand. By presenting brand campaign that gain audience's trust and provoke positive attitude, this may facilitate both parties (brand and audience) to connect and build relationship, which in the end, hopefully, may trigger purchase intention. This finding aligns with a study by Mersey et al. (2010) that social media provides an opportunity for companies to engage and interact with potential customers and build relationships with them. The result also aligns with previous study by Schivinski and Dabrowski (2016) stating that consumer brand attitudes formed from their communication on a brand's social media page have a significant and positive influence on the brand's purchase intention.

The findings contradict with the prior studies which have found connections between information quality and purchase intention (McClure and Seock, 2020) and involvement and purchase intention (Bosnjak et al.,2007; Huang et al., 2010). The hypothesis testing results indicate that there is no relationship between information quality of brand's social media content with consumer's purchase intention. Also, the result shows that involvement on brand's social media negatively influences purchase intention in a significant way which means as the involvement increases, purchase intention is predicted to decrease. That being the case, companies' active interactions with the people through a brand's social media pages may not bring a strong trust and commitment toward the brand. This is, perhaps, caused by individual's personality that has been found to influence consumers' usage of mass media and online behaviors, moreover, individual's beliefs, attitudes, and behaviors related to Internet usage may vary as a function of his/her personality traits (Ryan and Xenos, 2011; Kim and Jeong, 2015; Islam et al., 2017). This finding aligns with previous study (McClure and Seock, 2020) the relationship between involvement with brands through social media and future purchase intention from the brands was not significant,

VI. CONCLUSION AND RECOMMENDATION

Based on the results of data processing and discussion, it is known that within the scope of Instagram social media, the quality of information content, consumers' involvement on brand social media, brand familiarity, and consumers' attitudes on a brand's social media can be a set of influence or consideration for someone to make a purchase on a brand of oats. The findings offer meaningful implications for interactive marketing practitioners, online advisers, and social media marketers. Oats companies require to present social media content with good quality of information in the sense that it has benefits and is objective and comprehensive, so that it looks attractive for the audience. In addition, it should be noted that consumers tend to feel familiar with a brand of oats if they have already made a purchase or consumed that brand of oats. Therefore, oats brand companies need to focus on increasing sales figures to create a strong understanding in consumers' minds about the brand.

How deeply the audience or consumers and potential customers are involved on the Instagram social media page of an oats brand can be a factor that influences the purchase intention of the product. If the audience has been actively involved on the brand's Instagram page, it means that there is a personal interest that individuals feel when they spend time in interactive communication, be it with the brand, or with other people on the brand's social media platform. These interactions can take the form of comments to reply to comments, repost each other on the Instagram story feature, reply to DM (Direct Messages), and so on. Not only consumer engagement, but companies also need to take action to build and maintain positive consumer attitudes on brand social media pages. This positive attitude has been formed when the audience feels that the brand's Instagram page is trusted and of good quality, to the point where it

provides feedback in the participation space created by the brand. For example, an audience who likes the oats brand's Instagram page will participate in a quiz or challenge held by the brand.

The more positive a person's attitude towards a brand, the higher the purchase intention because consumer attitudes are closely related to consumer beliefs and behavior. With feedback related to audience participation in brand events or campaigns, a positive attitude of the audience (consumers and potential customers) has been formed, which in the end, purchase intention is also formed in the minds of consumers. To create positive consumer attitudes, oats companies need to gain consumer trust through their social media pages. This can be obtained by creating promotional activities or campaigns that are interactive and require feedback or active consumer participation. In other words, this positive attitude can be built and maintained through promotional activities that trigger audience's engagement on the brand's Instagram social media page. Therefore, oats companies need to focus on campaign activities that are interactive and require feedback.

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In Search of Leadership Competency Model for Millennials in Energy Sector: A Literature Review

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Abstract

Leadership competency model has become critical as the emergence of millennials in energy sector and the business shifting to new era caused by VUCA and COVID-19 pandemic. In order to promoting and maintaining high-performing millennial employees and reduce the maturity gap compared to the Gen – X employees, there is needs to enrich the content and implementation process of leadership competency to meet current and future necessities. However, little is known about related researches of competency model existing in energy sector organizations particularly for the case of millennials. This paper aims at reviewing literature of leadership competency model in different workforce area and organizations with focus intention is on the energy sector. It will also examine competency model approaches used by undertaking a comparative analysis of practices and techniques when developing the leadership competency models. Findings suggested that 24 leadership competency model have been used in the literature obtained with very limited number of the implementation in energy sector yet none has been done for millennials case. Most of the models reviewed are using interviews and surveys as the main approach. Behavioral Event Interview is very effective way to build new leadership competency model. The result can be used by the energy sector organizations to craft their leadership competency models. It can also be utilized by other researchers for future potential researches.

Keywords—Energy; Competency; Leadership; Millennials; Model

I. INTRODUCTION

XYZ as an energy company is currently entering its transformation that coincides with the COVID-19 pandemic, being considered as clear sign of the awakening of a new era of doing business (Annual Report, 2021). The transformation processes should achieve several main objectives including the creation of an organization that is focused, lean, agile and efficient with the associated work culture, mindset and talents (Internal, 2020). The business landscape is dealing with the volatility, uncertainty, complexity & ambiguity (VUCA) and being worsened by the presence of COVID – 19 pandemic.

Currently, the company is facing leadership challenge as an impact of massive senior leader retirement within the upcoming years. In securing the capability in delivering energy, the government has put concerns for XYX to assure the process of leadership regenerations (EFMD, 2021). There is likely an emergent phenomenon on the maturity gap as these new leaders may not have and apply the specific competences to be able to answer the challenges of transformation of the new era despite the programs are prepared with particular leadership contents. The competency gap phenomenon will dominantly impact and shape the future of the company (Annual Report, 2021).

There is still limited evidence from the literatures and contextual experiences in describing and developing the specific leadership competencies for millennials specifically in energy sector business in Indonesia. The readiness of millennials equipped with the required leadership competencies is critical for the company to sustain and grow in facing the challenges of business transformation as the trend of global energy will transit to a cleaner and renewable energy basis (Berkhout, Marcotullio, & Hanaoka, 2012).

This article will focus at reviewing literature of leadership competency model in different workforce area and organizations with focus intention is the search for implementation on the energy sector. It will also examine competency model approaches used by undertaking a comparative analysis of practices and techniques when developing the leadership competency models.

II. Literature Review

Leadership competencies are leadership skills and behaviors that contribute to superior performance (SHRM, 2008). The future business trends and strategy will drive the development of new leadership competencies. While some leadership competencies are fundamental and essential to all organizations, there should be leadership attributes that are distinctive to the particular organization to create competitive advantage.

Competency concept was first introduced by an American management teacher, David McClelland when argued that the competency assessment could be the alternative for better predictor as the intelligence and aptitude tests were inadequate to predict job performance (D. C. Mcclelland, 1973). Empirical evidence showed that competencies did predict the occupational success (D. Mcclelland, 1998) such as McBer and Company, a consulting company who have completed dozens of studies that competency assessments predict success among high-level executives (R. Boyatzis, 1982).

In many organizations, competency model is the key importance to improve the personal performance and enhance the organizational effectiveness thus increase the competitive edge. As the behaviors necessary for effective performance vary in different organizations and within organizations from one role to another, it is critical to determine whether the workforce has the critical needed abilities (Lucia & Lepsinger, 1999). A competency model is collection of required competencies in responsibility, process, function or organization (Marrelli, Tondora, & Hoge, 2005) as a tool for selection, training, employee development, and succession planning (Spencer and Spencer, 1993; Lucia & Lepsinger, 1999). Competency model will provide performance standards (Chung-Herrera, Enz, & Lankau, 2003) and predict the workforce performance against several key perfomance indicators (Dainty, Cheng, & Moore, 2004). Competency modelling is the best way to match the people and jobs in the organization (Vathanophas & Jintawee, 2006) so the employees may improve performance to be superior (Chouhan & Srivastava, 2014).

Table 1 Competency Definitions

Author	Definition
McClelland, 1973	Knowledge and skills, social role, self-image, traits and motive. Knowledge and skills are 'threshold competencies' while social role, self-image, traits and motive are 'differentiate competencies'
Boyatzis, 1982	'An underlying characteristic of an individual which is causally related to superior performance in a job.'
Spencer and Spencer, 1993	'An underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation.'
Dubois, 1993	Those characteristic-knowledge, skills, mindsets, thought patterns, and the like, that when used singularly or in various combinations, results in successful performance
Mansfield, 1996	'Skills and traits that are needed by employees to be effective in a job.'
Marrelli, 1998	'Measurable human capabilities that are require for effective work performance demands.'
Draganidis and Mentzas, 2006	'A combination of tacit and explicit knowledge, behaviour and skills that gives someone the potential for effectiveness in task performance.'
Boyatzis, 2008	'A capability or ability. It is a set of related but different sets of behaviours organized around an underlying construct, which we call the "intent". The behaviours are alternate manifestations of the intent, as appropriate in various situations or times.'
Tripathi and Ranjan, 2009	'Competencies are not simply concrete actions that are easily imitated. Instead, competencies can be manifestations of some underlying intent driven by a person's basic personality, ability, knowledge and skills.'

There are three common components to the above definitions. First, most of the definitions suggest that competencies are the characteristics that underlie effective or successful job performance; second is that these attributes must be observable or measurable; and third, the underlying attributes must distinguish between superior and average performers (Megahed, 2018).

Throughout the past 25 years, many researchers have contributed to the extensive literature concerned with competency modelling in variety of fields, such as management, scientific research, technical and also engineering The competency literature during this period can be classified into five research paradigms as depicted below (Megahed, 2018).
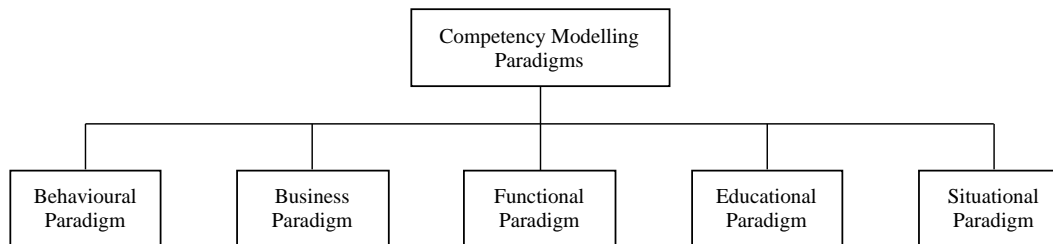

Fig. 1 Competency Modelling Paradigms (Megahed, 2018)

The behavioural paradigm was first introduced by McClelland (1973), introduced the term in his paper 'Testing for competence rather than for intelligence' in which he suggested the competency testing as a better predictor successful job performance rather than intelligence and aptitude test. Competency is considered as independent variable include an underlying traits sand skills that impact on the management performance and behaviour. Prominent researchers linked with this paradigm such as McClelland, 1973; Boyatzis, 1982; Spencer, 1993; Draganidis and Mentza, 2006; Markus, Cooper-Thomas, and Allpress, 2005.

The Behavioural Interview Technique (BEI) was developed by McClelland which focuses on identifying the "characteristic of people who did a job well" and aims to find out what people actually 'do' at workplace (D. Mcclelland, 1998). Over the last 30 years, some empirical studies have showed the effectiveness and validity of the behavioural approach in competency modelling, such as on (i) the identification of criteria defining effective performance; (ii) the identification of criterion sample group of superior performers and average performers; (iii) data collection through behavioural event interviews and other ways; (iv) the identification of competencies that distinguish superior from average ones; (v) the validation of the competency model; and (vi) the application of the model to a range of HRM functions (Spencer, M & Spencer, 1993).

The business paradigm was introduced to the literature in the late 1980s which is based on the idea of "core competencies" that contributed to the interest of many organizations (Shippmann et al., 2000). A core competencies act as the foundation for strategic direction of the company (Hamel & Prahalad, 1994). The dimensions of competencies included organization-based competencies, individual-based competencies, technical competencies and behavioural competencies (Prahalad & Hamel, 1990).

The functional paradigm perceives competence more as a list of tasks to perform in particular job role (Megahed, 2018). It reflects the minimum level of performance acceptance and focuses on actual outputs (Jackson, 2009).

The educational paradigm is originated from an educational discipline (Megahed, 2018). Competencies are based on the functional role analysis, as the statements of behaviour and attitude that are needed for job role performance, and will be assessed against accepted standard/criterion of work outcomes (Markus, Cooper-Thomas, & Allpress, 2005).

The situational paradigm was based on the exploration of the factors that may influence the required competencies (Megahed, 2018). A research in the USA, UK, France and Germany explored the concept by incorporating knowledge, skills and competences within a holistic competence typology found that one-dimensional frameworks of competence were inadequate and given way to multi-dimensional frameworks. The research argued that holistic

framework was useful in identifying the combination of competences that were necessary for particular occupations and to promote labour mobility (Deist & Winterton, 2005)

Competency models should identify competencies that enable a long term fit with the organization (Clardy, 2008). There is linkage between competency and job performance as the three of the fundamental parts, include working conditions (or environment), job requests, and a person's competencies, must be matched (R. E. Boyatzis, 2008).
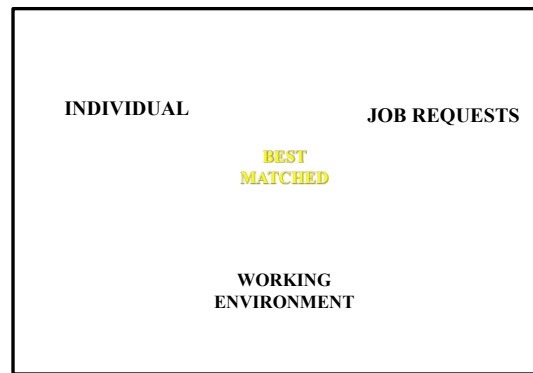

Fig. 2 The Linkage Between Competency and Job Performance (Boyatzis, 2008)

Spencer and Spencer has made concerns on the application of generic competency dictionaries (Spencer, M & Spencer, 1993). The generic competency dictionary scales are never precise since those are applicable to all kind of jobs. Many competencies in generic competencies might not be relevant to any given job although when a particular competency is important to a certain kind of job, the scale levels can be irrelevant. The generic competency dictionary comprised of 20 most common competencies, however, most jobs are unique thus required different characteristics that are not well represented on the generic dictionaries.

In his paper, Mansfield proposed three different job competency models. The first one is the 'single-job' competency model which focused only to one job. Data collection includes resource panel, focus group and interview with the job holders. A distilled competency model may include 10-20 traits or skills, each with a definition and a list of specific behaviors that describe what effective performers do and how to achieve effective results. The second approach is the one-size-fits-all' competency model which defined one set of competencies for a broad range of jobs (e.g. all managerial jobs). The third approach is a 'multiple-job' model which identified a common set of building block non-technical competencies to be commonly used to all jobs. This may include 20 – 40 competencies, each with a definition and a set of 5 – 15 behaviors describing common ways in which employees demonstrate the competency (Mansfield, 1996).

Lucia and Lepsinger introduced two approaches for developing competency model. The first approach is by starting from scratch by collecting internal data from interviews, focus groups, or observations. The data then are analysed to identify the significant competencies for effective performance. This approach may take longer time but result on more organization-specific. The second approach is suggesting to use the existing validated generic model as starting point to develop a new competency model (Lucia & Lepsinger, 1999).

There are many literatures that reported different development practices for competency models. The process used to develop a model must be straightforward and easy to implement. The final product must have immediate practical application, commitment and buy-in fro those who will be expected to implement or change their behaviour and correlates with the effectiveness on the job (Sanghi, 2016). These practices include :

a. Job Competence Assessment Method (Dubois, 1993).
b. Modified Job Competence Assessment Method (Dubois, 1993).
c. Generic Model Overlay Method (Lucia & Lepsinger, 1999).
d. Customized Generic Model Method (Dubois, 1993).

e. Flexible Job Competency Model Method (Dubois, 1993).
f. System Method (Lucia & Lepsinger, 1999).
g. Accelerated Competency Systems Method (Dubois, 1993).

Some of the classic and well-known techniques for competency modelling development from the literature review are as follow (Wong, 2020) :

a. The Critical Incident Technique
b. This technique was introduced by Flanagan who explained that "the critical incident technique" consists of a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles" (Flanagan, 1954).
c. The Behavioral Interview Technique (BEI)
d. This technique was developed by McClelland to identify the "characteristics of people who did a job well" and find out what the participants actually 'do' at their workplace (D. Mcclelland, 1998). This technique allows the participants to describe specific critical incidents that lead to effective or ineffective performance in a specific job role in the organization (Vathanophas & Jintawee, 2006). The BEI compared two different perspectives of data, positive and negative outcomes per interview (Dias , Murillo de Oliveira & Aylmer , Roberto, 2019). 'STAR' technique is suggested to prepare the potential questions to guide the interview process (Uddin, Tanchi, & Alam, 2012).
e. The Delphi Technique
f. Delphi technique is applied "to elicit, distill, and determine the opinions of a panel of experts from a given field, seek consensus among the experts, and make predictions or decisions using the expert opinions of the panelists involved in the study" (Nworie, 2011). Three rounds are typically enough to reach a consensus among the experts (Delbecq, de Ven, & Gustafson, 1976).
g. The Job Competence Assessment Technique (JCA)
h. The technique was developed and used by Boyatzis when analyzing the data of 2,000 samples who worked in 41 management jobs from 12 organizations (R. Boyatzis, 1982).
i. The Classic Competency Design
j. For the past 20 years, Spencer and Spencer conducted 286 studies on competency modelling in many organizations and industries such as education, health care, military, etc. A full competency study may take two to three months, depending on the logistics of scheduling and conducting the BEIs. The classic competeny studies include the six steps as shown in the Fig. below.
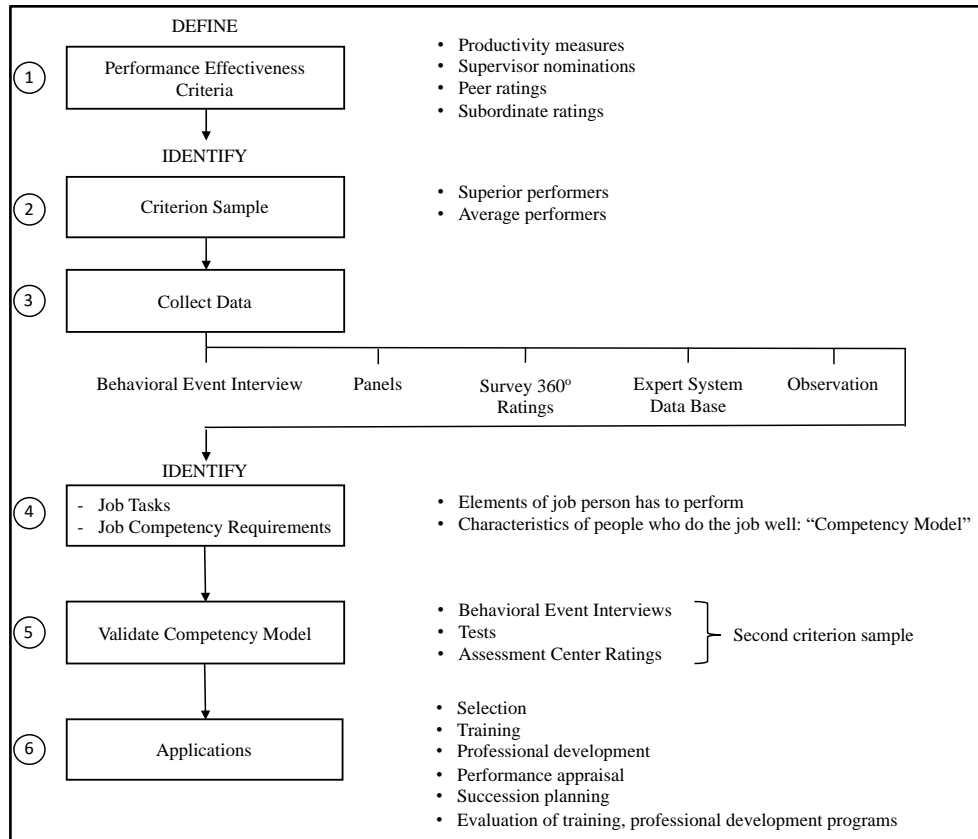
Fig. 3 Job Competency Asssessment Process (Spencer & Spencer, 1993)

III. RESEARCH METHODOLOGY

Research methodology, The research method describes the design of activities, scope or object, main materials and tools, place, data collection techniques, operational definitions of research variables, and analytical techniques. [Times New Roman, 10, normal].

In this paper, a literature review was applied to identify competency model existing in different workforce area and organizations with focus intention is the search for implementation on the energy sector. It will also examine competency model approaches used by undertaking a comparative analysis of practices and techniques when developing the leadership competency models.Thus it is decriptive rather than statistical approach.

The searching is done through several e-journal access databases, including ProQuest, researchgate and semanticscholar. Other sources for report analyses are included. The search was limited to literature written in English and was conducted by scanning specific words or phrases, such as leadership, competency, millennial, new era, VUCA and energy sector. The possible years of publication was limited to the last 10 years and placed in the database.

Articles were selected on the basis of abstract, title and keywords. All articles obtained, then , were reviwed. Related articles that presented studies to develop competency models were examined. Selected competency model approaches are carefully examined used by undertaking a comparative analysis of practices and techniques when developing the leadership competency models.

IV. RESULT / FINDING

Findings suggested that 24 leadership competency model have been used in the literature obtained with very limited number of implementation in energy sector yet none has been done for millennials case. Most of the models reviewed are using interviews and surveys as the main approach. Behavioral Event Interview is very effective way to build new leadership competency model.

Monang *et al.* (2019) conducted a leadership competency study for 20 middle managers from several public agencies in Indonesia using the behavioral event interview technique to investigate a set of competencies that charaterizes effective public middle managers. They proposed that communication, organizing, information seeking, analytical thinking and planning competencies are essential for effective public middle managers. (Iman Sudirman, Joko Siswanto, Joe Monang, 2019).

Shi *et al.* (2019) studied using a mixed method of behavioral event interview and random stratified sampling survey (3245 participants was 18–65 years old) to contruct a general model of the competencies required by Chinese public health physicians. The research found the public health practitioner competency model comprised seven competency dimensions: basic knowledge of medicine, public health knowledge, health management and health promotion, specialized skills, research and development, comprehensive abilities and professionalism (Shi et al., 2019).

The research presented the study on technical competencies required by the construction manager in Malaysia using multi-layered thematic analysis of literature and interviews then followed with questionnaire surveys to test the validity of the technical competencies. Technical competency for Construction manager encompassed the ability to manage: staff, materials, labour, plant, sub-contractors, safety, money, quality, time, environment, site administration, pre-construction activities, project closeout and handover, third parties, computer literacy, and construction contract (Abdullah, Yaman, Mohammad, & Hassan, 2018).

A dentist competency index was developed with an expert consultation questionnaire using a literature review, focus group interviews and in-depth personal interviews, The competency model conformed to the characteristics and quality requirements of dentists in China and has a strong scientific basis (Geng et al., 2018).

Dainty *et al.* (2004) conducted study to identify the key behaviors leading to performance excellence amongst construction project managers in UK in which a total of 40 participants. A mixed method using Job Competence Assessment Technique (JCA) with behavioral event interviews, expert panels and the one-way analysis of variance (ANOVA) statistical technique was conducted to identify the competencies distinguishing superior managers from average managers. 12 competencies distinguished the superior from average performers: achievement orientation, initiative, information seeking, focus on client's needs, impact & influence, directiveness, teamwork & cooperation, team leadership, analytical thinking, conceptual thinking, composure and flexibility (Dainty et al., 2004).

A study to determine the required competencies for effective performance at the Chief of General Administrative Sub-Division position level in the Department of Agriculture using the Behavioral Event Interview (BEI) technique and survey to validate the competency model. The recommended competency model can be organized into four types of competency characteristics: motives, self-concept, knowledge, and skills and ability

A study in construction company in Indonesia on evaluation the effectiveness of the competency assessment to individual development was made by using mixed method, where in-depth interviews with purposively selected participants and questionnaires for 40 employees. The results of the study shows that there were many constraints in applying competencies model successfully due to some reasons such as: the assessment process relies too heavily on managers' judgment, and the managers and subordinates were hesitant to rate individual with his/her actual rating, the item of the assessment are not cleared enough, validity of the instrument is still questionable, and the employees have not been given any feedback regarding the results of the assessment (Mangundjaya, Aprilianti, & Poerwadi, 2009).

Research in Srilanka was made to present an empirical investigation on managerial competency need using quantitative methodology. The study was confined to a fully integrated telecommunication service provider where 198 managerial employees participated in the survey. The findings led to identify perceived levels of current competency expertise, current and future competency gaps and competency that managers wished to improve at present and in near future (Wickramasinghe & de Zoyza, 2009).

Research based on the McClelland/McBer job competence assessment questionnaires was conducted in Taiwan to construct a competency model for superior personnel directors. It was found that the competency model of superior personnel directors in the study was similar to Spencer's generic competency model for helping and human service workers with the exception of self-control (Chung & Wu, 2011).

Momin (2018) studied about the competencies of middle managers leading successful strategy implementation in Singapore. There were 152 total sample population participated in the survey and quantitative approach was applied. The finding was that business leaders and top managers were more likely to end up with mismatched middle managers that lack the required abilities to successfully execute strategy if they did not know the competencies needed to implement strategy successfully, or the competencies that exist in their management pool, thereby setting a course for failure from the start (Momin, 2018).

Study aimed at identifying competency components of project managers of small to medium-sized firms in the Palestinian construction industry. The study used questionnaire surveys to 150 construction companies. The study identified four competence dimensions, namely, knowledge competence, functional competence, personal/behaviour competence, and value/ethical competence (Omran & Suleiman, 2017).

Darling and Cunningham's study (2016) focused on exploring unique values and competencies linked to private and public sector managers. 15 senior leaders were involved as the participants in Critical Incident Interviews. They found several competencies that were important and distinct to public sector including managing competing interests, managing the political environment, communicating in a political environment, interpersonal motivational skills, adding value for clients and impact assessment in decision making. These were very different than those identified as critical for the private sector: business acumen, visionary leadership, marketing communication, market acumen, interpersonal communication, client service, and timely and opportunistic decision-making (Darling & Cunningham, 2016).

A study were conducted to seek the role of leadership competencies for implementing TQM in 265 companies in Thailand using quantitative survey approach. The findings were cross-validated using exploratory factor analysis (EFA). The research confirmed the necessity for top management to perform as leaders for implementing TQM. Companies with high leadership competencies execute each of the nine TQM principles more effectively and are able to produce higher quality products (Das, Kumar, & Kumar, 2010).

In order to fill a gap between theory and practice, a study was conducted that involved 22 Belgian organizations. The main purpose was to to fill this gap by unraveling the process of competency development in organizations. The research method used organizational records, semi-structured interviews with HR managers and focus groups. It was found that organizations develop the competencies of their employees through a combination of training, on-the-job learning and career management (Vos & Hauw, 2021).

Ryan, et al. (2012) reported that competencies of individual leaders to business profitability were linked and demonstrated that competencies were cross-culturally valid. 15 high performing managers were involved in developing the initial competency study using Critical Incident Interview. The study found that a set of competencies was identified as predictive of unit profit growth in managers in both North America and the European Union. Subsequent regression analysis showed that 17 per cent of the variance in business unit profitability could be accounted for by four competencies, specifically team leadership, developing others, achievement orientation, and impact and influence (Ryan, Spencer, & Bernhard, 2012).

A research to design a managerial competency framework for Indonesian state-owned enterprises in the face of era 4.0 was made and used two studies, with mixed-methods techniques; questionnaire to 66 post-graduate students in three colleges, interviews with the Human Resources Department and questionnaires to company managers from three sectors; banking, oil and gas and telecommunications. The survey questionnaire was developed based on the competency concept formulated by the ministry of state-owned enterprise of Indonesia. The study found that managerial competencies including "integrity", "building partnership", "know the business", "customer focus" and "planning and organizing" are core competencies and important for the success of managers in state-owned enterprises (Syarifuddin & Ade Irma Susanty, 2019).

The research was done to identify the competency of human resources and management best practices related to advancing employee performance in a palm oil mill company owned by Indonesian SoE. The research applied a quantitative approach using interviews and questionnaires with 76 employees in the company and analyzed the data using the Likert scale and Partial Least Square Structural Equation Modelling (PLS-SEM). The result showed three implications. Firstly, competency affected employee performance in the palm oil mill company. Secondly, competency had an insignificant result on management best practices. Thirdly, management best practices affected employee performance (Evianisa, Sukmawati, & Setiawan Slamet, 2021).

Another empirical study was done of managerial competencies in first-line and middle managers in the banking industry (SoE) in Indonesia where the managerial competencies were identified using literature review, competency menu and database of "A Generic Competency Model for Managers" by Spencer & Spencer (1993), and a questionnaire-based survey by assessing the importance and frequency of the use of managerial competencies in the work. The results of the study proposed a preliminary generic competency model for managers in the banking industry in Indonesia and described the necessity to classify managerial competencies at different levels of management (Wulandari, Raharja, Nurasa, & Abdul, 2014).

A research has investigated competencies that facilitate new graduates' success in the workplace in Hongkong. Samples were 289 full-time employees of various organization and the methodology involved the use of a questionnaire. The findings indicated that all of the competencies examined are important to a degree. 'Ability and willingness to learn', 'teamwork and cooperation', 'hardworking and willingness to take on extra work', 'self-control' and 'analytical thinking' are the five highest-ranking competencies measured (Pang, Wong, Leung, & Coombes, 2019)

Research was made to determine a soft competency model and its development for the Committment–Maker Officer in land acquisition for public interest in Indonesia. The used method in this research is a qualitative approach to study existing problems and applicable work procedures. Data collection techniques were conducted through Focus Goup Discussion (FGD) interviews, observation and documentation. The result of data analysis indicates that the soft competency model of Committment–Maker Officer in land acquisition consists of 3 (three) criteria namely self concept, individual traits and motives (Prawesto & Wardiyanto, 2017).

A study attempted to identify important competencies that are deemed essential for culinary professionals in the hospitality industry in Malaysia. The qualitative research design composed of document analysis and purposively sampling of experts produced culinary professionals from the hotel industry and culinary educational institutions as participants. Semi-structured interviews were conducted with 9 participants who were purposely selected based on their background in the culinary industry. The current study adopted the BEI method. The qualitative data were used to form the framework of the Star-Chef Competency Model, which consists of six identified competency constructs. (Suhairom, Musta'amal, Mohd Amin, Kamin, & Abdul Wahid, 2019).

Another study in Germany was to establish a competency model for students working with a learning factory. Semi-structured interviews were conducted with 4 lecturers and 4 students who had experiences working with the learning factory. In results, 12 competencies were identified which can further be assigned to the three main clusters professional/methodological, social and personal competencies (Müller-Frommeyer, Aymans, Bargmann, Kauffeld, & Herrmann, 2017).

An empirical study in Thai manufacturing industry confirmed the significance of specific leadership competencies such as customer focus, continuous improvement and employee involvement to the better product quality (Das et al., 2010).

Aldulaimi (2018) conducted a qualitative case study in SoE energy company in Saudi Arabia discovered that participating in a leadership development program resulted in leader's performance that could fill leadership gaps. A purposeful sample of 32 participants was drawn from in structured interviews conducted by the researcher. The results provided evidence that using leadership development programs to fill a leadership gap was productive, and that the effectiveness of this strategy was enhanced when organizations purposefully select and support participants through all stages of their leadership development (Aldulaimi, 2018).

In their research in oil and gas company in UAE, Saeed, et al (2015) identified five coaching constructs on leadership development: empowerment, coaching process, building trust, feedback and leadership role on leadership

development. 469 respondents involved to the surveys and a one-way between subject ANOVA was conducted to compare the effect of coaching constructs on leadership development (Saeed, 2015).

V. DISCUSSION

Based on findings from literature review, there was not founded any research conducted specifically on developing leadership competency model for millennial leaders in energy sector. As seen in Table 2, researches on State Own Enterprise (SoE) mostly used interviews and surveys as the approach. JCA – BEI and FGD is used to develop competency model on qualitative study. On project construction, mixed method combining the interview and survey is used dominantly to develop the model of competency as depicted in Table 3. In public administration sector, JCA – BEI is dominantly used in qualitative and mixed method study as described in Table 4. In Table 5, many researches in private sector are choosing qualitative and quantitative method to define the competency models as interviews and surveys are the most selected approach. Limited research in education sector used JCA – BEI and survey as seen in Table 6.

Fig. 4 shows proposed competency model development for miilennial leaders in energy sector in Indonesia, which will be part of authors' future research, after taking into consideration those findings. The research will be conducted by choosing qualitative method with the application of JCA – BEI.

Fig. 4 Leadership Competency Model Development for Millennial Leaders in Energy Sector

Table 2 Research Focus Area on State Own Enterprise (SoE)

No	Author	Year	Focus Area State Own Enterprise (SoE)	Competency Modelling Approach									Notes
				JCA - BEI	CIT	Interview	Delphi	Survey	FGD	Qualitative	Quantitative	Mixed Method	
1	Evianisa, et al.	2020	v					v			v		The research applied a quantitative approach using interviews and questionnaires with 76 employees in the company and analyzed the data using the Likert scale and Partial Least Square Structural Equation Modeling (PLS-SEM).
2	Ramadhana and Susanti	2019	v			v		v	v			v	Mixed-methods techniques; questionnaire to 66 post-graduate students in three colleges, interviews with the Human Resources Department and questionnaires to company managers from three sectors; banking, oil and gas and telecommunications.
3	Aldulaimi, Saeed	2018	v			v				v			A purposeful sample of 32 participants was drawn from in structured interviews conducted by the researcher
4	Wulandari, et al.	2014	v	v		v		v		v			The managerial competencies were identified using literature review, competency menu and database of A Generic Competency Model, and a questionnaire-based survey by assessing the importance and frequency of the use of managerial competencies in the work. 40 respondents consisting of 13 samples of first-line managers and 37 samples of middle managers.
5	Mangundjaya, et al.	2009	v			v		v				v	Mixed method, in-depth interviews with purposely selected participants and questionnaires for 40 employees

Table 3 Research Focus Area on Public Administration

No	Author	Year	Focus Area	Competency Modelling Approach										Notes
			Public Administration	JCA - BEI	CIT	Interview	Delphi	Survey	FGD	Qualitative	Quantitative	Mixed Method	
1	Monang, et al.	2019	v	v		v						v	Behavioral event interviews with two distinct group of 20 middle managers
2	Shi, et al.	2019	v	v		v			v			v	Mixed method of behavioral event interview and random stratified sampling survey. Researchers purposively selected 150 senior public health professionals and 85 senior public health educators at colleges and universities to take part in the checklist survey.
3	Prawesto, et al.	2017	v			v			v	v			Qualitative approach to study existing problems and applicable work procedures. Informants in this study consist of 5 (five) persons from the authorized institution in land acquisition as informants of the subject, plus 7 (seven) persons as significant other informants. Data collection techniques were conducted through Focus Goup Discussion (FGD) interviews, observation and documentation.
4	Cunningham and Darling	2016	v		v					v			15 senior leaders were involved as the participants in Critical Incident Interviews
5	Jintawee and Vathanophas	2007	v	v		v		v		v			Behavioral Event Interview (BEI) technique and survey to validate the competency model

Table 4 Research Focus Area on Project Construction

No	Author	Year	Focus Area	Competency Modelling Approach										Notes
			Project Construction	JCA - BEI	CIT	Interview	Delphi	Survey	FGD	Qualitative	Quantitative	Mixed Method	
1	Abdullah, et al.	2018	v			v		v				v	Mixed method of multi-layered thematic analysis of literature and interviews then followed with questionnaire surveys to test the validity of the technical competencies.
2	Omran and Suleiman	2017	v					v			v		The study used questionnaire surveys to 150 private construction companies with total of 109 questionnaires were returned, and the response rate was 73 percent
3	Dainty, et al.	2004	v	v		v		v				v	40 participants. A mixed method using Job Competence Assessment Technique (JCA) with behavioral event interviews, expert panels and the one-way analysis of variance (ANOVA) statistical technique

Table 5 Research Focus Area on Private Sector

No	Author	Year	Focus Area	Competency Modelling Approach									Notes
			Private	JCA - BEI	CIT	Interview	Delphi	Survey	FGD	Qualitative	Quantitative	Mixed Method	
1	Suhairom, et al.	2019	v	v		v				v			The qualitative research design composed of document analysis and purposely sampling of experts produced culinary professionals from the hotel industry and culinary educational institutions as participants. Semi-structured interviews were conducted with 9 participants who were purposely selected based on their background in the culinary industry. The current study adopted the BEI method.
2	Pang, et al.	2019	v					v			v		Samples were 289 full-time employees of various organization and the methodology involved the use of a questionnaire
3	Momin, ZA	2018	v			v		v				v	152 total sample population participated in the survey and quantitative approach was applied
4	Geng, et al.	2018	v				v	v	v	v			A literature review, focus group interviews and in-depth personal interviews, A panel of 20 specialist experts was chosen to carry out two rounds of Delphi expert analysis
5	Shamsi, et al.	2015	v					v			v		469 respondents involved to the surveys and a one-way between subject ANOVA was conducted to compare the effect of coaching constructs on leadership development
6	Ryan, et al.	2012	v	v	v	v		v				v	The initial competency study using Critical Incident Interview. Competencies identified were then adapted into a behaviourally-based questionnaire (n = 70) used in a follow-up validation study.
7	Vos, et al.	2011	v			v			v	v			Organizational records, semi-structured interviews with HR managers and focus groups
8	Das, et al.	2010	v					v			v		Quantitative survey approach. The findings were cross-validated using exploratory factor analysis (EFA).
9	Wickramasinghe and Zoyza	2009	v					v			v		Quantitative methodology. The study was confined to a fully integrated telecommunication service provider where 198 managerial employees participated in the survey

Table 6 Research Focus Area on Education

No	Author	Year	Focus Area	Competency Modelling Approach									Notes
			Education	JCA - BEI	CIT	Interview	Delphi	Survey	FGD	Qualitative	Quantitative	Mixed Method	
1	Frommeyer, et al.	2017	v			v				v			Semi-structured interviews were conducted with 4 lecturers and 4 students who had experiences working with the learning factory. The recorded interviews were analyzed using qualitative content analyses with MAXQDA
2	Chung and Wu	2011	v	v		v		v			v		Questionnaires to identify competencies for 48 personnel directors and divided these samples into two groups. Study 1 included 14 superior personnel and study 2 included 34 average personnel directors By using the procedures of job competence assessment method, the authors constructed and analysed the competencies for these two groups.

VI. CONCLUSION AND RECOMMENDATION

Several researched have been undertaken to develop competency models in some focused area. The competency model approaches and the results in some focused area could only provide picture about the leadership competency model development in the respective sector as the organization vision, mission and need are different between one and another. In addition, all the sectors have different challenges.

However, there was no evidence that the similar type of research for developing the leadership competency model has been conducted specifically for the millennials in energy sector. Thus, the study on that particular area become very important to conduct especially when considering the VUCA and COVID – 19 challenges as the new era of doing

business become critical while the millennials are ready to take more important roles at the organization in energy sector.

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Pull Strategy Concept Implementation On MSME's Social Media And E-commerce Digital Marketing For Sales Improvement

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Abstract

Pull strategy concept implementation on MSME's digital marketing in Indonesia during Covid-19 pandemic aims to establish a new target market penetration strategy for sales improvement. ROTI DOTI as the object of study, produce Bandung toast white bread since 2018, located on Jalan Lumbu Timur Raya, Rawalumbu, Bekasi. The Covid-19 pandemic has decreased the production capacity and of course, the revenue itself. Therefore, MSME needs a quick solution to maintain the business continuity. Further study carries out qualitative research with descriptive analysis methods using data collection models such as interviews, observations, and literature reviews. Later, business process review, business model canvas, internal-external factors analysis, PESTEL, STP, SWOT, TOWS, gap analysis and pareto contribution give a perspectivefor this study to develop the exploration of digital ecosystem as priority for a better way in order to improve the sales revenue. In the end of study, we found that implementation of pull strategy concept on MSME's digital platformcould acquire non-retail consumers as new target market and became an alternative to gain the sales revenue better than recruit more peddler.From the implementation, it can be conveyed that, effectively and precisely, the objectives of study have been achieved, ROTI DOTI now has several large-scale customers from other Bandungtoast dealers who are the new target market for MSME, acquiring these new customers gave real contribution to increase sales revenue, as the result of the efforts to improve the pull strategy concept in product marketing through the digital ecosystem, both social media and e-commerce for being the best alternative way rather than relying on the recruiting more peddler partner.

Keywords—Covid-19, Digital Marketing, MSME, Pull Strategy, Sales Improvement

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I. INTRODUCTION

According to IPSOS (2021), in article of Kontan.co.id (2021), base on survey conducted in February 2021, Micro, Small and Medium Enterprises (MSMEs) are the most popular product providers for the Indonesian people, both before and during the Covid-19 pandemic. The decline in purchasing power that occurred due to pandemic, however, still confirmed MSMEs as the highest contributors to consumer products, when compared to other non-SME products, both from within and outside the country, with the consumption level parameter pointing to a figure of more than 40%. As for the results of recorded transactions, the dominant sales channel was contributed by transactions via social media including online transportation applications at 33% and followed by e-commerce at 64%. Meanwhile, the most in-demand MSME products are food or culinary category products which reach 66% (Ipsos, 2021). Restrictions on community activities due to the Covid-19 pandemic have had a major impact on economic activities, including the MSME sector. The closure of schools, offices, shopping centers and traffic access affects the level of consumer demand. No exception for The bread industry. Quotting KEMENKOPUKM (2021), in article of Kompas.id (2021), 202 bakers in Greater Jakarta, 94% of whom were affected by the pandemic with a significant decrease in revenue, due to a decrease in the number of outlet visitors and reseller partners. Uncertainty about when the crisis will over, forces MSME to find a quick solutions, thus adapting to settle the business. There is ROTIDOTI, the object of business coaching. A white bread production MSME for Bandung-style toast culinary located in Bekasi, West Java, Indonesia, which conventionally sell the product through mobile cart trader. The main priority as conveyed by the owner is to penetrate the market for large-scale customers, such as restaurants, catering and other seller, through the concept of Pull Strategy digital marketing. Digital marketing is a concept used to describe all marketing activities that utilize all digital channels to sell the product (Batra & Keller, 2016) with the increasing trend of internet users nowadays. One of the effective way to increase the exposure of a product in the market is through social media and e-commerce (Taiminen & Karjaluoto, 2015). Digital marketing give more incentivizes in promotion cost efficiency, ability to reach a wider market and probability to get a faster consumer response, so that MSME able to compete more with the bigger company (Bala & Verma, 2018). Now, the challenge is how to start properly implementation of digital marketing

strategy, which can increase consumer awareness about the product. Pull strategy take a place, the concept aim at a specific target market, who already know the product they want, producers then ensure that the promotion is delivered and take a position steady to responds any discussions or questions about the product, which lead them to loyal customer (Bazaza, 2020). The purpose of business coaching is to provide an example of applying a digital marketing pull strategy concept to Indonesian MSMEs as an effort to survive in todays condition or even better could increase the Revenue greater than before.

II. LITERATURE REWIEW

A. Pull Strategy Digital Marketing

COVID-19 pandemic will have long term implications for the business, but, there's always the possibility of turning a tragedy into an opportunity. Digital Marketers have the chance to redefine their business goals, get extra focused, keep an eye on the trends and strive to evolve continuously. It is likely that for many, using the internet more for shopping, gaming, keeping in touch and other activities will have become something of a habit. As the world goes increasingly digital, so will marketing. What digital marketers need to do is respond with update strategies and buyer personas for a the new post-pandemic era (Gogia & Nanda, 2020). Digital Marketing such as search engine optimization (SEO), search engine marketing (SEM), content marketing, influencer marketing, content automation, e-commerce marketing, campaign marketing, and social media marketing, social media optimization, e-mail direct marketing, display advertising, e–books, optical disks and games and are becoming more and more common in our advancing technology. It is demonstrated that we all are connected through whatsapp and facebook and the increasing use of social media is creating new opportunities for digital marketers to attract the customers through digital platform (Bala & Verma, 2018).

Two different concept of product information delivery to the customer, there are pull and push marketing strategies. In the push strategy, the producers push their products toward the customers, focus on the intermediaries. In pull strategy, the customers search for the products that satisfy their needs, a promotional strategy focuses on facilitating communication flow directly from a manufacturer and in this scope the customer is centre of the process (Brocato, 2010). Push marketing is concerned with short term sales whereas pull marketing seeks to create loyal customer (Robertson, 2017). Pull marketing strategy is targeted toward certain customers building good relations, leading to loyal customers, no need for huge advertising campaigns because the customers already know the product and know what they expect form it (Bazaza, 2020). In addition, it can be seen from that the pull effect is relatively stronger than the push effect when it comes to driving switching the product (Nguyen et al., 2021).

Social media and firm applications are two mobile service marketing mechanisms that rely on push or pull promotions to be effective. First, we create and manage a supermarket's Instagram profile, posting to the account (push promotion). Next, we compare performance measures with a third-party mobile app (pull promotion), which provides aggregated customer views and access to the supermarket profile. A time-series analysis reveals a sequential chain from push promotion to pull promotion to performance, the temporal effect of a push to pull. Results are important to those balancing push and pull promotional efforts and those involved with digital marketing and promotion in retailing (Vieira et al., 2021). Push tactics are more normally prioritised to promote products through distributor channels, where pull strategies of this type that create demand among end-users are common in consumer markets (Marjan et al., 2021).

B. Sales Performance Enhancement of SME through Social Media and E-Commerce

Broadly, a country's economic stability is reflected in successful business organizations. Certainly, SMEs play key roles in developing a country. Over the last few years, social media penetration has increased, consequently, using traditional media such as television, newspapers, and radio has become absolute and is not effective in maintaining competitive advantages. SMEs have begun using social media widely as an important marketing tool. (Alraja et al., 2020). They use social media according to the company's business goals. The impact obtained is mostly related to the SMEs sales and marketing processes, such as the relationship between the company and customers, the company with stakeholders, the company with business partners, and the company's relationship with competitors (Wardati & Er, 2019). The further literature (Bocconcelli et al., 2017), tell social media are a key resource in improving SME sales process, thereby assisting SMEs to overcome their size-related limitations.

As companies are realizing the important role that social media has as an effective marketing tool, it becomes crucial to understand and explore the factors that mediate the relation between the online social media platforms environment and the actual purchase behavior. Particularly, it sheds the light on the company-consumer relationship and finds that brands should adapt their content and communication strategies on social media platforms to engage more users, create awareness and as result encourage them to buy their products. Findings highlight the importance of the content quality offered by brands on the social media, brands should prepare well designed marketing messages and only post good quality content on their social media websites. Moreover, brands are advised to deploy various social media marketing tools and solutions to try to increase brand and users' interactivity (Dabbous & Barakat, 2020).

Early studies in e-commerce suggested that e-commerce is a strategy for growth especially by SMEs (Grandón et al., 2011), assisting them to compete with large firms by gaining new customers in global markets (Torres et al., 2014). Researchers have argued that "A socially constructed feature of e-commerce entrepreneurship that draws from innovative ability could increase sales through its niche market" (Shemi & Procter, 2018). According the study by Jahanshahi et al. (2013), an enhanced company brand and corporate image are an e-commerce advantage and security and privacy are key concerns.

III. RESEARCH METHODOLOGY

The schedule and deadline for business coaching are designed to be a guide for work by researchers, so that the stages of the process until the evaluation of the implementation of the results of business coaching can be completed according to academic calendar.

Table 1. Timeline of Business Coaching

Source: Author

The researcher applied a qualitative research method. The method was chosen as means of finding specified issues that form the conceptualization and establishment of e-commerce in an authentic setting, moreover, qualitative studies allow for in-depth understanding when investigating process-related issues (De Cock et al., 2021). There is ROTIDOTI, the object of business coaching. A white bread production MSME for Bandung-style toast culinary located in Bekasi, West Java, Indonesia, which conventionally sell the product through mobile cart trader. The main priority as conveyed by the owner was penetrating the new market for large-scale customers, such as restaurants, catering and other seller as an effort to increase sales of product. Base on interview and observation the researcher look for engagement with the owner and staffs of the SME to earn the primary data, to get the the main ideas of their wants and imagine what we can do to help with the most suitable approach according to the conditions of their abbilities. Interviews were held of four times from July to September 2021 during the business coaching process. Observation of the working station were also conducted at the close of the process.

Table 2. Interview and Observation Data

Interview and Observation Data

Interviewees and Object	Occasion
Owner at Working Place	July, 8th 2021
All Staff at Working Place	August, 14th 2021
Owner at Working Place	September, 2nd 2021
Owner at Working Place	September, 8th 2021

Source: Author

The questions were asked in an informal vibe to make sure the owner could describe various issue that happen in the SME. Interviews and observation were written on the short notes and later summarised for further analysis. The primary data, especially about the MSME's sales report from 2020 – 2021 period have been analyzed for preparing this paper extensively. Furthermore the secondary resources information have been collected from different scholars and researchers, previous related journals, published e-books, and articles published in national newspaper. This is the best practice for a research which is a critical review type.
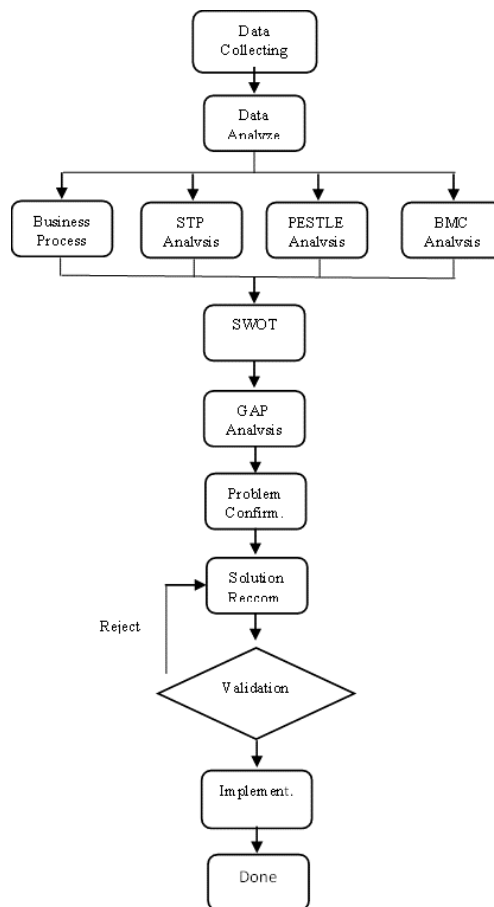

Fig. 1. Business Coaching Study Process (Author)

The business coaching study process was carried out with several stages which can be seen in Fig. 1 above. The collected data retrieved before will then be analyzed sequently through business process diagram analysis, STP analysis, PESTLE analysis, BMC analysis, SWOT – TOWS analysis and give comprehensive perspectives for GAP Analysis attributes before the researcher conducted face to face discussion with the owner of MSME to define the main problem together and start to get best solution in the most effective and efficient way to increase the sales of

product.

Researcher find proper data through the qualitative approach based on theory as suggested by Maholtra (2010), the study is began from three stages, 1) Data Reduction, selected just only the important and relevant information for the study gathered from owner and staff, reduced many of statement, such as profile of staff worker, supplier or material composition 2) Data Display, researcher gave visual informative data like graphics, matrix and diagram in the study, to gain the understanding of reading 3) Data Drawing and Verification, for this stage, researcher analyzed the MSMEs data through the suitable method based on projection of the problems implication result.
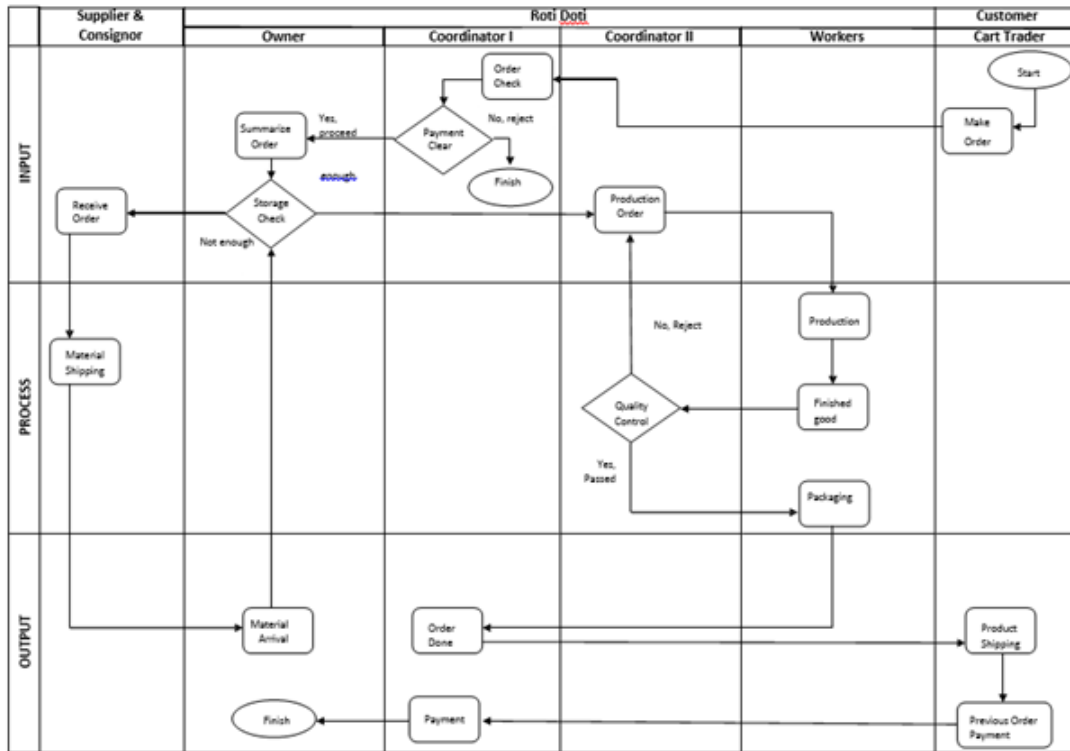

Fig. 2. Business Process Diagram (Author)

From the Figure 2 above, researcher could tell that the business process ran in very conventional way, there was no pull strategy digital marketing concept implemented. Researcher suggest the owner to learn and consider that concept to build the better foundation of business in relation to the new normal condition.

Table 3. Segmentation Of Roti Doti

Demographic	Geographic
- Children	- Penggilingan, East Jakarta
- Teen	- Tanjung Priok, North Jakarta
- Adult	- Yasmin, Bogor
Within low-med expenditure allocation	- Bintara – Pekayon – Rawalumbu, Bekasi
Psychographic	**Behavioral**
Big fan of sweets with affordable price	Fan of sweet toast

Source: Author

Segmentation is the process of dividing a larger market into smaller pieces based on one or more meaningfully shared characteristics (Solomon, Marshall & Stuart, 2018). Figure 3 was given an initial segmentation according to type of consumen mentioned from interview. Later, the owner convinced that target of the product was people from low-mid expenditure family who lived in colony around Jakarta. Talk about positioning, the MSME offered the value proposition fresh from the oven soft toast with affordable price and free preservatives.

According to Thompson et. al. (2016), Developing strategies is one of the tasks needed to achieve unity and coherence between the firm's internal ability, sources and skills with the external factors which are related to the firm. In short, the strategies designing stage involves the process of identifying the internal and external factors that might affect the firm's overall performance. One of many tools we usually use in external factors was PESTEL (Politics, Economics, Social, Technology, Environment and Legal) method. Based on the results of the PESTEL, it can be conveyed that, in the difficult conditions due to the current Covid-19, there was no other way for business actors other than to seek new breakthroughs in their business processes, especially in optimalization of marketing scheme through digital media.

Politics, restrictions on community activities, including economic activities in the context of dealing with the Covid-19 pandemic, have an impact on all business sectors, including MSMEs. Through the Instruction of the Minister of Home Affairs Number 15 of 2021 concerning the Enforcement of Restrictions on Emergency Community Activities for Covid-19 in the Java and Bali Regions, the provisions for the closure of workplaces, schools and public places, including shopping centers and the implementation of curfews in many areas, affect the sales of MSMEs. With no certainty when its over. MSMEs must find the best way. One thing that's quite helpful in these difficult times is the government's incentives, referring to the Minister of Finance Regulation No. 9/PMK.03/2021, which frees MSMEs from the tax burden. Economics, according to data from the Association of Indonesian Food and Beverage Entrepreneurs, the bakery industry in Indonesia has also been affected by the Covid-19 pandemic, a growth of 10% from the 2014-2020 period, believed will not be better at this time, given the declining revenue and fluctuations (Kompas.id, 2021). Furthermore, people's purchasing power could be worst. Social, referring to a survey by the Indonesian Institute of Sciences published by Kompas.id in January 2021, it is known that more than 70% of respondents have started cooking, one of which is making bread, which is expected to develop into a home-based business in the future. Another social factor that needs to be considered is the shift in consumer behavior, which tends to rely on online transactions with the support of a digital ecosystem. Technology, in line with the increasing trend of using internet services, the development of digital technology provides incentives for business actors to take advantage of all the features available in their business activities, from marketing, sales transactions to customer's product delivery. Social media such as Instagram and Facebook, which accommodate marketplace features as previously offered by e-commerce such as Tokopedia, Shopee, and GrabFood and GoFood services, are now commonly used by home bakery industry players. Environment, customer concern about cleanliness and hygiene in the midst of the Covid-19 pandemic is one of the main parameters for consumer considerations in choosing a product. Therefore through the use of the digital ecosystem, MSME needs to insert messages and vitae/videos related to the production process that upholds cleanliness and hygiene. referred to through social media channels and e-commerce. Legal, MSMEs should ensure the continuity of clear business processes at the place, starting from managing business permits, paying salaries and daily working hours base on agreements and regulations. Furthermore, MSMEs must be vigilant and thorough in every work contract with stakeholders, both for business premises rental, employee contracts and trading partners, including terms and conditions related to the maturity of debt to suppliers.

Continuing what we have identified through the previous analysis, according to Thompson et al (2016), deepening reveal internal conditions in the form of strengths and weaknesses, as well as to unravel external potentials such as opportunities. and threats (threats) that may affect business conditions.

Table 4. Matrix of SWOT

Internal Factor	
Strenghs	*Weaknesses*

| 1. Affordable price
2. Fresh From The Oven product
3. Best ingredient with no preservative
4. Experienced personnel
5. Lean organizational structure
6. Quite complete production equipment
7. Tight quality control
8. Guaranteed material stock
9. Productive cart dealer partner
10. A/R concept for cart dealer partner
11. *Free* shelter for personnel and cart dealer partner
12. *Free delivery* to partner | 1. There's no online sales channel
2. There's no computerize record for sales, stock, A/R and financial.
3. There's no cashless feature in business process.
4. There's no focus on brand exposure
5. Area sales limited in 6 points nearby Bekasi |

External Factor	
Opportunities	*Threats*
1. Indonesian in all segmen are big fan of toast 2. Raw material and ingredient are easy to find 3. Supplier could give owe facility to MSME 4. New innovation and creation of toast 5. Government support to MSME 6. Increasing trend of using social media and e-commerce 7. Open access to banking financial service support the easiness of transcation 8. The open access to more modern financial reporting records through various applications 9. Opportunity to reach a wider marketing area Jakarta and surrounding city	1. Competitive market. 2. Fluctuations in raw material price 3. People's purchasing power has decreased due to the pandemic 4. Theres a lot subtitute product 5. Shelter cost for the personnel and cart dealer partner become financial burden

Source: Author

Furthermore, the results of discussions and observations in the field provide a complete picture of the interrelationships between stakeholders in business processes.

Key Partners	Key Activities	Value Proposition	Customer Relationship	Customer Segment
- Supplier of Raw Material - Cart Trader	- Receive the Order - Production at Factory - Distribution to Partner	- Soft Tasty Toast - fresh from the oven - Affordable prices - No Preservative	- Trading through cart dealer - Word of mouth/ customer references	**Demografis** Children, Teen, and adult within low-med expenditure **Geografis** Penggilingan- East Jakarta Tj. Priok- North Jakarta Yasmin- Bogor Bintara, Pekayon, Rawalumbu- Bekasi **Psikografis** Big fan of sweet within affordable price **Behavioral** Fan of Sweet toast
	Key Resources - Production Staff - Asset (equipment and machine) - Courier/Transporter - Cart Trader		**Channel** Cart Trader Partner	

Cost Structure	Revenue Streams
Fixed Cost: Employee salary, rental cost for factory and partner shelter, sinking and service maintenance fee **Variable Cost:** Electricity and watrer bill , LPG , material and *packaging*, Transportation and maintenance cost	- Deposit Payment From Cart Trader Partner - Walk in customer sales - Consigment sales

Fig. 3.Business Model Canvas Roti Doti (Source Author)

Based on the results of the Business Model Canvas analysis above, MSMEs has to maintan the value proposition that has been formed, through tight screening of raw material selection, and strict quality control. Even so, as the owner expects to increase sales, revenue streams are expected to increase with the addition of channels through digital marketing both through social media and e-commerce, requiring key activities, key resources and customer relationships to be adjusted.

Table 5. Analytics Tools Summary

Analytics Tools	Ideal Condition	Actual Condition	GAP	Solution
Business Process	Cashless payment directly to owner	Cart Dealer Partner pay cash the order to Coordinator	Payment still very conventional	Digital Financial Services
Business Process	Comprehensive report for inventory, order and production plan through digital recap/ record	Manual report for all things by the owner.	There was possibility of lack of material, deficit of production target	Computerize Report
BMC	Sales Channel through offline and online media	Sales rely on cart dealer partner conventionally	There was no online media channel for sales	*Pull Marketing & Digital Marketing*

BMC	Targetting the big fish customer not only retail end customer	The only focus in sales was offered the product to retail end customer with small quantity.	There was no plan to acquire big fish customer	*Company Profile and Business Proposal*
BMC	Targetting *Revenue stream* from big fish customer	*Revenue stream* only from cart dealer partner and consigment also walk in customer	There was no plan to acquire big fish customer	*Pull Marketing & Digital Marketing*
STP	Targetting wider segmen in Jakarta	Sales point area limited in few spots	Sales point area limited in few spots	*Pull Marketing & Digital Marketing*
PESTEL	MSMEs adopt the new trend of transaction among the customer through gadget/ smartphone online ways	Conventional sales through cart dealer partners were not optimal during the pandemic.	There was no alternative channel for sales, espescially through online media	*Pull Marketing & Digital Marketing*

Source: Author

Later, the gap analysis process is carried out according to the results of the expose based on the analysis that has been done previously referring to business processes, business model canvas, STP and PESTEL, and the reseacher found out the SWOT factors followed by discussions with MSMEs.
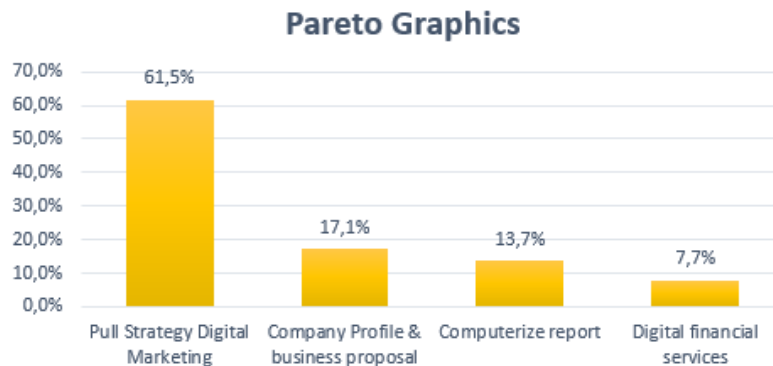

Fig. 5. Pareto Graphics of Roti Doti (Source Author)

From the results of the analysis, it was found that the focus of the study was on implementing the concept of Pull Strategy Digital Marketing for MSMEs Roti Doti, which contributed the most for improvement according to the owner, based on their capabillity. Researchers and owners have agreed that the development of online sales channels through social media and e-commerce is the best way that can be pursued in an effort to increase revenue, then

researchers have the task of presenting an initial prototype of content and selecting the right media as part of the implementation plan.

IV. RESULT / FINDING

In the use of social media, Facebook and Instagram are option, in the e-commerce marketplace, Tokopedia is an alternative, reseacher also create a website and google my business which contains all information and profile of Roti Doti MSMEs to be used as promotional and communication centre media.

Table 6. Media Platform Optimalization Summary

No	Platform	Type	Utilization
1	Instagram	Social Media	Awareness
2	Facebook	Social Media	Awareness, Interest
3	Website	Owned Media	Interest, Desire
4	Google My Business	Search Engine; Geo Tagg	Awareness, Desire
5	Tokopedia	e-commerce	Awareness, Interest, Desire, Action

Source: Author

Selection of media and information content using the AIDA hierarchy of effect concept, which gradually and synergistically leads prospective customers cognitively into the realization of product purchases as part of the customer experience journey. Utilization of social media is used as a tool for Roti Doti to increase brand awareness, through increasing product exposure to new target markets, which are slices of active users of social media, whether they are end users or Bandung toast seller. Through the Instagram platform, Roti Doti profile is loaded, content is displayed on photos of factory production according to a similiar template and content that displays processed products with attractive color choices

The owner is quite happy in conveying the increase in revenue, starting in the first quarter of 2022 or the January-March 2022 period since the digital marketing pull strategy was implemented, product demand through online channels grew by 50% of the historical average turnover in the second semester of 2021 recorded.
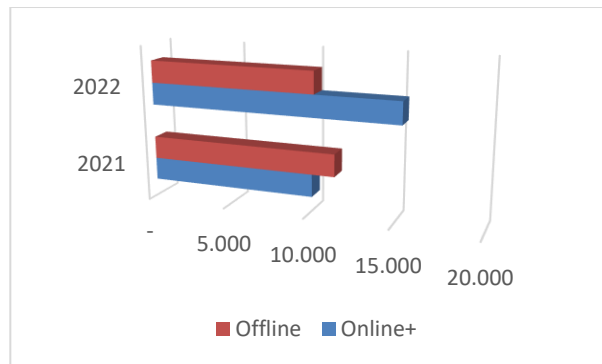

Fig. 6. Graphics of Revenue (Source Author)

Based on the figure above, the Offline sign means product sales come from the cart dealer partner and walk-in customers, while Online sign means that the realization of product sales comes from digital media channels. Furthermore, the growth of average revenue 51,5% contributed to 18,5% in the growth of total revenue.

V. DISCUSSION

This study answered the following question 1) Who are the new target market client for ROTI DOTI? 2) What is the best alternative way to increase the revenue instead of recruit more peddler partner 3) How do Roti Doti implementate the pull strategy digital marketing through the social media and e-commerce? Those question came from the results of discussions and observations of researchers on the business process of MSME Roti Doti. Researcher devided several category indicators from gap analysis and rank the priority things to be solve baseon weights valuation that MSMEs applied.

a. Evaluation on the Implementation of Determining the New Target Market for ROTI DOTI and Alternativeway for Increasing Sales Revenueinstead of recruit more peddler partner

The stage of determining a new target market and an alternative to increase sales revenue has been agreed with the owner based on the results of a series of discussions and analysis of current business conditions, focusing on large-scale customers is a wise step to encourage increased turnover, customers who have been seen as competitors for MSME before, in the future become MSME business partners, this approach to new potential customers was initiated through the development of the Roti Doti brand exposure through the concept of pull strategy in the a digital marketing ecosystem, the use of various social media and e-commerce by prioritizing the AIDA hierarchy of effect model as a series of customer journey for new potential customers.

In this implementation, business coaching has succeeded in achieving it with the following arguments.

1. Large-Scale Customer Acquisition as New Target Market

Table 7. Top Large-Scale New Customer

Rank	Customer	Location	Amount (Pcs.)	
			A Day	A Month
1	Roti Bakar Robek	Margahayu, Bekasi	120	3.120
2	Roti Bakar Sari Rasa	Rawalumbu, Bekasi	40	1.040
3	Roti Bakar 5 Saudara	Dewi Sartika, Bekasi	40	1.040
4	Roti Bakar Alfian Kuningan	Cakung, Jakarta Timur	40	1.040
5	Roti Bakar Dori	Tambun, Bekasi	40	1.040
Total Amount			**280**	**7.280**

Source: Author

2. Increasing Product Sales Revenue through Online Channels as an Alternative Instead of Recruit More Peddler Partner

Table 8. Product Sales Revenue

Sales Source	Average 2021 May – Dec	Average 2022 Jan - Apr	% Growth
Online	10.156	15.386	51%
Offline	11.519	10.294	- 10,6%
Total	21.675	25.681	18,5%

Source: Author

b. Evaluation on the Implementation of Pull Strategy Digital Marketing through ROTI DOTI's Social Media and E-Commerce Channels

Achievements of digital channels optimization, both social media and e-commerce can be claimed based on the foundation that has been formed, from creation to initial management of ROTI DOTI's accounts on Instagram and Facebook platforms, as well as Tokopedia, Google My Business also websites. The most important thing forfurther concern is how ROTI DOTI will continue to manage existing accounts, starting from the creation of ideas for

developing content concepts, technical content creation to the discipline of routinely updating activities according to the suitable timing, both posting, updating profiles to reply all messages from customers that may exist.

The record of success from the implementation could declared by confirmation from new large-scale customers, one of them is Roti Robek, which knows the existence of ROTI DOTI through social media accounts. The reputation of ROTI DOTI obtained by customer's testimonials and ratings via Tokopedia e-commerce.

VI. CONCLUSION AND RECOMMENDATION

In the end of the study, MSME, which previously rely on applied conventional sales methods through peddler and began to develop sales penetration by utilizing pull strategy concept on digital marketing channels, Social Media and E-Commerce could acquire new non-retail consumers, thus increase the production capacity as well. For the brighter future, to maintain the good performance, MSME should look for new staff to control and manage the digital marketing of product sales.

LIMITATION

This study take a point to increase the sales reveue due to conventional product marketing channels through mobile peddler partners which are no longer popular in today's new normal era. The productivity of peddler partner wasn't concern of study.

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The Analysis of Labor Absorption in the Industry Sector in Central Java Province 2015-2019

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Abstract

The main objective of economic development is to create economic growth and provide employment opportunities for the sake of creating public welfare in general. Then, one of the policies carried out by the government to accelerate the implementation of economic development is through industrialization. Development in the industrial sector is a top priority for economic development without neglecting development in other sectors. The purpose of this study was to analyze the effect of economic growth in the industrial sector, PMA in the industrial sector, PMDN in the industrial sector, and the UMK in the industrial sector on employment in the industrial sector in Central Java in 2015-2019. The type of research used in this research is quantitative. The analysis technique in this study uses panel data regression from 35 districts/cities in Central Java Province from 2015-2019. The results obtained in this study are stated that the variable Economic Growth (PE) in the industrial sector and Domestic Investment (PMDN) in the industrial sector has no effect on employment in Central Java Province from 2015 to 2019. While the variable Foreign Investment (PMA) the industrial sector and the Regency/City Minimum Wage (UMK) of the industrial sector statistically have a positive and significant impact on employment in Central Java Province from 2015 to 2019.

Keywords—Economic growth; employment absorption; industrial sector; industrial sector investment; panel data

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I. INTRODUCTION

Central Java is one of the provinces that contributes greatly to Central Java's Gross Regional Domestic Product (GRDP). The value of Central Java's GRDP at current prices in 2018 is 1,268.45 trillion rupiah. Meanwhile, in 2019 it was 1,362.46 trillion rupiah, meaning that nominally the GRDP value had increased by 94.01 trillion rupiah. During the last five years starting from 2015-2019, the economic structure of Central Java was dominated by five sectors, namely the manufacturing industry and education services; wholesale and retail trade, respiration of cars and motorcycles; agriculture, forestry, and fishing; construction; and educational services. The largest role in the formation of Central Java's GRDP in 2015 was generated by the manufacturing industry category which reached 35.08%, while in 2019 it was 34.42%.
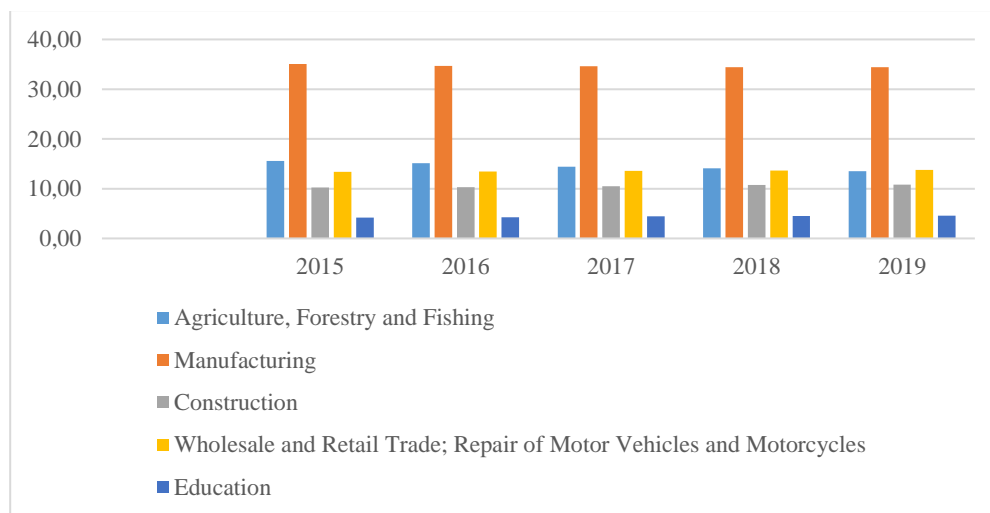

Fig. 1. Distribution of Central Java GRDP on Current Prices by Category (Percent) 2015-2019

According to (Mankiw, 2000) unemployment is a macroeconomic problem that directly affects human survival. For most people, losing a job is a drop in the standard of living. So, it is not surprising that unemployment is a topic that is often discussed in political debates which often study that the policies they offer can help create jobs.

Based on the Central Statistics Agency (BPS) of Central Java Province, employment in the industrial sector in Central Java Province has increased over the last five years. In 2015-2019 there was an increase, where the absorption of labor in the industrial sector in 2018 was 946,283 people. Meanwhile, in 2019, employment in the industrial sector was 1,133,790 people.
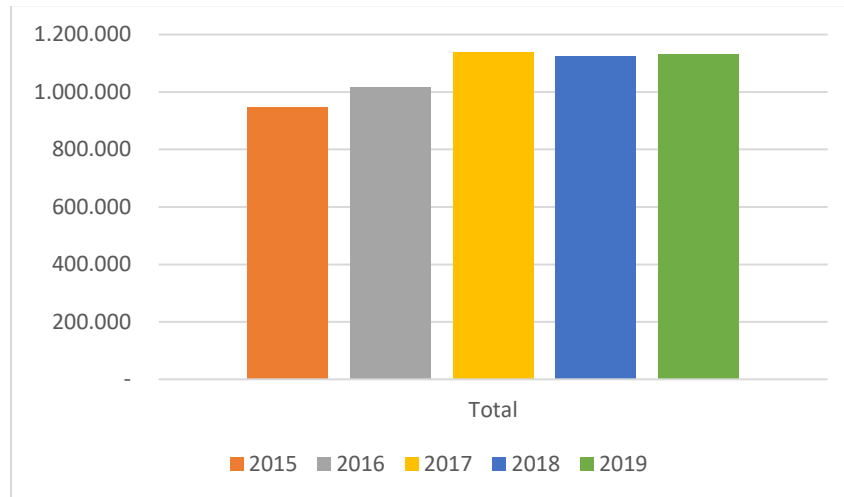

Fig. 2. Number of Workers in the Industrial Sector of Central Java in 2015-2019

It can be seen in Figure 1.2, the absorption of labor in the industrial sector has increased every year, this could be influenced by factors such as the minimum wage, economic growth and investment in the industrial sector, this is reinforced by research (Djupiansyah, 2017) which states that there is an effect of the minimum wage, economic growth and investment to employment.

Employment absorption is also inseparable from the role of the government as a policy maker to support good investment, income standards for labor welfare and strategies undertaken to achieve high economic growth. The government's policy in setting minimum wages is a reason for entrepreneurs to prefer capital intensive industries. Meanwhile, the relationship between wages and employment can be illustrated that the higher the wage level, the higher the production cost and consequently the company will make efficiency by reducing the workforce employed (Simanjuntak, 2001). This condition results in low levels of job opportunities. In other words, wages have a negative effect on employment.

Based on the problems described above, researchers are interested in seeing the effect of economic growth in the industrial sector, Foreign Investment (PMA) in the industrial sector, Domestic Investment (PMDN) in the industrial sector, and the Regency/City Minimum Wage (UMK) in the industrial sector on employment in the industrial sector in Central Java in 2015-2019.

II. LITERATURE REVIEW

Based On Theory

Employment

According to (Iryani & Anwar, 2019), labor absorption is the number of jobs that have been fulfilled and can be reflected in the large number of working people spread across various economic sectors. The company employs labor not for direct consumption, but is used as a means of production, so the absorption of labor or the demand for labor in

the company depends on consumer demand for the goods produced or produced by the company. Meanwhile, according to (Handoko, 2014), labor absorption is a certain number of workers used in a certain business unit or in other words labor absorption is the number of workers working in a business unit. The absorption of labor is influenced by two factors, namely external factors and internal factors. These external factors include economic growth rates, inflation rates, unemployment and interest rates. In the business world it is not possible to influence these conditions, so only the government can handle and influence external factors. While internal factors are influenced by the level of wages, labor productivity, capital and non-wage expenditures.

Industrial Sector Economic Growth

Economic growth can be interpreted as a process of changing the economic conditions of a country on an ongoing basis towards a better state over a certain period. There are three basic components needed for economic growth, namely: 1) a continuous increase in the supply of goods; 2) advanced technology as the main factor that determines the degree of growth in providing a variety of goods to the population; 3) and the widespread and efficient use of technology requires adjustments in the institutional and ideological fields, so that the innovations produced by human science and technology can be utilized appropriately (Hasyim, 2016).

Foreign Investment

According to (Arsyad, 2010), the benefits of foreign investment or Foreign Investment (PMA) for developing countries, among others: to create jobs; process technologists and useful skills; as well as a source of savings or foreign exchange. With the existence of Foreign Investment (PMA) can create jobs so as to reduce unemployment, in addition to the presence of foreign investment will get new skills for developing countries. Foreign Investment (PMA) is also a source of savings, because with the presence of foreign investors who invest their capital, economic growth will increase. Meanwhile, according to (Igamo, 2015), Foreign Direct Investment (FDI) occurs when a company from one country invests its capital in the long term into companies in other countries. The country of origin of the company investing is called the host country, while the country where the investment is intended is called the home country.

Domestic Investment

According to Law no. 25 of 2007 Article 1 states that the definition of domestic capital is "capital owned by the Republic of Indonesia, individual Indonesian citizens, or business entities in the form of legal entities or not legal entities". Domestic Investment (PMDN) according to Law no. 15 of 2007 is "activities to invest to conduct business in the territory of the Republic of Indonesia carried out by domestic investors and using domestic capital". It can be concluded that Domestic Investment (PMDN) is an investment activity carried out by investors using domestic capital in the territory of Indonesia.

Regency/City Minimum Wage

The minimum wage is directed to the achievement of KHL each determination of the minimum wage must be adjusted to the stages of achieving the comparison of the minimum wage with the needs of a decent living, the amount of which is determined by the Menaker (Minister of Manpower). The achievement of KHL needs to be done gradually because the minimum living needs are very much determined by the ability of the business world, (Hardijan Rusli, 2011). The Iron Wage Theory by F. Lassale, says that the average wage for workers is the same as the minimum cost of living for workers, because employers tend to pressure workers for profit. Meanwhile, according to John Stuart Mill (Wage Fund Theory), the amount of wages will be determined by the available wage funds and the number of workers. The Fair Wage Theory (naturally) by David Ricardo. This theory explains that wages according to nature are wages that are sufficient for the maintenance of a worker's life with his family (Saputra, 2013). The wages given by employers are theoretically considered as the price of the labor sacrificed by workers for the sake of production. According to (Sukirno, 2010) the wages received by workers can be divided into two types, namely:

a. Nominal Wages, which are a number of wages expressed in the form of money which are routinely received by workers.
b. Real Wage is the nominal wage ability received by workers when exchanged for goods and services, which is measured based on the number of goods and services that can be obtained from the exchange.

Based On Previsious Research

Chusna (2013), with the title The Effect of the Growth Rate of the Industrial Sector, Investment, and Wages on the Absorption of Manpower in the Industrial Sector in Central Java Province 1980-2011. This study uses multiple linear regression analysis, showing that the growth of the industrial sector shows a declining trend while investment, wages and employment in the industrial sector show an increasing trend, the growth rate of the industrial sector has no effect on employment in the industrial sector, while investment and wages affect the absorption of labor in the industrial sector in Central Java.

Purwaningsih, Rochmani & Suryantoru (2016), with the title Analysis of Labor Absorption in the Industrial Sector in Central Java Province. The analysis technique used is panel data regression. The results showed that the level of economic growth and the Regency/City Minimum Wage (UMK) had a positive effect on employment, while the number of industrial business units had no effect on employment in the industrial sector in Central Java Province.

Boedirochminarni & Rakhmawati (2018), with the title Analysis of the Level of Labor Absorption in the Industrial Sector in Gresik Regency. Panel data regression analysis was used, three estimation models were used, namely the Common Effect Model, Fixed Effect, and Random Effect. The results obtained in this study are stated that the Regency Minimum Wage (UMK) variable and the population of the workforce have a positive and significant effect on employment in the industrial sector in Gresik Regency, while the variable number of industries has a negative and significant effect on employment in the industrial sector in Gresik Regency.

Handayani, Muslihatinningsih & Saleh (2018), with the title Determinants of Labor Absorption in the Manufacturing Sector in Jember Regency 2001-2015. The data analysis method used in this research is multiple linear regression. From the results of simultaneous data analysis shows that the value of production, investment and the Regency Minimum Wage (UMK) together have a significant effect on the absorption of labor in the manufacturing sector in Jember Regency. Partially, the results of data analysis show that the value of production and investment is not significant on employment, while the Regency Minimum Wage (UMK) has a positive and significant effect on employment in the manufacturing sector in Jember Regency in 2001-2015. And in the classical assumption test, it is stated that there is no problem in the multicollinearity, heteroscedasticity, autocorrelation and normality tests.

Anggraini, Prihanto & Safri (2020), with the title The effect of minimum wages, economic growth and investment on employment in the industrial sector in Jambi Province in 2000-2018. The research analysis tool uses multiple linear regression analysis tools. Based on the results of the F test, it is known or obtained that the probability significance of 0.000 is smaller than the 5 percent alpha, which is 0.05. This means that the variables of minimum wage, economic growth and investment together have a significant effect on the variable of employment. The variable that has a significant effect on employment in the industrial sector in Jambi Province is the minimum wage variable because the probability value is 0.018 where the probability value is less than 0.05, while the variables of economic growth and industrial investment have no significant effect on employment in industrial sector in Jambi Province because the probability value is greater than 0.05.

Destiningsih, Indrawati & Kurniasari (2020), with the research title Analysis of Factors Affecting the Number of Workers in Central Java Province 2004-2018. The research analysis tool uses multiple linear regression with the OLS or Ordinary Least Square method. In this study the results obtained that; GRDP has a positive and significant effect on the number of workers; PMA has a positive and no significant effect on the number of workers; PMDN has a negative and no significant effect on the number of workers; The number of industries has a positive and no significant effect on the number of workers; The influence of GRDP, PMA, PMDN, the number of industries simultaneously has a significant influence on the number of workers in Central Java Province in 2004-2018.

Kadarwati, Ramdani & Supardi (2021), with the title Factors Affecting Labor Absorption in Central Java 2014-2019. The purpose of this research is to analyze the effect of Gross Regional Domestic Product, Inflation, Regency/City Minimum Wage (UMK) and Human Development Index on labor absorption in Central Java in 2014-2019. The method of analysis in this study is to use multiple linear regression analysis. The results of this study indicate that Gross Regional Domestic Product and inflation have no effect on employment in Central Java Province in 2014-2019. Meanwhile, the Regency/City Minimum Wage and Human Development Index have a positive and significant impact on employment in Central Java Province in 2014-2019.

III. RESEARCH METHODOLOGY

Types of research

This study uses a quantitative approach which basically emphasizes the analysis on numerical data which is processed by statistical methods to determine the significance of the relationship between the variables studied. This research was conducted to analyze the effect of labor absorption in the industrial sector in Central Java in 2015-2019. The research location was conducted in Central Java Province in 2015-2019. This research was conducted in February 2022.

Research Object

The object of the research is the absorption of labor in all districts/cities in Central Java Province in 2015-2019. In this study, to analyze the influence of the Industrial Sector Economic Growth, Foreign Investment (PMA), and Domestic Investment (PMDN) in the Industrial Sector, as well as the Regency/City Minimum Wage (UMK) on the Absorption of Manpower in the Industrial Sector of Central Java Province.

Data collection technique

Secondary data used in this research is in the form of studies from various relevant literature and published by related parties or institutions such as the Central Statistics Agency (BPS) and the National Single Window for Investment (NSWI), Manpower and Transmigration Office, Central Java Province in Figures, Gross Regional Domestic Product of Central Java Province by Field of Business 2015-2019, and previous research reports, journals, and other literature. The data used in this study from 2015-2019 are all research variables in Central Java Province.

Data analysis method

This study uses a quantitative approach with panel data. Descriptive statistical analysis is used to provide an overview by analyzing and presenting quantitative data. According to (Nuryanto and Pambuko, 2018), panel data is a combination of time series and cross section data. The long-term estimator model is as follows:

$$TK_{it} = \beta_0 + \beta_1 PE_{it} + \beta_2 PMA_{it} + \beta_3 PMDN_{it} + \beta_4 UMK_{it} + \varepsilon_{it}$$

where:

TK = Number of workers by industrial sector

PE = Economic growth by industrial sector

PMA = Foreign Investment by industrial sector

$PMDN$ = Domestic Investment by industrial sector

UMK = District Minimum Wage based on industrial sector

ε = *Error term* (error factor)

β_0 = Constant

$\beta_1 \cdots \beta_4$ = Independent variable regression coefficient

i = observation to i

t = year to t

Estimation Results

According to (Gujarati, 2013), regression models with panel data generally result in difficulties in model specifications. The residual will have three possibilities, namely residual time series, cross section or a combination of the two. So, there are three approaches in using this panel data, namely: 1) Common Effect Model, by combining time series and cross section data, 2) Fixed Effect Model, a technique for estimating panel data with dummy variables to capture differences in intercepts, 3) Random Model Effect, to overcome the weakness of the fixed effect method that uses pseudo variables, so that the model experiences uncertainty.

Panel Data Method Selection

Chow test

The Chow test is used to determine which test between the two methods, namely the common effect method and the fixed effect method, should be used in panel data modeling. The hypothesis in this Chow test is as follows (Ghozali, 2016).

$H_0 = $ Model Common Effect

$H_1 = $ Model Fixed Effect

Hausman test

Lagrange Multiplier Test

The Lagrange Multiplier or LM test is used to determine whether the random effect model is better than the common effect. To choose the best method, random effect and common effect, the LM test is carried out with the following hypothesis (Widarjono, 2009):

$H_0 = $ Model Common Effect

$H_0 = $ Model Random Effect

Classic Assumption Test

Normality test

This is done to find out whether the error term is normally distributed or not (Shochrul, 2011).

Multicollinearity Test

Used to determine and determine whether there is a relationship between two or more interrelated variables in a model.

Heteroscedasticity Test

Used to determine and determine whether there is a relationship between two or more interrelated variables in a model.

Autocorrelation Test

Used to determine and determine whether there is a relationship between two or more interrelated variables in a model. The way to check the presence or absence of autocorrelation is the Durbin-Watson Test (DW). The Durbin-Waston test is one of the most widely used tests to determine the presence or absence of autocorrelation.

Statistical Test

Determinant Coefficient (Adjusted R^2)

Adjusted R^2 value is also known as the coefficient of determination. The coefficient of determination (adjusted R^2) shows how big the percentage of independent variables can explain the dependent variable (goodness of fit test).

Joint Testing (F Test)

The F test is a statistical test tool jointly or as a whole from the regression coefficient of the independent variable on the dependent variable. In the F test, the F_{count} formulation is carried out as follows:

$$f = \frac{R^2 (k-1)}{(1 - R^2)/(n-k)}$$

Information:

F = F-count value

N = Number of observations

R^2 = Coefficient of determination

K = Number of variables

Partial Test (t Test)

Statistical t test was conducted to determine whether the independent variables individually affect the dependent variable. The degree of confidence is 95 percent ($\propto= 0,05$) and the degrees of freedom are $n\ (df) = n - k - 1$ where n is the number of samples and k is the number of coefficients. One end t-test has degrees of freedom $(df) = a, n - k$, while two-end t-test has degrees of freedom $(df) = \frac{a}{2}, n - k$. The following is the t-test formula, namely:

$$t = \frac{b_j}{sb_j}$$

Information:

t = Value t_{count}

b_j = Regression coefficient

sb_j = Standard error of regression coefficient

IV. RESULT / FINDING

Panel Data Method Selection

Chow test

Table 1. Summary Table of Chow Test Results.

Effects Test	Statistic	d.f.	Prob.
Cross-section F	13.236602	(23,92)	0.0000
Cross-section Chi-square	175.288892	23	0.0000

Source: Regression Output, eviews 9

The Chow test table shows that the cross-section F probability value of 0,0000 is less than the probability value $\propto= 0,05$, meaning that the best model used is the Fixed Effect Model.

Hausman test

Table 2. Summary Table of Hausman Test Result.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	123.362001	4	0.0000

Source: Regression Output, eviews 9

The Hausman test table shows that the random cross-section probability value of 0,000 is less than the probability value of $\propto= 0,05$, meaning that the selected model is the Fixed Effect Model. So, the Lagrange Multiplier Test does not need to be carried out because the two tests above have shown the same results, namely the Fixed Effect Model is the model chosen in this study.

Classic assumption test

Normality Test

The regression results show that the p-value of Jarque-Bera is 288,7207 where the value is greater than the value of $\propto= 0,05$, so the data used in this study is normally distributed.

Multicollinearity Test

Table 3. Summary Table of Multicollinearity Test Results.

	PE	PMA	PMDN	UMK
PE	1.000000	0.002362	0.154869	0.230272
PMA	0.002362	1.000000	0.010887	0.317277
PMDN	0.154869	0.010887	1.000000	0.085849
UMK	0.230272	0.317277	0.085849	1.000000

Source: Regression Output, eviews 9

The Multicollinearity Test table shows that the correlation value of each independent variable is less than 0,90, meaning that there is no multicollinearity problem.

Autocorrelation Test

From the autocorrelation test that has been carried out, the results can be seen in the table below.

Table 4. Summary Table of Durbin Waston Autocorrelation Test Results.

No.	DW$_{hitung}$	Nilai dL	Nilai dU
1	1.766013	2.3836	2.2104

Source: Regression Output, eviews 9

From the Autocorrelation Test Table, it shows that the DWcount has a value of 1,766013 where this value lies between the values of DU and 4-DU so that there is no autocorrelation problem.

Table 5. Summary Table of Autocorrelation Test Results.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	5.285760	Prob. F(2,113)	0.0064
Obs*R-squared	10.26598	Prob. Chi-Square(2)	0.0059

Source: Regression Output, eviews 9

Based on the table above, the value of Prob Chi square (which is Obs*R-square) is 0,0059 > 0,05, so there is no autocorrelation

Heteroscedasticity Test

Table 6. Summary Table of Heteroscedasticity Test Results.

Heteroskedasticity Test: Glejser

F-statistic	8.821071	Prob. F(4,115)		0.0000
Obs*R-squared	28.17403	Prob. Chi-Square(4)		0.0000
Scaled explained SS	49.19461	Prob. Chi-Square(4)		0.0000

Variable	t-Statistic	Prob.
C	2.532516	0.0127
PE	3.324293	0.0012
PMA	-0.136912	0.8913
PMDN	-0.129994	0.8968
UMK	3.819303	0.0002

Source: Regression Output, eviews 9

From the results of the heteroscedasticity test using the glejser test, it can be seen that the probability value of the variables of economic growth, PMA, PMDN and UMK is greater than $\alpha = 0{,}05$ so there is no heteroscedasticity problem.

Regression Output

In selecting the right panel data regression model using the Chow test and the Hausman test, it was found that the fixed effect model is the right regression model in this study. The output of the fixed effect model can be summarized as in the following table:

Table 7. Summary Table of FEM Uji Test Results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	28845.54	3641.463	7.92 1415	0.0000
PE	-0.000164	0.000132	-1.242802	0.2171
PMA	0.037518	0.018274	2.053102	0.0429
PMDN	-0.000273	0.000714	-0.382551	0.7029
UMK	1.41E-05	1.43E-06	9.825508	0.0000

R-squared	0.985740
Adjusted R-squared	0.981555
F-statistic	235.5425
Prob(F-statistic)	0.000000

Source: Regression Output, eviews 9

From the Summary Table of Multicollinearity Test Results, it can be seen that the coefficient of determination (adjusted R^2) is 0,981555, meaning that the independent variable used in this study is able to explain the dependent variable of 98.15 percent and the rest is explained by other variables not included in this study regression model. Meanwhile, the Fcount value is 235,5425 with a Prob value (F-statistic) of 0,00 and a significance level of 5%. This shows that the value of Fcount is greater than the value of Ftable, so statistically the variables of Economic Growth (PE), PMA, PMDN and UMK simultaneously affect employment in Central Java Province in 2015 to 2019.

Table 8. Summary Table of t Test Results.

Variable	t-Statistic	Prob.	Alfa	Ket
PE	-1.242802	0.2171	0.05	Sig (<α)
PMA	2.053102	0.0429	0.05	Sig (<α)
PMDN	-0.382551	0.7029	0.05	Sig (<α)
UMK	9.825508	0.0000	0.05	Sig (<α)

Source: Regression Output, eviews 9

Based on the regression results above, it can be seen that: 1) The t_{count} value of the economic growth variable (PE) is -1,242802 and the t_{table} value is 1,65810 with a level of 5%. It can be seen that the value of $t_{count} < t_{table}$, so H_0 is accepted and H_1 is rejected. This means that the economic growth variable does not statistically affect employment in Central Java Province from 2015 to 2019. 2) The t_{count} value of the PMA variable is 2,053102 and the t_{table} value is 1,65810 with a level of 5%. It can be seen that the value of $t_{count} > t_{able}$, so that H_0 is rejected and H_1 is accepted. This means that FDI statistically has a positive and significant effect on employment in Central Java Province from 2015 to 2019. 3) The t_{count} value of the PMDN variable is -0,382551 and the t_{table} value is 1,65810 with a level of 5%. It can be seen that the value of $t_{count} < t_{table}$, so that H_0 is accepted and H_1 is rejected. It means, that PMDN statistically has no effect on employment in Central Java Province from 2015 to 2019. 4) The t_{count} value of the UMK variable is 9,825508 and the t_{table} value is 1,65810 with a level of 5%. It can be seen that the value of $t_{count} > t_{able}$, so H_0 is rejected and H_1 is accepted. This means that the UMK has a statistically positive and significant effect on employment in Central Java Province from 2015 to 2019.

V. DISCUSSION

Economic growth (PE) has no effect on employment in Central Java Province from 2015 to 2019. The results of this study differ from the hypothesis that has been compiled which states that economic growth has a negative effect on employment in Central Java Province in 2015 to 2019. This is not in line with the research of Purwaningsih, Rochmani & Suryantoru (2016) which concludes that economic growth has a positive and significant effect on employment in Central Java Province.

Foreign Investment (FDI) has a statistically positive and significant effect on employment in Central Java Province from 2015 to 2019. The results of this study are in accordance with the hypothesis that has been compiled which states that FDI has a positive and significant effect on employment in the Province Central Java from 2015 to 2019. This is in line with the research of Destiningsih, Indrawati & Kurniasari (2020) which concludes that FDI has a positive and no significant effect on the number of workers.

Domestic Investment (PMDN) has no effect on employment in Central Java Province from 2015 to 2019. The results of this study are different from the hypothesis that has been compiled which states that economic growth has a negative and positive effect on employment in Central Java Province. 2015 to 2019. This is in line with the research of Destiningsih, Indrawati & Kurniasari (2020) which concludes that PMDN has a negative and no significant effect on the number of workers.

The Regency/City Minimum Wage (UMK) has a positive and significant effect on employment in Central Java Province from 2015 to 2019. The results of this study are in accordance with the hypothesis that has been compiled which states that the MSE has a positive and significant effect on employment in Java Province. Middle of 2015 to 2019. This is in line with research by Handayani, Muslihatinningsih & Saleh (2018), and Kadarwati, Ramdani & Supardi (2021), and Purwaningsih, Rochmani & Suryantoru (2016), which states that the District Minimum Wage (UMK) together have a positive and significant effect on the absorption of labor in the industrial sector.

VI. CONCLUSION AND RECOMMENDATION

Conclusion

Based on the results of the research and discussion in this study, several conclusions can be drawn, including the following: 1) Economic Growth (PE) variable in the industrial sector has no effect on employment in Central Java Province in 2015-2019; 2) The variable of Foreign Investment (FDI) in the industrial sector has a statistically positive and significant effect on employment in Central Java Province from 2015 to 2019; 3) The variable Domestic Investment (PMDN) in the industrial sector has no effect on employment in Central Java Province from 2015 to 2019. 4) The Regency/City Minimum Wage (UMK) in the industrial sector has a positive and significant effect on employment in the Province Central Java from 2015 to 2019.

Implication

This research implies the need to encourage the industrial sector to further increase activities in order to spur and support the growth rate of the industrial sector. Here, the government needs to develop the medium and small industrial sector, because the small industrial sector absorbs more workers in the industrial sector. This can be supported by increasing investment, both Foreign Investment (PMA) and Domestic Investment (PMDN) entering Central Java Province. Because investment has the potential to create and absorb industrial sector workers in Central Java Province. Meanwhile, the determination of wages will be a consideration for employers so that in determining wages, the government needs to pay attention to economic conditions and the labor market. The wage setting policy is one of the government's policies to intervene in the labor market with the aim of creating a labor market. So it is hoped that the Central Java provincial government can take into account the increase in the minimum wage every year without harming entrepreneurs which will have an impact on decreasing employment.

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Analysis Of Urban Waste Collection System Planning At Zero Waste Management Company In Jadetabek Using Shortest Route Method

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Abstract

This paper looks at a vehicle routing issue primarily related to waste collection in Greater Jakarta. The primary goal of this problem is to determine the routes of waste collector vehicles using the shortest route method to minimize the total operational costs. The total waste production in 2020 in Indonesia reached 67.8 million tons. It was recorded that 69 percent of the waste ended up in final disposal sites without any recycling process. Product recovery activities, such as recycling, can reduce the disposal of wastes at landfills. However, it needs reverse logistics activities, such as collecting and sorting waste. Urban waste collection is one of the most expensive occupations, with several practical challenges and a low-profit margin. Due to high operational expenses (fuel, maintenance, recycling, manpower, and so on), waste collection and disposal are expensive chores, and even little improvements in this area can save company a lot of money. However, there are limited studies of the urban waste collection routes in the application of a reverse logistics system carried out in Indonesia. In this situation, the urban waste is retained at the stations showing the demand nodes, and each node is connected by a branch, which represents the roadways that connect the demand nodes. The results of this study indicate that determining the route using the shortest route method can shorten the trip by 7,55%. The finding of this study helps minimize the operational cost of the company and improve the efficiency of its operation.

Keywords— Vehicle Routing Problem; Urban Waste Collection; Shortest-Route Method; Reverse Logistics; Sustainability

Manuscript should consists of 3,000 to 7,000 words (exclude abstract, reference, and acknowledgement)

I. INTRODUCTION

According to the Ministry of Environment and Forestry of Indonesia (KLHK), the total waste production in 2020 in Indonesia will reach 67.8 million tons. Which means there are around 185,753 tons of waste every day produced by 270 million people (Setiawan, 2021). It was recorded that 69 percent of the waste ended up in a final disposal site (TPA) without any recycling process (Setiawan, 2021). According to The Global E-Waste Monitor 2020, Indonesia is included in the 10 largest e-waste producing countries in the world by occupying 7th place with 1.61 million metric tons in 2019 (Annur, 2021). And according to research by the University of Georgia, Indonesia occupies the 2nd position as the country with the largest plastic waste production in the world after China with an estimated 3.22 million metric tons per year (The ASEAN Post Team, 2018).

Head of Sub-Directorate of Goods and Packaging, Directorate of Waste Management KLHK, Ujang Solihin said that the average waste management capacity in Indonesia is still below 50 percent with a pattern that is still fixed on the old pattern of collect-transport-dispose, which is a linear pattern with the majority of waste The waste will be collected in a final disposal site (TPA) without any recycling process (Setiawan, 2021). The Bantar Gebang Integrated Waste Management Site, Bekasi, West Java is said to be the largest waste disposal site in Indonesia, even in the world. Thousands of garbage trucks from all over Jakarta are queuing up to unload their cargo every day. Having an area of more than 110 hectares which is divided into five zones, the volume of waste that enters Bantar Gebang per day reaches more than 7,000 tons. By adopting a linear system, namely collection-transport-disposal alias open-dumping, Bantar Gebang is assessed to exceed the capacity load in 2021. The height of the accumulated waste pile is more than 40 meters (Renaldi, 2020).

The latest waste management pattern should adopt a circular system, which is to maximize the economic value of waste by implementing reduce, reuse, recycle (3R). According to data from the Ministry of Environment and Forestry

(KLHK), in 2019, Indonesia only managed to reduce, reuse, and recycle (3R) 14.58% of its waste in 2019, while 34.60% was managed in traditional ways, such as being disposed of in landfills or burned, bringing the national waste management to 49.18%. In 2020, the 3R waste treatment process has increased to 16.23% and 34.60% in waste management with a total of 54.15%. Indonesia wants at least 30% of all trash to be reduced, reused, and recycled by 2025, with the remaining 70% managed traditionally (EKONID, 2021).

However, there are challenges in the recycling sector in Indonesia. According to the Secretary General of Indonesian Platsics Recyclers (IPR) Wilson Pandhika, limited investment in technology for recycling is still an obstacle. In addition, because waste is not segregated from the source, the costs of sorting and managing waste are expensive, and depend on the informal sector which is less efficient. The long supply chain from waste sources to recyclers also makes transportation costs high and involves intermediaries (Syahni, 2019). Since waste collection and transportation account for between 60 and 80 percent of the costs associated with solid waste management, evaluating and improving this system will be crucial in resolving and minimizing issues with the management of municipal services (Tirkolaee et al., 2018a). Therefore, many variations of the vehicle routing problem can be used to define the problem of urban waste collection (VRP). Many common problems, including transportation, supply chain management, production planning, and communications, have been researched to be represented using VRP (Karadimas et al., 2007; Mirmohammadi et al., 2017; Tirkolaee et al., 2017). Waste management system requires reverse logistics activities to collect and dispose of wastes. Reverse logistics is the process of planning, implementing, and controlling the efficient flow of raw materials, process inventory, and final products at the lowest possible cost then involves the movement of data from a point of consumption to a point of origin in order to recapture value or dispose of it properly. (Rogers & Tibben-Lembke, 1999).

One of the zero waste management companies operating in the Jadetabek area is Rekosistem by PT Khazanah Hijau Indonesia. They implement a reverse supply chain in collecting and disposing of waste, especially in urban areas, before it is finally collected and reprocessed. Municipal solid waste collection is one of the most expensive operations, with numerous practical challenges. To put it another way, waste collection and disposal is a costly task due to high running costs (fuel, maintenance, recycling, personnel, and so on) that are unusually high in their operating expenses. (Brandao, 2021). However, there are limited studies of the urban waste collection routes in the application of a reverse logistics system carried out in Indonesia. Hence, this paper aims to determine the routing of waste collector vehicles at Rekosistem by applying the shortest-route problem of the network flow model. The result of the study provides insights on the implementation of reverse supply chain for wastes management and help the company to have a more efficient operations.

II. LITERATURE REVIEW

A. Sustainable Supply Chain

Sustainable supply chain (SSC) practices have been defined in a variety of ways in the literature; for example, according to Pagell and Wu (2009), certain supply chain management activities strive to make the chain really sustainable. Many other authors, on the other hand, consider SSC to be supply chain management, which focuses on preserving stability in terms of environmental, economic, and social activities in order to achieve long-term sustainable growth (Ahi & Searcy, 2013; Ciccullo et al., 2018; Fahimnia et al., 2018). al., 2015; Seuring & Müller, 2008).

SSC practice can provide a larger viewpoint, incorporating the need to research social, environmental, and economic values (Kähkönen et al., 2018). According to Giunipero et al. (2012), integrating such principles aids firms in achieving their overall objectives in a sustainable and lucrative manner. As a result, focusing on SSC practices is a good place to start when it comes to attaining corporate sustainability.

B. Reverse Logistics

Reverse logistics is defined as a branch of research that focuses on recovering goods that are no longer wanted (end-of-use products, EoU) or can no longer be used (end-of-life products) by customers in order to extract economic value. (Rubio & Parra, 2014).

According to De Britto & Dekker (2004), there are several reasons for implementing a reverse logistics system, namely (a) Economics: direct reasons (reduction in raw material use, disposal costs, and production of added value for end-use products) and indirect reasons (demonstrations of environmentally responsible behavior, increased

relationship customers), (b) Legal: companies are responsible for the proper recovery or disposal of trash generated by the items they manufacture or distribute in many jurisdictions (for example, within the European Union), (c) Social: rising public awareness of the need of environmental protection has resulted in increased demands for ecologically responsible business practices, particularly in terms of carbon emissions and trash generation.

The research group of the European Working Group, REVLOG, defines reverse logistics as 'the process of planning, implementing and controlling the backward flow of raw materials, work-in-process, packaging and finished goods, from the point of manufacture, distribution or use, to the point of recovery or point of disposal (De Britto & Dekker, 2004).

A reverse logistics network's successful deployment necessitates numerous decisions at various hierarchical levels: strategic, tactical, and operational. RL networks are classified according to the recovery options provided to EoU products: 1) direct use and resale, 2) repair, remanufacture, repair, cannibalization and recycling, and 3) disposal (Thierry et al, 1995)

Reverse logistics network configuration is a complex problem that requires determining the optimal location and capacity of collection centers, sorting centers, remanufacturing facilities and/or recycling plants (Alumur et al, 2012). The design of the RL network is based on three basic activities (Aras et al, 2010): (1) collection of EoU products, (2) inspection and classification, (3) recovery process.

Reverse logistics is the best technique for achieving long-term solid waste management (SSWM). However, it is necessary to identify the characteristics of the context to confirm the relationship between reverse logistics and SSWM and to propose strategies directed at the integral benefits of SMEs and the environment (Khalili-Damghani et al., 2015).

C. Vehicle Routing Problem (VRP)

Vehicle Routing Problem (VRP) is the general name for a method used to solve the problem of determining the route traversed by a fleet of vehicles from one or several origin points to serve a geographically dispersed set of customers (Diaz, 2002).

Waste management is currently gaining popularity. The management of hazardous waste demands increased attention due to the significant risks to human health and the impact on the environment. VRPTW (vehicle routing problem with time windows) is a frequent VRP problem with limited capacity in which each client must be supplied at specific intervals of time (this interval is known as time window) (Tirkolee et al., 2017).

VRPTW and municipal waste collection were investigated by Buhrkal et al. (2012). They're attempting to determine the best method for calculating the optimal route cost for carrying waste collecting vehicles from their starting point at the base to their final destination at the dump.

One of the methods that can be used to solve vehicle routing problem is the shortest route problem of the network flow model, which is used to determine the path that has the shortest distance between the origin and several destination points. The steps for the shortest route solution method are as follows (Taylor, 2019): (1) Select the node that has the shortest route to the origin; (2) the route connecting the originating step with the node selected in the first step is set as the permanent set; (3) set all nodes that are directly connected to the node in the permanent set; (4) determine the node that has the shortest route from a number of nodes that have been directly connected to the permanent set of nodes; (5) repeat steps 3 and 4 until all permanent sets connect all nodes. The shortest route problem was chosen as the method used for problem analysis because the constraints in the shortest route problem are taken into account the direction of the truck's entry and exit routes so that it can be determined where the starting and ending points of the vehicle journey are. So this method is more suitable than other methods in network flow models. Rather than the minimal spanning tree problem, although it can connect all points in the network, this method has one drawback so it cannot be used in this study. At least the spanning tree problem has no direction so that if we use this method we cannot determine the direction of entering and leaving the vehicle truck.

III. RESEARCH METHODOLOGY

This research has a research framework, which is depicted in Figure 1. This study aims to determine the optimal route in the operational activities of waste collection in Rekosistem. For this, it is necessary to review the literature to

study the scientific concepts that will be used to achieve the objectives of the research. After determining the appropriate method, the model is formulated. The waste collection route will be determined using the shortest route method. Location data is needed to be used as a node and the road that will be traversed by the truck to be used as a branch. By applying the data to the formulated model, the solution will be found by finding the shortest distance between the customer nodes and the central node. The customer nodes are then sorted from the shortest route in multi-trips, so that the garbage collection sequence is obtained.
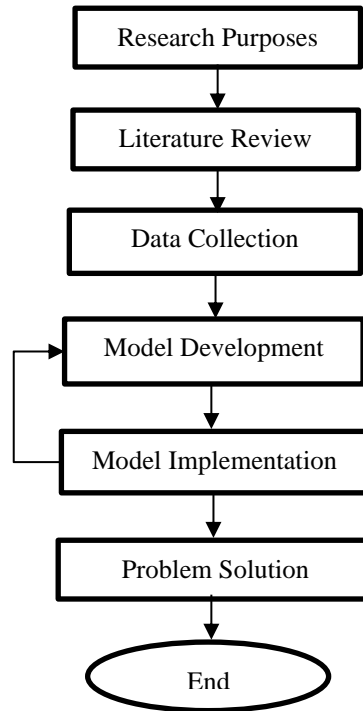

Fig. 1.Research Framework

A. Data Collection

Rekosistem is an end-to-end zero waste management Start-Up company that strives for a sustainable ecosystem. In running its business, Rekosistem has its head office located at Jl. Pondok Jaya III No. 8B Pela Mampang, Mampang Prapatan, South Jakarta 12720. Waste collection activities are carried out using the central office as a depot point as the starting and ending point for collection. The waste collection fleet is divided into 4 service areas spread across Jakarta, Tangerang and Bekasi areas. Each fleet is required to complete waste collection according to the customer's request schedule and to avoid delays in garbage collection which can result in additional fleets to complete deliveries and customer dissatisfaction.

In this study, the population data used is the collection of House Repickup garbage by one of the trucks owned by Rekosistem which operates in South Jakarta and South Tangerang. The form of the data is in the form of the address of the customer who is the target for picking up the waste, currently used route and duration of the waste collection trip. Data validation used is type checking. This method is a way of data validation where the researcher will confirm that there is the correct data type and can be entered. in this case the type of data entered is address data which must state the name of the street, the name of the city, and the postal code

B. Research Model

The method used in this research is to use the shortest route problem. In this study, computers were used to formulate the shortest route modeling solution using the Excel Solver program.

Solving the shortest route problem with Excel These can be achieved by rewriting and solving the shortest route network problem as a 0-1 integer linear programming problem. We define the decision variables for each branch in the network to construct a linear programming model, as follows:

x_{ij} = 0 if branch i-j is not selected as part of the shortest route and 1 if branch i-j is selected (1)

Here, it is assumed that there are 7 nodes which are named nodes 1 to 7 which have 11 branches that connect nodes. We assume that commodities can only be transported from a lower node number to a higher node number to limit the complexity and size of the model formulation (eg, 3 to 4 but not from 4 to 3). The number of variables and branches to examine is considerably reduced as a result. By minimizing the multiplication of each branch value and the distance traveled for each branch, the objective function is formed:

Minimize Z = $z_{12}x_{12} + z_{13}x_{13} + z_{14}x_{14} + z_{24}x_{24} + z_{25}x_{25} + z_{34}x_{34} + z_{36}x_{36} + z_{45}x_{45} + z_{46}x_{46} + z_{47}x_{47} + z_{57}x_{57} + z_{67}x_6$ (2)

Where: Z = total distance

x_{ij} = {0,1}, indicating if branch from location i to location j is chosen

z_{ij} = branch distance from location i to location j

Each node has a constraint that states that whatever enters the node must also depart the node. This indicates that one truck departs from node 1 via branch 1-2, branch 1-3, or branch 1-4. The following is the constraint for node 1:

$$x_{12} + x_{13} + x_{14} = 1$$ (3)

Trucks will pass through node 2 from branch 1-2 to the following branch, such as branch 2-4 or 2-5, as seen below.

$$x_{12} = x_{24} + x_{25}$$ (4)

Constraints on the next node will be built like the example above and produce a complete linear programming model. After then, using "Solver" in Excel, the specified model can be solved in the same way as other linear programming problems (Taylor, 2019).

IV. RESULT / FINDING

A. Data Processing

To determine the optimal waste collection route using the shortest route method, it is necessary to process the data obtained from the company which was originally in the form of an address table into a network that provides location and distance information between locations. The work was carried out with the help of the MyMaps application to visualize the depot location points and stopping points for waste collection. From 1 depot and 37 stopping points, the results of the visualization of waste collection points are as follows.
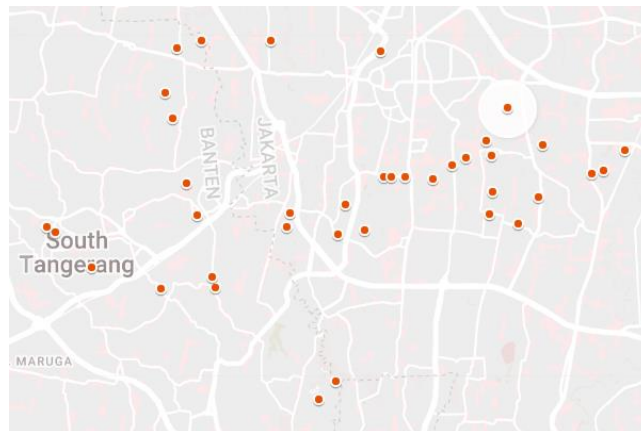

Fig. 2.Waste Collection Point

From the 37 stopping points above, according to the data we obtained from the Rekosistem, the route is determined in the following order. The route reaches a total distance of 106 km.
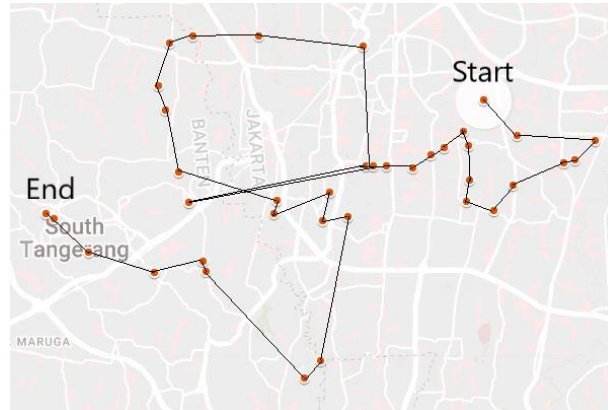

Fig. 3 Waste Collection Route

From the location of the 38 nodes above, it can be seen that there are many nodes that are located close to each other and are in the same path so that in the network creation process, simplification is carried out where each branch will go through several nodes that are in a straight line and will stops at the node which is the intersection between two separate nodes before finally forming a new branch by providing the value of the branch that passes through many stopping points obtained by adding up the total distance between the nodes traversed in the branch. As the explanation in the literature explains that nodes represent intersection points, for example, the intersection of several roads (Taylor, 2019). With this simplification, a network is formed as follows.
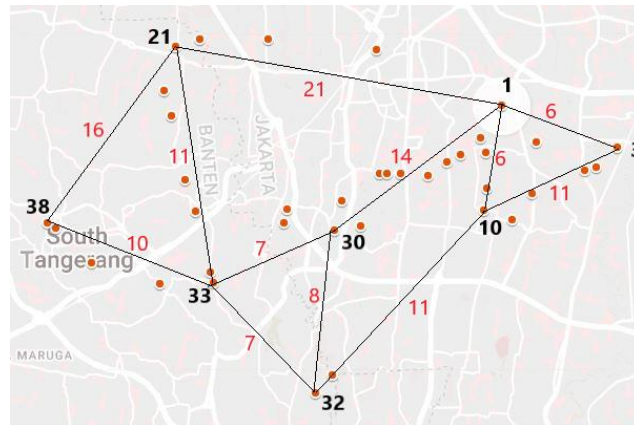
Fig. 4 Network Simplification

From the picture above, the black number shows the name of the point that is used as a node and the red number shows the distance that must be traversed from one node to another in km unit.

B. Modelling and Solution

Modelling in an Excel spreadsheet can be done by determining the decision variables for each branch in the network. Where the value of the decision variable is 0 if the branch is not selected as the shortest route and 1 if the branch is selected as the shortest route.

Table 1. Network Formulation For Shortest Route Calculation

Selected Branch	Node (Start)	Node (Goal)	Distance (km)
1	1	3	6
0	1	10	6
0	1	21	21
0	1	30	14
1	3	10	11
1	10	32	11
0	21	33	11
0	21	38	16
0	30	32	8
0	30	33	7
1	32	33	7
1	33	38	10
Total Distance			45

In addition, each node has a constraint indicating that every truck arriving at that node must exit. For example, a truck leaving node 1 must exit via branch 1-3, branch 1-10, branch 1-21, or branch 1-30. Constraints on each node are formulated as follows:

$$\text{Node 1: } x_{1\text{-}3} + x_{1\text{-}10} + x_{1\text{-}21} + x_{1\text{-}30} = 1 \qquad (5)$$

$$\text{Node 3: } x_{1\text{-}3} - x_{3\text{-}10} = 0 \qquad (6)$$

$$\text{Node 10: } x_{1\text{-}3} + x_{3\text{-}10} - x_{10\text{-}32} = 0 \qquad (7)$$

$$\text{Node 21: } x_{1\text{-}21} - x_{21\text{-}33} - x_{21\text{-}38} = 0 \qquad (8)$$

$$\text{Node 30: } x_{1\text{-}30} - x_{30\text{-}32} - x_{30\text{-}33} = 0 \qquad (9)$$

$$\text{Node 32: } x_{10\text{-}32} + x_{30\text{-}32} - x_{32\text{-}33} = 0 \qquad (10)$$

$$\text{Node 33: } x_{21\text{-}33} + x_{30\text{-}33} + x_{32\text{-}33} - x_{33\text{-}38} = 0 \qquad (11)$$

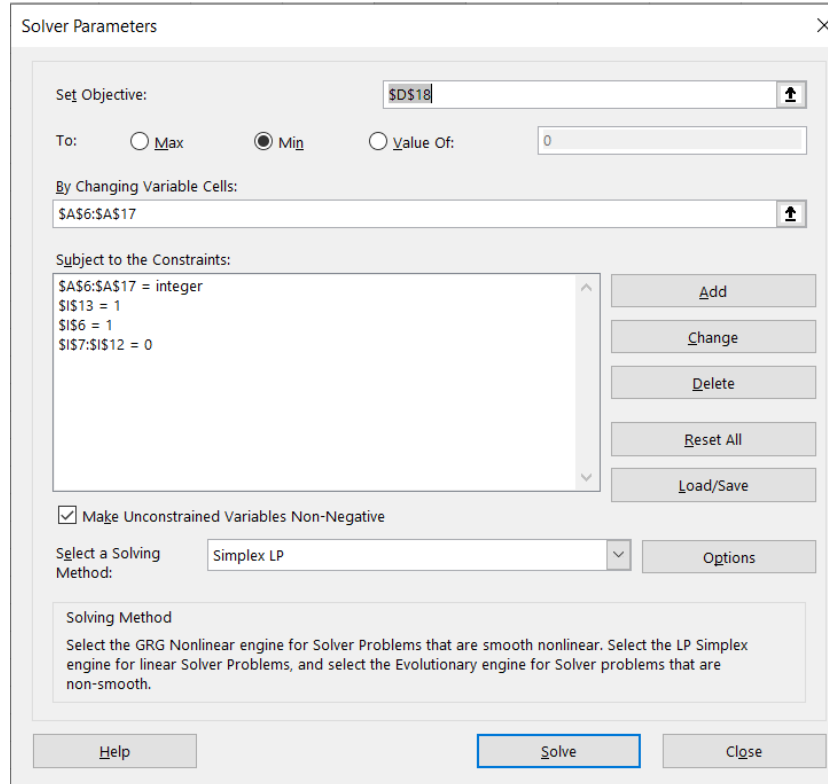$$\text{Node 38: } x_{21\text{-}38} + x_{33\text{-}38} = 1 \qquad (12)$$

Fig. 5 Excel Solver Constraint

V. DISCUSSION

The calculation results from Excel Solver show that cells A6, A10, A11, A16, A17 have a value of 1, so it is indicated that branch 1-3-10-32-33-38 is the shortest route with a total distance of 45 km. To be able to go through all nodes, then to go through points 21-33 and 30 with the shortest distance is through branches 1-21-33 and 1-30-33 so that the total distance traveled is 45 + 32 + 21 = 98 km.

When compared with the initial route of waste collection which was carried out to cover all customer home addresses which reached 91 km, then by using the Shortest Route method the company could shorten the journey by 7,55%. With the use of the 190 PS Engkel Truck as a garbage truck carried out by the ecosystem, according to the fuel ratio reference (Antonius, 2020) this type of truck has a fuel ratio of 1 liter of diesel and can cover a distance of 3.5 km. With the price of diesel in Jakarta which reaches Rp. 12,950 in 2022 (Pertamina, 2022). So the company can save IDR 28,571.43 in one trip or IDR 857,142.85 in 30 trips from fuel costs.

Calculations using the excel solver with the address data obtained still have limitations in terms of travel time because the distance traveled is not necessarily directly proportional to the distance traveled. In addition, this research still has limitations in terms of direct implementation in the field which has many factors of uncertainty.

VI. CONCLUSION AND RECOMMENDATION

Urban waste collection is a high-cost activity with a small revenue margin, so small improvements and improvements in optimizing collection routes can result in tremendous reductions in operating expenses. In this study, determining the route of waste collection using the shortest route method with the help of an excel solver in terms of

route calculation is proposed to overcome the selection of the optimal route for waste collection because it can shorten the travel distance by 7,55% and save on travel fuel costs by IDR 857,142.85 in 30 trips.

Based on the results showed that the use of the shortest route method was able to shorten the distance traveled by 7.55%. Therefore, it is necessary to conduct a review to be taken into consideration to provide direction to the waste collection team to study the new route. So that the company can immediately feel the advantages and disadvantages in choosing the proposed route so that the company can improve and develop it.

For further research, it is recommended to add the parameters of the collection travel time or to examine the operational process of the collection as a whole, not only in the logistics and transportation section. It would be better if the proposed waste collection system is also integrated with other systems, such as the capacity of transport trucks, vehicle fuel costs, waste collection systems on site, monitoring and control of travel routes which will further help the company to optimize the collection process. trash done. It can also increase the use of other VRP methods or by using a programming language that is better than the current one.

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Penetration of Fish Meals via Food Delivery Applications: The Influence on the Intention to Cook Fish at Home

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Abstract

This study explores consumer behavior regarding out-of-home fish consumption, using occasion-based as a segmentation approach. This study also seeks to determine the relationship between the experience of eating fish meals outside the home and the adoption of fish consumption at home, as well as how the perceptions differ between whole-fish products and processed fish. Indonesia's fish consumption per capita is one of the highest in the world. However, if we examine this situation further, we see that most of this consumption is at the industrial level, while at the household level, fish consumption is not as high as consumption levels for other protein sources. The existence of a food delivery application makes it easier for consumers to buy fish meals outside the home. Identifying the factors related to fish consumption outside the home is necessary to determine the influence of food delivery applications on fish consumption at home. Many studies have discussed consumer behavior regarding food delivery applications (FDAs), but few have explicitly discussed fish meals. Furthermore, research on food-away-from-home has not contrasted FDA, dine-in, and take-away options. Another important goal is to determine the extent to which eating fish outside the home, both whole and processed fish, influences the intention to cook fish at home.: This study adopted a qualitative method to explore occasion-based segmentation issues in out-of-home consumption via FDA. The data collection techniques consist of netnography and a series of in-depth interviews in three large cities. This study found that, although consumption of fish in the home has increased, this is only true for processed-fish products, not whole-fish consumption. This study also found four segmentation types in terms of fish consumption outside the home. It is necessary to increase whole-fish consumption because eating the whole fish is a healthier option for children's growth, and it is closer to the experience at home in the context of 'eating fish.'

Keywords— Food-away-from-home, Food-delivery application (FDA), fish meal, fish consumption

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I. INTRODUCTION

The statistics show that, even though fish is a familiar product for Indonesian consumers, for daily consumption at the household level, fish is still not the primary choice for families. Although fish consumption in Indonesia has begun to increase, most such consumption still industrial (58%). In comparison, household consumption represents only 33% of total consumption, while restaurants and services represent 9% of total consumption (Statistic Indonesia, 2019).

The development of types of businesses that provide services for purchasing ready-to-eat food online has led to increased food consumption outside the home in Indonesia. There has been a significant increase in fish consumption outside the home; from 2017, when consumption was 16.7 kg per capita, to 2019, consumption doubled to 36.5 kg per capita (Statistic Indonesia, 2019). However, this increase in out-of-home consumption was not followed by a significant increase in home fish consumption, which only increased by 1.5 kg per capita, from 15.7 kg per capita in 2017 to 17.3 kg per capita in 2019.

Increasing in-home fish consumption is important because the results of the study by Maulana et al. (2019) show that the experience of eating fish at home from a young age is a factor that has a significant influence on a person's willingness to eat fish as an adult. So that efforts to increase in-home fish consumption are not only efforts to increase consumption levels at this time but also for the future.

Consumers can distinguish between different forms of fish on the market, most importantly between whole and processed fish (Goossens et al., 2020, Agustini & Swastawati, 2003). Whole fish is original fish that has not undergone any processing or alteration, while processed fish has undergone some action or processing to provide added value. Moreover, whole fish involves no cuts, and in fish fillets, some part of the fish has been removed and cut off. Fish fillets are widely used in processed fish.

In a previous study, Maulana et al. (2019) found that fish have more complex consumption barriers than other protein sources, such as meat and eggs. This study indicated a tier-based adoption barrier. Furthermore, empirical studies in the area of fish consumption still focus on demographic variables, such as socio-economic class (Nicolae et al., 2016), ethnicity, marital status (Tan et al., 2015), type of occupation, income (Trondsen et al., 2003), age, education level, and gender to investigate the adoption of food delivery service applications (Keeble et al., 2020; Dominici et al., 2021).

In the previous literature, the discussion of food consumption can occurred in terms of the location where the food is consumed, that is, food at home (FAH) or food away from home (FAFH) (Richards & Mancino, 2013; Saksena et al., 2018). Furthermore, Maulana et al. (2021) suggest two essential variables to distinguish between various fish consumption situations, namely cooking point and consumption point. These two variables remind us that fish consumption is not only a question of the location the food is consumed but also where it is cooked. In home and away from home are still used as location settings, but they must be linked to one another to provide context. It is also necessary to consider the purchasing channel or point of purchase, including whether these are online or offline/physically located at the food outlet.

This study focused on fish consumption prepared away-from-home (PA) and enjoyed at home (EH), abbreviated PA-EH. In this PA-EH consumption type, there are two ways of ordering food. The first is the purchase of take-away or eat-out fish dishes, which consumers must collect physically from the food outlet. The second type is purchasing fish dishes through mobile apps. Consumers interact with food outlets using food delivery apps, or food delivery app (FDA) services. The present study addresses the need to understand and elaborate on the complexities of fish consumption adoption barriers in the PA-EH category, particularly those involving the FDA channel. Technological developments have given rise to the FDA service, in which consumers do not need to cook own their food and enjoy it at home. With the broader penetration of information technology, consumers have come to rely heavily on digitalization in every aspect of their lives, including purchasing a meal.

Past research has examined many factors that influence fish consumption from various perspectives. These factors include time-saving orientation, information quality, design, convenience, the online purchase experience, and the ease of ordering food from users' favorite restaurants (e.g., Allah Pitcay et al., 2021; Kang and Namkung, 2019 Gunden et al., 2020, Cho et al., 2019).

The accumulated findings are comprehensive and offer deep insights into various aspects of FDA usage and adoption. However, a review of this literature reveals that specific research gaps persist. Many studies have discussed consumer behavior regarding food delivery applications (FDAs), but few have explicitly discussed fish meals. Furthermore, research on food-away-from-home has not contrasted FDA, dine-in, and take-away options. The mapping of issues regarding this type of consumption is essential because this FDA channel represents a fast-growing segment of the PA-EH sector, which is already considered a key distribution channel for fish consumption in society. Even more critically, FDAs have become a prominent way of ordering food during the COVID-19 pandemic.

The research questions in this study include the following: what distinguishes consumer behavior in terms of choosing fish menus for purchases outside the home, especially in terms of occasion-based segmentation? To what extent does eating fish outside the home, especially via the FDA channel, influence the intention to cook fish at home. Is there a difference between consuming whole and processed fish (fillets) outside the home in terms of their effects on the motivation to prepare fish at home?

II. LITERATURE REVIEW

Factors affecting the decision-making process in purchase behavior

A previous study by Maulana et al. (2019) regarding the adoption of barriers to in-home consumption explains two individual factors in purchase behavior, cooking skills and childhood fish experience, and one situational factor, the

point of the customer journey. This study created an interactive consumer typology that combines these three factors to contextually explain what obstacles are faced regarding fish consumption. In this way, the design of educational programs can be made compelling. For example, a housewife who used to eat fish as a child and has no cooking skills has resistance to processing various fish dishes. Mothers and their families often provide fish on the daily menu to provide easy recipes using fish in the form of fillets.

There are three main types of factors related to PA-EH type: individual, situational, and social. Individual factors include the characteristics of the actors involved in the consumer adoption process. Situational factors are all those factors particular to a time and place of observation that do not follow from a knowledge of personal (intra-individual) or stimulus (choice alternative) attributes (Ali et al., (2021). Situational factors have long been discussed in the decision-making process by Belk (1975). They consist of physical surroundings, social surroundings, temporal perspectives, task definitions, and antecedent states. Social factors involve cultural issues and the influence of others.

Previous studies have discussed many barriers to the consumption of food delivered via this FDA channel, as summarised in Table 1, in which they are divided by type of stakeholder. Problems are described related to threee main stakeholders, namely (1) individual ordering and food connoisseurs at home, (2) FDA application companies, and (3) dining outlets that prepare ordered fish meals. For example, in general, barriers to ordering food via the FDA have been discussed related to individual factors, including socio-demographic factors, digital literacy, social influence, technological insights, environmental issues, insecurity, discomfort, time-saving, price orientation, and a reduction in waiting time (Allah Pitcay et al., 2021; Ali et al., 2021; Dominici et al., 2021; Keeble et al., 2020; Ray et al., 2019; Supartini et al., 2018). However, researchers have not investigated barriers to food ordering specifically for fish meals.

In the literature, the barriers to and complaints against FDAs related to performance have been widely discussed (see Table 1). As with individual factors, the discussion only focuses on ordering food in general, not on fish meal ordering issues. Past studies have found that the inhibiting factors for the FDA channel include the assumption that the fee for this channel is expensive; the idea that navigation is not easy/not easy to use; and concerns related to incomplete information, delivery experience, quality control, product availability, and convenience (Gunden et al., 2020; Pal et al., 2021; Ray et al., 2019; Verma., 2020). Specific studies on the adoption of ordering and consuming fish meals via FDAs are still limited in the literature. Therefore, the current study explores the inhibiting factors that specifically discuss the adoption barrier to fish meal FDA ordering and consumption/enjoyment.

Table 1. Research studies on food consumption via FDA's channel

Barrier types	Research method	Country	Authors
FDA-channel-related factors			
Perceptions regarding expensive fees and FDA information not being detailed enough	Online Survey – 256 respondents	Malaysia	Allah Pitcay et al. (2021)
Issues regarding ease-of-use, usability, convenience factors, and bad prior delivery experience	Mixed method: open-ended essays (125) and an online survey (395)	India	Ray et al. (2019)
Individual factors			
Insecurity and discomfort with technology	Online survey – 439 respondents	Pakistan	Ali et al. (2020)
Lack of knowledge about how to use FDAs properly	Online survey – 440 respondents	India	Sharma et al. (2021)
Socio-demographics: age, gender, education,	Survey – 18,504	Italy	Dominici et al.

and digital literacy	Households		(2021)
Demographics: age, gender, and education	Online survey – 22,824 respondents	Australia, UK, Canada, Mexico, USA	Keeble et al. (2020)
Environmentally unfriendly packaging	Survey – 1,200 respondents	UK and Singapore	Supartini et al. (2018)
Outlet related factors			
Visual and navigation issues	Survey – 315 responden	India	Pal et al. (2021)
Visual issues and calorie information for the menu not being stated	Survey – 173 respondents	US	Gunden at al. (2020)

Integrative Typology of Fish Consumption

Maulana (2021) proposed an integrative fish consumption typology by using occasion-based segmentation to replace the dichotomy of in-home versus out-of-home consumption. The benefit of having this new integrative typology is that it improves the effectiveness of the social behavior change communication (SBCC) community education program. This SBCC framework suggested targeting the community with homogeneous problems to better internalise education messages. This conceptual study suggests adding two important variable, which is preparing food at home and the location where the food is enjoyed. Because the barriers to fish consumption are broad and complex, each consumption context has its own adoption problems.

Maulana et al. (2021) introduced a new integrative typology in which it is not only the location of consumption or enjoyment that is important but also the point of preparation. In this typology, two variables are combined in a matrix: the preparing/cooking point (P) and the enjoying/consumption point (E), which is either at-home (H) and away-from-home (A), as shown in Figure 1.

The new integrative typology of fish consumption will be helpful for anyone considering solving problems related to adoption barriers in specific communities. This research uses this typology, focusing on type 3, namely PA-EH. With an integrative typology of fish consumption, mapping adoption barrier issues becomes more relevant and contextual. Knowing each consumption type barrier will help in designing a more relevant and contextual community education SBCC program. Furthermore, the effectiveness of such a program would be measurable.

Enjoying point

		At-home	Away from home
Preparing Point	At-home	**Type 1** Preparing and enjoying at home (PH-EH)	**Type 2** Preparing at home but enjoying away from home (PH-EA)

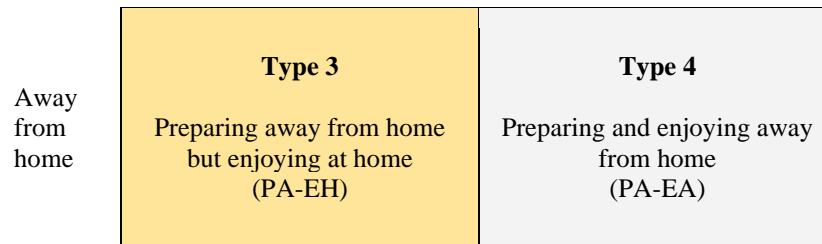|	Type 3	Type 4
Away from home	**Type 3** Preparing away from home but enjoying at home (PA-EH)	**Type 4** Preparing and enjoying away from home (PA-EA)

Fig. 1. Typology of fish consumption behavior based on preparing and enjoying point (Maulana et al., 2021)

Consumer behavior in the PA-EH consumption type

This paper will specifically discuss the barriers to adopting fish consumption in PA-EH type 3, when fish is prepared away from home but enjoyed at home. Especially for this type of PA-EH, this paper also considers the purchase channel for offline (directly at food outlets) and online purchases through FDAs. There are two types of consumer behavior in this type of PA-EH. The first is the takeaway purchase of fish meals, in which consumers are directly at the outlet and buy fish dishes in a ready-to-eat form and then take them home to consume. In the second, the food is prepared by a dining outlet promoted via the FDA, selected for delivery, and enjoyed at home.

Few studies discuss the adoption barriers to this type of PA-EH consumption. Ramlawati et al. (2019), in their study of 'cultural behavior of feeding migration', found that one of the barriers to eating fish outside the home is accessibility. Currently, the interaction of individuals with online systems is increasing, which will help overcome this accessibility issue.

III. RESEARCH METHODOLOGY

Data Collection

This study adopts a qualitative approach because it aims to explore the buying behavior of consumers buying fish menus outside the home via the FDA channel, which is still scarcely explored in the literature. Data collection in the field begins with conducting netnographic studies. According to Kozinets (2020), netnography is a further observation activity on various interactions that occur in the online space, specifically via an online community or forum. Researchers conducted a netnography by tracing (1) conversations about opinions regarding the experience of buying fish-based food at restaurants for pick-up orders or buying via FDA channels on social media, such as Twitter, Facebook, and Instagram; (2) discussions in the online community forums that allude to various experiences and problems in fish consumption for the segment in question; and (3) various online platforms to obtain an initial picture of the diversity of merchants who sell fish menus with various attributes. This will be done to understand the current consumer experience with ordering online. The selection of different techniques for use in this study was intended to ensure the triangulation of the data, increasing the credibility of the findings (Brewer & Hunter, 1989).

After gaining insights from the netnography, the researcher also conducted in-depth interviews with 30 informants from across three large cities in Indonesia with high fish consumption, namely Jakarta (ten informants), Bandung (ten informants), and Surabaya (ten informants). The informants were selected based on the following criteria: they were housewives who have children; were accustomed to cooking; and were accustomed to buying fish food meals through either dine-in, take away, or using the FDA channel.

Informants were obtained using the convenience method, followed by the snowball technique, wherein the informants who had been interviewed were asked again whether they had acquaintances with characteristics that were in accordance with this study. Interview were conducted in a semi-structured fashion and conducted online through the Zoom platform.

Data Analysis

The data were analyzed using the grounded theory approach (Strauss & Corbin, 1998). All interview recordings and screenshots of conversations on social media were transcribed in text form. The transcription data are used as material for analysis using the coding method (Creswell & Poth, 2018). Data coding was conducted to explore the theme of obstacles to adopting fish cooking and enjoying away from home, based on the research question. Repeated coding was carried out in three stages, namely open coding, axial coding, and selective coding so that the research data can be relied upon. In the open coding stage, the researcher revealed a multi-dimensional theme (Strauss & Corbin, 1998; Carpenter, 1999). Then, each theme, was transformed into a broader sub-category of themes in a multi-step fashion through the axial coding process (Strauss & Corbin, 1998). After that, the researchers triangulated the data via a selective process to obtain valid and reliable insights (Patton, 1999; Charmaz, 2000).

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IV. FINDINGS

Research findings and analysis are compiled to answer the research questions. This section will begin by discussing the behavior related to consuming fish through the FDA channel, as well as the barriers encountered. Then, the discussion will continue with an explanation of how the relationship between the experience of consuming fish through the FDA channel and the increased desire to provide fish as a meal at home will be discussed.

Consumption behavior of whole fish dan processed fish products

Currently, consuming fish is easy; the form of fish is making cooking simpler, for example, the availability of fish fillets that can be eaten directly by consumers. The benefits of eating fish are well known, but on the other hand, some groups, particularly children, do not understand the shape of whole fish in general.

Thus far, consumers can obtain information about the shape of whole fish that have not been cooked, and examples of whole-fish dishes can be seen in pictures or videos. However, this is still incomplete knowledge because consumers, especially children, have not had the experience of eating a whole fish.

"My kids don't know what a whole fish looks like. I feel too lazy to cook it. When I buy fish, I prefer to choose fish that has a simple appearance, for example, fish fillets. My kids eat fish in the processed form" (In-Depth interview-DE, Jakarta).

"Since I was born, I have lived in Cirebon, so I am very used to eating whole fish. Even when I moved to another city, I carried on this habit, and the experience was very different when I was eating the whole fish. I felt like I was eating fish for real." (In-Depth interview- IN, Surabaya)

In addition to their different tastes, the experiences of eating fish fillets and eating whole fish are very different. For consumer groups living in coastal areas, the experience of eating whole fish has become a habit, so they are familiar with all of whole fish's organoleptic characteristics, such as taste, texture, and smell. Children in urban areas feel they have eaten fish only via eating fish fillets. However, this statement may not be accepted by children living in coastal areas. For coastal children, eating fish means eating the whole fish.

"I think the taste can also differentiate, it is more delicious to consume whole fish, s the taste is sweeter. The taste of fish fillet is also delicious, but it's not like eating fish" (In-Depth interview- VI, Bandung)

"I don't think fillets are fish, I think fillets are just pieces of fish. It feels strange to eat fish, but there are no spines, skin, or heads. As far as I know a lot of vitamins are also from the eyes, skin, or other parts" (In Depth interview-SA, Jakarta)

For groups on the coast, eating fish is common. Providing fish at home is a habit; it would be strange if no fish were on the dinner table. Fish has never been replaced in terms of its role as the primary source of protein at home. However, the fish menu will usually also be supplemented with other protein dishes, such as eggs and chicken.

"Because they are used to eating fish, some of my friends who live in coastal areas are used to providing fish menus at home; they are used to using fish as their main protein source." (In-Depth interview- LI, Jakarta)

Situational factors that influence the decision to consume fish out of home

Based on the results of the research, there are several things that influence consumers in determining the choice of fish meals at PA-EH, namely time and what experience they want. Time is one of the most important factors in determining PA-EH fish choices. Consumers have little time to cook fish at home, making them increasingly likely to engage in PA-EH activities. The many choices of outlets to buy ready-to-eat meals from make it easy for such consumers to prepare family meals.

"I find it easy when buying fish menus at street vendors because they provide many menu choices; the taste is also delicious and varied" (In-Depth interview- NI, Bandung)

Consumers have a different buying experience when buying fish meals through FDA channels. Based on the in-depth interviews. Usually, consumers make purchases during peak hours, when they do not have time to cook at home but still want to be able to enjoy fish. Consumers find this approach practical and economical. One interesting finding is that, during each stage of the buying process, consumers have many variables to consider, such as whether to choose the FDA channel, which offers processed fish meals delivered to one's home for consumption.

First, they will interact with the FDA channel with several considerations, for example, choosing a channel that provides more promos, is user-friendly, or is familiar to them. After that, consumers will decide which fish meal to buy first, the restaurant to buy it from, or how to cook the fish, for example, grilled, fried, or steamed. Instead of factoring in the tastes of the moment, based on the results obtained from the diaries, decisions are made based on on the roles of family members when ordering online. Most purchasers are mothers, fathers are only influencers, and children are deciders and influencers. When choosing a restaurant and fish meal, the ratings of FDA channels are important.

Difficulties arise when consumers become confused regarding the available fish meals because they are exposed to too much information about meal and restaurant choices. Although they are considered practical and economical, consumers generally require a long time to scroll through FDA channels. In addition, when the fish meal does not meet expectations, in addition to complaints, there is also a desire to make the meal by oneself at home. This is because Mom feels she can make better food than what she ordered. This is also in line with the NN informant from Bandung, who said that her family ultimately wanted to make their own food at home when the food they ordered did not meet expectations. This is also in line with the CK informant from Jakarta, who told of his experience when he wanted to order fish via FDA channels; he often felt confused and scrolled for quite a while.

"One of the advantages of buying wrapped fish menus is that you can get inspiration for the fish meal at that time because you can immediately see the available meals" (In Depth interview - FF, Jakarta)

"I need more time just scrolling because I feel confused about choosing the meal. Purchasing online actually has more meal variations, and I am tempted by the visual menus" (In Depth interview-CK, Jakarta)

Food Delivery Application (FDA) Experiences

The results of this study found that, with the development of the FDA, it is becoming easier for consumers to access fish meals, making them consume fish meals more often than before. Two things affect this; firstly, fish meals are one type of meal that requires a higher level of cooking skill than meals with other food ingredients, such as chicken. This becomes an obstacle for some consumer segments who do not have sufficient cooking skills. This

finding is also mentioned in Maulana et al. (2019) as complicating household fish consumption. However, it is easy to buy ready-made fish meals; thus, fish meals are still included on the menus of housewives who cannot cook.

The second factor that makes fish consumption in households increase with the existence of the FDA channel is the availability of fish meals on the menu. When consumers are in an Urgent Order and Fast Enjoyment (UO-FE) situation, a fish meal can be an option because restaurants provide a choice of fish meals that can still be enjoyed even though consumers have little time to enjoy them. In addition, the fish meals provided by restaurants are typically easy to eat.

"I am a mother who really can't cook, so I rarely eat fish, because it's complicated. But now I often eat fish because it's easy. You can just order online" (In-depth interview -TN, Surabaya).

This study also found that, with increasing consumer awareness of existing fish menus, consumers also attempted to cook the meals that they had tried. This shows that fish consumption through the FDA channel can help consumers become more willing to cook fish meals at home for their family members. Even so, this study also found that this phenomenon was specific to food meals that used processed fish. In contrast, in terms of meals that used whole fish, consumers still experienced obstacles to adoption in the household.

"I used to only know fried fish, grilled fish, simpler dishes. Now, since I know online purchases through the application, click and scroll, there are many types of fish meals. There is a fish fillet meal with many variants of chili sauce; there is also fish soup" (In-Depth interview -DR, Jakarta)

This study also found that, with increasing consumer awareness of existing fish menus, consumers also attempted to cook the meals that they had tried. This shows that fish consumption through the FDA channel can help consumers become more willing to cook fish meals at home for their family members. Even so, this study also found that this phenomenon was specific to food meals that used processed fish. In contrast, in terms of meals that used whole fish, consumers still experienced obstacles to adoption in the household.

"I feel I get new knowledge from the menus in the online application. I often order the fish meal, making me want to try it at home, but I still choose meals that I don't think are complicated, for example, catfish fillets with chili." (In-Depth interview -SR, Bandung)

Meals that use whole fish tend to have higher complexity and require higher levels of cooking skill than meals that use processed fish. However, this is not an obstacle for consumers who have cooking skills and like to cook. For consumers of this type, looking for meals via the FDA is fun because it can become their reference for meals they can cook for their families.

Although this study found that consumers are becoming more aware of processed fish products, many consumers still do not have complete knowledge about processed fish products. There are still perceptions that processed fish products have less nutritional content than whole fish products because they have been processed into other product forms. This is still an obstacle for consumers in terms of buying processed fish products to cook themselves

DISCUSSION

This study's results have revealed the factors influencing consumer decisions regarding which fish meals to buy. To better understand customer behavior in buying fish menus. Below, we segment behavior based on the occasion or

situational factors, where two factors are considered: time availability and urgency of purchase. There are four types of behavior that can be identified in this way.

Consuming/Enjoying time availability

	Fast Enjoyment	*Relaxing Enjoyment*
Urgent	**Type 1** Urgent Order and Fast Enjoyment (UO-FE)	**Type 2** Urgent order and Relaxing Enjoyment (UO-RE)
Not Urgent	**Type 3** Not Urgent Order and Fast Enjoyment (NUO-FE)	**Type 4** Not Urgent Order and Relaxing Enjoyment (UO-RE)

Urgency of Purchase (Order)

Fig 2. Four situations in PA-EH segment (Derived from this study)

Type 1. Urgent Order and Fast Enjoyment (UO-FE)

The consumer group in this segment only has a limited amount of time to place an order and enjoy the fish consumed. In addition, consumers in this segment tend to realise that they do not have time to cook and then decide to place an order online. This happens to mothers who also have a dual role in terms of working. When work requires mothers to work from home while at lunch, they must meet both personal and family dining needs; mothers only have a short time ordering and enjoying the food. Mothers will have only short work breaks, so it will be best for them to consider the time between making the order and when the order arrives. This is usually done so that one does not have to wait until the work break is over, leading to there being no time for lunch.

Type 2. Urgent order and relax time to enjoy (UO-RE)

Groups in this segment tend to have free time to enjoy the fish meal that is being consumed. This condition is usually experienced by respondents who have many activities or work projects. In this type of segment, consumers enjoy a full-fish experience because they have a relaxing time.

Urgent orders relate to hacing limited time to prepare dinner but not having time to cook, and travel from work to home takes time as well. Alternatively, there may be no time to prepare a meal, because of an urgent event. Thus, the choice is made to order quickly through the FDA channel. Because the time for ordering food is limited, the selection of fish dishes must be made based on preparation time. Time constraints mean that the fish dishes must also be quick to make, but not necessarily fish fillets. Whole-fish ordering is still possible because the food can be enjoyed slowly. A relaxing time to enjoy food is common for dinner or on the weekend, when there is more free time. Cooking the whole fish can be a fun experience when the time is right.

Type 3. Not Urgent Order and Fast Enjoyment (NUO-FE)

Groups in this segment tend to have free time to think seriously about the selected fish meal when ordering and experience a short moment of enjoyment when considering the menu.

Not Urgent in ordering is related to situations in which the time for ordering lunch or dinner is still quite long. It could also be that the order has been thought out the day before so that the selection process is not too long when ordering.

Fast Enjoyment is related to having a limited time to enjoy the food served. For example, lunch time is shorter than dinner time. Even during dinner, other jobs may be waiting; for example, some children may be taking exams, or the husband may have additional office work. Another example of this situation occurs during events with the community or family, given that the event is not simply eating combined with other activities.

Type 4. Not Urgent Order and relax time to enjoy (UO-RE)

Consumers in this segment have plenty of time to consider the fish menu as an option when ordering, combined with the free time to enjoy the meal. Housewives experience this condition when they have good cooking skills but are too lazy to cook. When the holidays arrive and they want to enjoy dinner with family, consumers in this segment tend to order food through the FDA channel. Housewives, in this context, had much time to think about fish menu choices and had much time to enjoy the food because they were relaxing with their families during dinner at home. One respondents reported that he would think carefully about the fish menu to be ordered when in such a situation because he wanted to have the complete experience of eating fish, even though he was at home. In this case, respondents will consider the fish's size, type, and condition, noting that the fish must be kept warm when served at home. When the fish meal arrived at their home, respondents and their families had th free time to enjoy the fish meal. Also, on this occasion, the distance from the restaurant and the time spent waiting for orders are not considered. What families want to enjoy is the time to eat fish together, so ordering fish in its intact form becomes exciting.

VI. CONCLUSION AND RECOMMENDATION

This study confirmed the previous research highlighting the importance of extending the dichotomy of in-home versus away-from-home fish consumption. Understanding the contextual issues and finding each segment's homogeneous barrier problems is critical before offering solutions to reduce the barriers involved (Maulana, 2021). This current study focuses on one consumption segment, the prepared-away-from-home, enjoyed at home (PA-EH) segment, completing a study of the barriers to fish consumption.

This study confirms that consumer behavior in terms of buying fish meals is a complex issue, so it cannot be discussed generically. This study provides field evidence about contextual problems in order to reduce the adoption barrier; we must investigate consumer segmentation and situational factors to solve this problem.

Two occasion-based variables were found in the prepared-away-from-home, enjoye-at-home (PA-EH) consumer segment: enjoying time availability (E) and urgency of purchase (U). Enjoying time availability consists of relaxing or fast, while urgency of purchase consists of urgent and not urgent. The combination of the variables proposed by this study has not been discussed or found in previous studies. The existence of four situations, namely UO-EF, UO-ER, NUO-EF, and NUO-ER, illustrates the consumer needs that food outlets and FDA providers must consider if they want to provide the best experience to consumers. Success in creating a moment of truth in consuming fish of each type shows the fit between the needs of each occasion-based segment and its value proposition.

Furthermore, this study also found that the experience of consuming fish meals away from home did not significantly affect the consumer's desire to attempt to adopt the meal as a home-cooked food meal. The ability to cook and the perception of the complexity of cooking fish meals are the primary reasons why the out-of-home experience does not affect in-home consumption. Although meals that use processed fish are easier to adopt as part of in-home consumption, introducing whole-fish products into in-home consumption remains to be accomplished. Whole-fish products are more commonly associated with products with significant health benefits, which must be included in fish consumption campaigns.

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The Role Of Social Capital As Mediator Of Financial Literacy And Financial Inclusion On Productive Age In Purwakarta Regency

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Abstract

The main topic of this research is about financial literacy and financial inclusion on productive age community in Purwakarta Regency. Purwakarta Regency is a part of West Java Province that has more than 900,000 people on its population, and about 80,170 people are still below the poverty rate. In order to cut off poverty, the productive age community as social capital has to be utilized to spread awareness about financial literacy and financial inclusion. This study aims to determine how significant the role of social capital in mediating the relationship between financial literacy and financial inclusion, especially in the productive age community in Purwakarta Regency.nThis study uses quantitative methods by distributing questionnaires with 400 respondents of productive age in Purwakarta Regency as samples of this study. This study uses the Sobel Test and the Baron and Kenny method to analyze mediation.The results of this study found that financial literacy, social capital, and financial inclusion of productive age community in Purwakarta were classified as good. In addition, the researcher also found that social capital was proven to partially mediate the relationship between financial literacy and financial inclusion at productive age community in Purwakarta Regency.This research is expected to be used as a reference for local communities in Purwakarta, local governments, the Financial Services Authority or regulatory agencies, as well as further researchers to provide more effective programs and innovations to increase financial literacy and financial inclusion among the productive age community in Purwakarta in order to reduce poverty.

Keywords— Financial Inclusion; Financial Literacy; Social Capital

I. INTRODUCTION

Even though Indonesia has a large population of up to 271.3 million people which means Indonesia has more abilities to advance the level of the economy, but in reality, the majority of Indonesians still continue to experience financial difficulties such as poverty. The community empowerment program emphasizing the significance of financial literacy and inclusion is one of the government's surefire measures for reducing poverty.

Financial literacy is the ability to manage one's financial assets for a more secure future. Meanwhile, financial inclusion was defined as the process of providing financial services and loans that can be accessible promptly, have enough facilities, and have low access costs.

In Survei Nasional Literasi dan Inklusi Keuangan (SNLIK) in 2019, In 2019, the average financial literacy score in Indonesia is 38.03 %, whereas the average financial inclusion index is 76.19 %. According to Atkinson and Messy (2013), if the financial literacy score is low, the financial inclusion index will likewise be low, and vice versa. This is because financial education tends to play a significant role in facilitating individuals' access to and utilization of formal and suitable financial products.

Indonesia's Financial Services Authority (OJK)'s 2015-2016 Financial Services Sector Master Plan explains that the following data pertains to community actions in accessing formal financial services in a number of sample ASEAN countries (MPSJKI):
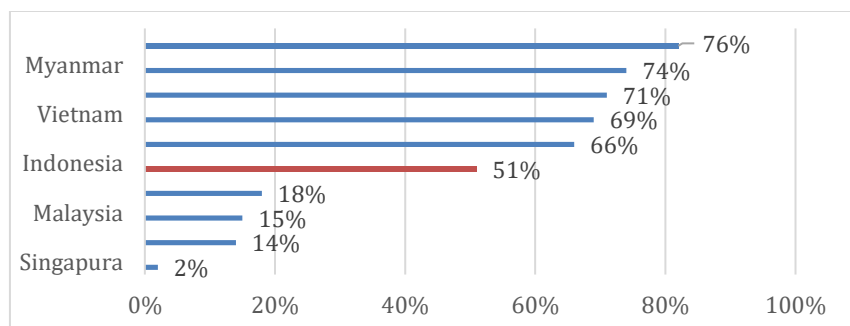
Figure 1. 2017 Financial Exclusion Index Chart

Source: Data processed, Global Findex 2017 (2018)

The percentage of financial exclusion across all ASEAN region is depicted in Figure 1, financial exclusion is a circumstance in which public access to formal financial services and financial institution is limited. In Figure 1, Indonesia's level of financial exclusion is ranked fifth out of a total of ten ASEAN region, indicating that 51 percent of Indonesians continue to have difficulty gaining access to formal financial services. According to Naidoo and Loots (2020), unequal access to formal financial institutions in rural areas is the main source of financial exclusion among most Indonesians.

According to SNLIK (OJK, 2019), the degree of financial literacy in the province of West Java is 37.43 percent, while the level of financial inclusion is 88.48 percent. The Master Plan for the Indonesian Financial Services Sector (MPSJKI) 2021-2025, published by the OJK (2020), explains the strategies for expanding financial access to promote an increase in the financial literacy and inclusion in Indonesia, specifically through the KEJAR program, a savings product for young children available via digital channels.

According to Fukuyama (2000), social capital is an unwritten value or norm that community members who collaborate to achieve a common goal believe in. If every member of society cultivates the principles of financial literacy and inclusion in their daily lives, social capital in the form of productive age communities will play a vital role in increasing financial literacy and inclusion.

Bongomin et al. (2016) found that social capital was able to mediate the effect of financial literacy and financial inclusion, especially in accessing financial services in rural Ugandan communities. From the study of the phenomena that have been defined earlier, authors are therefore interested in conducting further research related to **"The Role of Social Capital as a Mediator of Financial Literacy and Financial Inclusion at Productive Age in Purwakarta Regency".**

II.   LITERATURE REVIEW

Financial Behavior

According to Wicaksono (2015), Behavioral finance is the study of how humans behave in the real world while making financial decisions, particularly how psychological factors can influence individuals, groups, and groups when making financial decisions for individuals, companies, and financial markets.

The relationship between financial behavior and this research is that the field of financial behavioral science in general has several sub-theories, some of it are used as variables for this research, which is financial literacy and financial inclusion. As the theory explained, financial behavior is related to the psychology of individuals, companies, and financial markets, where in this study, the object studied is the financial psychology of a group of individuals, which is the people of productive age of Purwakarta Regency.

Financial Literacy

Chen and Volpe (1998) argues that financial literacy is an individual skill regarding the management of financial assets for the sake of ensuring a life in the future. Dimensions of financial literacy according to Bongomin et al. (2016) are behavior, attitude, ability or skills, and knowledge.

The relationship between financial literacy theory and this research is, it is one of the research variables that will be studied. In this study, the authors examine how is the level of financial literacy in the productive age community in Purwakarta regency. This variable will be measured from the results of questionnaires that will be filled out by respondents who meet the research criterias. The measurement of this variable is expected to provide an overview and be used as a benchmark for elaborating suggestions to improve the distribution of financial education to improve financial literacy in communities of Purwakarta district.

Financial Inclusion

Financial inclusion can be defined as a method of developing financial services and loans that vulnerable groups, such as those with low-to-middle incomes, can access on time and with enough facilities, if needed, at affordable access costs (Marimuthu et al., 2015). Dimensions of social capital according to Bongomin et al. (2016) are welfare, quality, usage, access.

The relationship between the theory of financial inclusion and this research is that, it is one of the research variables to be examined. In this study, the authors examine how far the level of financial inclusion in the productive age community in Purwakarta regency, which will be measured from the results of questionnaires filled out by respondents who meet the research criterias. The measurement of this variable is expected to provide an overview and be used as a benchmark for elaborating suggestions to improve financial inclusion and financial services facilities in Purwakarta district.

Social Capital

According to Prusak dan Cohen (2001), social capital is a relationship between individuals who are intertwined and have an attachment in the form of trust, mutual understanding, and shared values and upheld by each group member in order to take an action to achieve a common goal. equally effectively and efficiently. Dimensions of social capital according to Bongomin et al. (2016) are collective action, bridging, bonding, and trust.

The relationship between social capital and this research is, it is one of the research variables to be defined. In this study, the authors examine how is the role of social capital in the form of relationships between individuals in the productive age community of Purwakarta district, on the level of financial literacy and inclusion. The role of social capital will be measured from the results of questionnaires filled out by respondents who meet the research criterias, then the data obtained will be processed to draw research conclusions and to be used as a reference of the local community utilizations on spreading awareness of financial literacy and financial inclusions.

Framework for Thinking

The data of this research was collected through a questionnaire adopted from the research of Bongomin et.al (2016) which was then processed into information. The framework for thinking in this research is as follows:
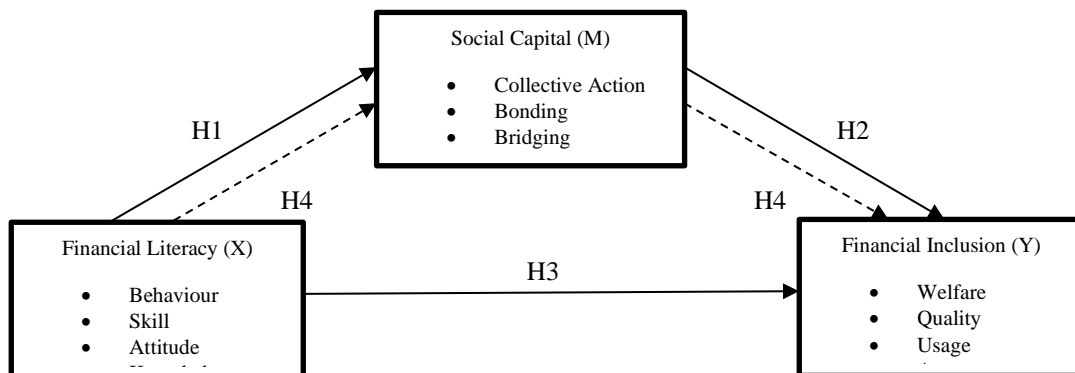

Figure 2. Framework for Thinking

From figure 2, it can be seen that there are straight lines and dotted lines. The straight line shows that in hypothesis 1 to hypothesis 3, it symbolizes a partial relationship between 2 variables which consist of X to M, M to Y, and X to Y. While the dotted line describes hypothesis 4, which shows a mediating relationship between variables X to Y through M. From the theoretical basis and framework for thinking above, the following research hypotheses are proposed:

H_1: Financial literacy has a significant effect on social capital in productive age at Purwakarta district.

H_2: Social capital has a significant effect on financial inclusion in productive age at Purwakarta district.

H_3: Financial literacy has a significant effect on financial inclusion in the productive age at Purwakarta district.

H_4: Social capital mediates the relationship between financial literacy and financial inclusion among individuals of productive age at Purwakarta district.

III. RESEARCH METHODOLOGY

This research uses quantitative methods, with causal and correlational objectives included. Based on the duration of implementation, this study is categorized as cross-sectional study. This study focuses on the people of productive age (15-55 years) in Purwakarta Regency, which has a total population of 614,805. This study uses non probability sampling, utilizing the Slovin formula. With a level of significance of 5%, the research sample consists of 400,26 ≈ 400 respondents. The primary source of data for this study was a questionnaire issued to 400 respondents of productive age in Purwakarta Regency. The researcher received secondary data from the Central Bureau of Statistics of Purwakarta regency, especially to gain information on the number of people of productive age in Purwakarta regency and other pertinent data.

Data Analysis Method

Descriptive analysis, Pearson correlation analysis, classical assumption tests in the form of normality test, multicollinearity test, and heteroscedasticity test were utilized to analyze the data. Baron and Kenny (1986) indicated that the Sobel test was undertaken to assess the value of the indirect influence of the independent variable on the dependent variable via the mediator variable. To determine the effect of mediation, the Baron and Kenny method with three regression estimates, the Sobel test, and the bootstrapping method (process) proposed by Hayes are used to generate an indirect effect output (ab), a confidence interval, and an effect size (Preacher and Hayes, 2004). To determine the mediation effect on this study, apply the following formula:

$$Sab = \sqrt{b^2 Sa^2 + a^2 Sb^2 + Sa^2 Sb^2} \qquad (1)$$

where:

a = regression path value $X – M$

b = regression path value $M – Y$

Sa = standard error a coefficient

Sb = standard error b coefficient

For the Sobel Z test, you can use the formula:

$$Z = \frac{ab}{Sab} \qquad (2)$$

Notes:

a = independent variable

b = dependent variable

S_{ab} = *Standard Error Indirect Effect*

According to Suhardi and Isfarudi (2009), the Z value is significant if the Sobel Z value is greater than the minimum statistical value for the mediation effect, which is 1.96 at the 5% confidence level and 1.64 at the 10% confidence level, or if p is less than the confidence level. According to Baron and Kenny (1986), mediation occurs if the value of direct effect of the independent variable (X) on the dependent variable (Y) is not greater than its indirect effect via the mediating variable (M).

IV. RESULT / FINDING

Respondents Characteristics

Respondents for this study are individuals of productive age in Purwakarta Regency, West Java Province. The distribution of questionnaires was conducted online via social media. As many as 400 individuals participated in this study. The distributed questionnaire has three sections: screening questions, respondent profiles, and research statements. The following are the respondent's data in this study, depending on the respondent's characteristics:

Table 1. Respondents Characteristics

No	Characteristics	Classification	Amount of Respondents	%
1	Gender	Male	121	30,25%
		Female	279	69,75%
2	Age	15-19	93	23,25%
		20-24	289	72,25%
		25-29	9	2,25%
		30-34	4	1%
		35-39	0	0%
		40-44	2	0,5%
		45-49	0	0%
		50-54	3	0,75%
		55-59	0	0%
		60-64	0	0%
3	Education	Elementary School	0	0%
		Junior High School	2	0,5%
		High School	260	65%
		Diploma	23	5,75%
		Bachelor Degree/D4	114	28,5%
		Post-graduate Degree	1	0,25%
		Doctoral Degree	0	0%
4	Monthly Income	< IDR 1,000,000	238	59,5%
		IDR 1,000,000 – IDR 2,500,000	84	21%
		IDR 2,500,000 – IDR 4,000,000	33	8,25%
		IDR 4,000,000 – IDR 5,500,000	19	4.75%
		IDR 5,500,000 – IDR 7,000,000	10	2,5%

5	Occupation	> IDR 7,000,000	16	4%
		Students	324	81%
		Civil organizations employees	3	0,75%
		Private organizations employees	44	11%
		Self-employed	14	3,5%
		Others	15	3,75%

Source: Data processed (2022)

Based on Table 1, female respondents have a higher percentage, namely 69.75%. Ages 20-24 years dominated filling out the questionnaire, which was 72.25%. The education level of High School is the largest level of education with a percentage of 65%. Monthly income < IDR 1,000,000 has the largest percentage of 59.5%. For the occupation of the respondents, most of them are students, as much as 81%.

Descriptive Analysis

In descriptive analysis, the categorization distance for the percentage value of respondents' responses must be calculated. 400 respondents participated in this survey, with the following percentages of response scores:

Table 2. Descriptive Analysis Results

Variable	Percentage Average Score	Category
Financial Literacy	78,73%	Good
Social Capital	75,65%	Good
Financial Inclusion	79,95%	Good

Source: Data processed (2022)

Based on Table 2, all the variables in this study are categorized as good since they are in the range of values obtained from 68% - 84%. This explains that the value of financial literacy, financial inclusion and social capital at productive age in Purwakarta Regency may be deemed to be good.

Pearson Correlation Analysis

Pearson correlation analysis measures the relationship of two variables which were normally distributed. The output of the correlation analysis using SPSS Ver. 25 is:

Table 3. Pearson Correlation Analysis

Correlations		X	M	Y
X	Pearson Correlation	1	.514**	.586**
	Sig. (2-tailed)		.000	.000
	N	400	400	400
M	Pearson Correlation	.514**	1	.542**
	Sig. (2-tailed)	.000		.000

	N	400	400	400
Y	Pearson Correlation	.586**	.542**	1
	Sig. (2-tailed)	.000	.000	
	N	400	400	400
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Data processed (2022)

Based on Table 3, the Pearson correlation results are obtained where the correlation value of X and M is 0.514 with sig < 0.05, the correlation r value of X and Y is 0.586 with sig < 0.05, and the correlation r value of M and Y is 0.542 with sig < 0.05, so that the two variables of each correlation models have a positive correlation with moderate correlation level.

Classical Assumption Test
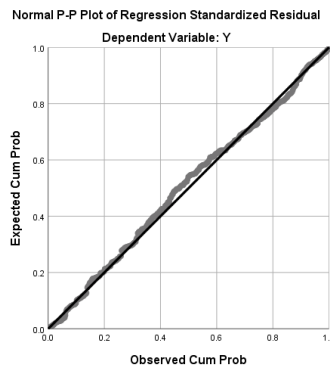
Normality test

Figure 3. Normality Test Results (Data processed, 2022)

The fact that the points in the image above form a straight line demonstrates that the data genuinely follows the diagonal line. This regression model satisfies the assumption of normality since the data is distributed uniformly about the line. The findings of the Koltemogrov Smirnov test are as follows:

Table 4. Kolmogorov Smirnov Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		400
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	5.24400305
Most Extreme Differences	Absolute	.043
	Positive	.029

	Negative	-.043
Test Statistic	.043	
Asymp. Sig. (2-tailed)	.079^c	
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Data processed (2022)

Based on the table above, the results of Asymp. Sig. (2-tailed) is 0.079 and sig > 0.05. So based on statistical tests, the existing data are normally distributed.

Mediation Analysis

The mediation analysis in this study was carried out by calculating 3 stages, namely regression. The following are the results of mediation analysis:

Table 5. Mediation Analysis Results

Predictor	Social Capital				Financial Inclusion							
	Model 1				Model 2				Model 3			
	Coef	SE	Sig	R sq	Coef	SE	Sig	R Sq	Coef	SE	Sig	R sq
Financial Literacy	0,624	0,052	0,000	0,264	0,313	0,042	0,000	0,422	0,483	0,052	0,000	0,422
Social Capital									0,313	0,042	0,000	0,422
Financial Literacy and Social Capital									0,678	0,047	0,000	0,343

Source: Data processed (2022)

Considering the calculation above, with 95% of confidence level, the relationship between variables becomes as follows:

1. There is a significant effect on financial literacy and social capital, as demonstrated by the coefficient value is 0.624 and the p-value <0.05.

2. There is a significant effect on social capital and financial inclusion, as evidenced by the coefficient value is 0.313 and the p-value < 0.05.

3. In the second model, the regression coefficient for financial literacy on financial inclusion is 0.678 and the p-value is < 0.05. Meanwhile, the coefficient value in the third model is 0.483 and the p-value < 0.05. As a result, the coefficient of the second model is bigger than in the third model, but both models have a significant effect, therefore mediation has been established.

The next step is to do the Sobel test. The Sobel test is used to test the dominance of the indirect effect of the independent variable on the dependent variable through the mediator variable. The Sobel test formula is as follows:

$Sab = \sqrt{0,313^2 0,052^2 + 0,624^2 0,042^2 + 0,052^2 0,042^2}$

$Sab = 0,03093$

the t count is:

$Z = \dfrac{(0,624)(0,313)}{0,03093}$

$Z = 6,315$

To see the effect size and effect values on the indirect effect or the indirect effect of the mediation model, a Sobel test was carried out with SPSS which resulted in:

Table 6. Sobel Test Result

Indirect Effect			
Effect	*Se*	*Z*	*Effect Size*
0,195	0,037	6,315	0,169

Source: Data processed (2022)

If described, then the relationship between direct and indirect influence in the mediation model of this research is as follows:
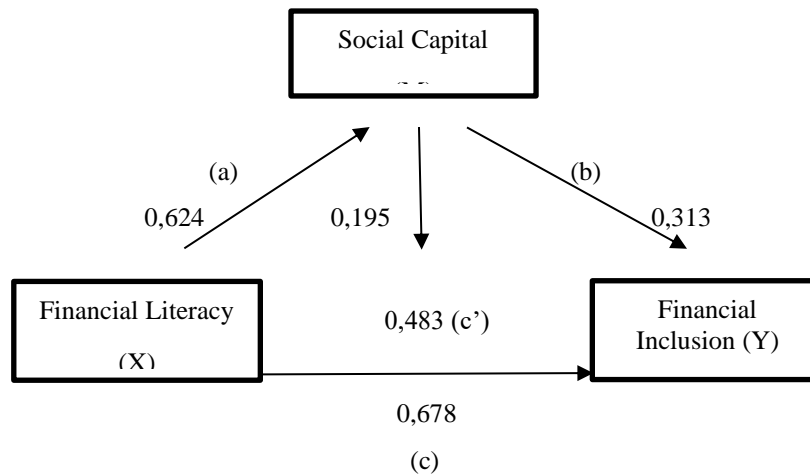
Figure 4. Mediation Model Calculation Results (Data processed (2022))

Calculations in Table 6 indicate that the indirect effect of financial literacy (X) on financial inclusion (Y) through social capital (M) is 0.195. The effect size reveals the value of the mediator variable, which is 0.169. According to Cohen (1988), an impact size of 0.2 falls into the category of being weak. The Sobel test value yielded a result of 6.315. With a significance level of 5%, (Z) or t count (6,315) > t table (1,96), which is the point of effectiveness of the mediation effect, indicating that the indirect effect of X on Y via a mediator is significant. Therefore, it can be argued that social capital partially mediated the relationship between financial literacy and financial inclusion among

people of productive age in Purwakarta regency. After incorporating the M variable into the regression model, the significant effect of X on the Y remained significant, indicating partial mediation. This differs from perfect mediation, in which the influence of X on Y, which was previously significant, becomes insignificant after including variable M in the regression model (Suliyanto, 2011).

To evaluate the established hypotheses, the Sobel test was conducted to obtain the Z value that would be utilized to build the decision rules. In accordance with the rules of the hypothesis testing in this study, H0 is accepted if Z equals 1.96. Therefore, the independent variable has no effect or does not significantly mediate the effect of the dependent variable and the mediator on the productive age in the Purwakarta district. In the meantime, if Z is 1.96, H0 is rejected. In other words, the independent variable significantly influences or mediates the effect of the dependent variable and the mediator on the productive age in the Purwakarta district. Since the Z value found in this study was 6,315, which is greater than 1.96, H0 was rejected and H1, H2, H3, and H4 were accepted.

V. DISCUSSION

In this study, the targeted respondents are the productive age communities in Purwakarta district. The results of the descriptive analysis indicated the state of financial literacy, social capital and financial inclusion of the people of productive age in Purwakarta Regency. In the financial literacy variable, the results of the descriptive analysis of the respondents' answers are categorized as good, which in Table 2 shows the percentage of 78.73%. These results concluded that the people of Purwakarta Regency already have a good awareness of the importance of having insight and understanding of financial products so that people are able to independently evaluate what financial products fit their financial capabilities and needs. Although overall respondents' answer items on the financial literacy variable can be categorized as good, there are some whose percentages are lower than others, namely statements about interest in accessing financial news. From these results, it can be seen that plenty of the respondents still have low interest in accessing financial news.

Dissemination of education regarding financial literacy is still very much needed to increase the knowledge and ability of the people of Purwakarta in managing their finances. Several activities have been carried out by financial institutions in Purwakarta, for example BJB Bank which has provided financial literacy education to novice entrepreneurs at Islamic boarding schools in Purwakarta district. BJB Bank has a mission to provide comprehensive education on financial topics to business actors in order to encourage the interest of entrepreneurs to take advantage of financial infrastructure facilities that have been facilitated by banking institutions in order to boost the growth of micro business sector actors (Bogor.ayoindonesia.com, 2020).

If viewed based on the latest education level, people who took their last education at the middle school level tend to get a fairly low financial literacy score among those with higher education levels, which is 60.91%. To address the gap in the distribution of financial literacy education, OJK has released a learning book that has many basic themes regarding finance, including the introduction of the concept of money, the use of money, the culture of saving, and the concept of sharing. This book is published for elementary school to university level which contains material related to the entire financial services sector and an introduction to OJK (OJK, 2020). With the existence of literacy books for primary and secondary school levels, OJK expected that it would facilitate the dissemination of financial literacy education, and it would be even better if this financial education was also part of the education curriculum to produce more of the well-literate young people.

Descriptive analysis of the social capital variable got a good category with a percentage of 75.65%. From these results, the conclusion is that the people of Purwakarta Regency have good social habits and uphold the common welfare. The regression results above also conclude that the social capital variable has a significant effect on financial literacy and financial inclusion. This means that the social capital owned by the people of Purwakarta Regency tends to be good and can support the community effort to spread financial literacy and inclusion.

However, some social capital indicators have results that are not good enough. In the first indicator of community participation in social activities to serve the surrounding community, the average respondent

chose to be neutral, resulting in a percentage of 65.15% with a fairly good category. So it could be said that most of the people of Purwakarta district tend not to have the awareness to participate in social activities in the form of community services. One of the reasons that the existence of an attitude of individualism and a tendency not to want to go into serving the community can occur is because of the impact of globalization which makes all members of the community feel more comfortable to interact using digital media. The emergence of individualism that causes indifference to fellow community members is one of the impacts of globalization that is often encountered in Indonesia (Wahyudi and Sukmasari, 2014). According to Bongomin et al. (2016), if social capital is not channeled properly, the literacy rate and financial inclusion in the community will also be hampered.

Next is a descriptive analysis for the financial inclusion variable which also gets good results, which is 79.95%. The interpretation of these results is that the people of Purwakarta regency already have access to products and services facilitated by financial institutions. This is in accordance with the phenomenon in the background where the financial inclusion level in Indonesia, particularly in the West Java province is already quite high, reaching 76.19% per year 2019. OJK is also working with the government to conduct periodic socialization to the public to introduce the functions of financial service institutions, which aims to accelerate the use of financial services in order to improve the welfare of people's lives (OJK, 2020).

In Purwakarta district itself, Bank of Indonesia has collaborated with local governments and BJB Bank in the launch of QRIS technology to access transportation and culinary facilities in Purwakarta Regency. This effort is carried out to create the digitalization of inclusive finance and also become a stepping stone to develop the local trade and tourism sector, especially driven by the MSME sector in Purwakarta district (Jabarprov.go.id, 2021).

From the analysis above, it can be seen that there is a significant influence of all the models as shown in the results of the Pearson correlation test that has been done previously. These results emphasize the findings of Bongomin et al. (2016), which states that there is a significant influence between financial literacy and social capital, financial literacy and financial inclusion, and also social capital on financial inclusion.

To answer the established hypotheses, the Sobel test was carried out to find the calculated Z value that would be used to determine the decision rules taken. The provisions of the hypothesis testing in this study are, if $Z \leq 1.96$, then H0 is accepted. So that means, the independent variable has no effect or does not mediate the influence between the dependent variable and the mediator on productive age in Purwakarta district significantly. Meanwhile, if $Z \geq 1.96$, then H0 is rejected. So the conclusion is the independent variable significantly influences or mediates the effect of the dependent variable and mediator on productive age in Purwakarta district. In this study, the Z value that was found is 6.315, which means more than 1.96, so the decision taken was that H0 was rejected and H1, H2, H3, and H4 in this study were accepted.

To prove that H1 is accepted, it can be seen in Table 5 which shows the regression coefficient value between X and M is 0.624 and p-value <0.05. So the conclusion is H1 is accepted. This means that, if there is an increase in the financial literacy of the Purwakarta regency's people, then the social capital role among community members will be higher. These results support the findings of Budiyono and Krisnawati (2020), which found financial literacy significantly affects social capital.

To answer the hypothesis H2, it also can be seen in Table 5 which shows the regression coefficient value between M and Y is 0.313 and p-value <0.05. The conclusion obtained is that H2 is accepted, which means that social capital has a significant effect on financial inclusion in the productive age in Purwakarta regency. This means that the role of social capital in Purwakarta district can support the spread of financial inclusion implementation in Purwakarta district.

According to the results of the regression tests, the regression coefficient of X on Y for the third model (c) is 0.678 with p-value <0.05, and the regression coefficient in the fourth model (c') of 0.483 with p-value <0.05. In conclusion, H3 is accepted, that means financial literacy has a positive and significant effect on financial inclusion, meaning that when the financial literacy of the people of Purwakarta increases, their financial inclusion also increases. This conclusion also supports the findings of Dewi and Ilmalhaq (2020) where it is found that financial literacy significantly affects financial inclusion.

The regression coefficient of X on Y in the third model (c') is higher than the second model (b) and there is a significant effect on both models or the value of sig < 0.05. Therefore, H4 is accepted, and it is proven that social capital partially mediates or affects directly or indirectly between financial literacy on financial inclusion at productive age in Purwakarta regency. These results also strengthen the research findings of Safira and Dewi (2019) that social capital partially mediates financial literacy on financial access in a country.

From the results of the discussion, there are findings where the results of the descriptive analysis of all three variables tends to be good. This means that the relationship between communities in Purwakarta Regency, which is referred to as social capital, has the potential to help the government to disseminate educational programs on financial literacy and financial inclusion in Purwakarta district. The results presented by Bongomin et al. (2016) explain that the literacy program has not fully increased financial inclusion in the community, so that the involvement of the community's social life is needed so that financial education can be better accepted by the community itself. One of the programs that have been carried out in Purwakarta Regency is the financial literacy socialization program for entrepreneurs by BJB Bank.

VI. CONCLUSION AND RECOMMENDATION

Conclusion

From the results and analysis which has been elaborated by the author, these are the conclusions:
1. The average response percentages for financial literacy, social capital, and financial inclusion in the Purwakarta district are 78.73% for financial literacy, 75.65% for social capital, and 79.95 % for financial inclusion, and all of the results were categorized as good.
2. Financial literacy has been proven to have a significant effect on social capital among the productive age in Purwakarta regency.
3. Social capital has been proven to have a significant effect on financial inclusion in the productive age in the Purwakarta regency.
4. Financial literacy has been proven to have a significant effect on financial inclusion in the productive age in the Purwakarta regency.
5. Social capital has been proven to have a significant effect on mediating the relationship between financial literacy and financial inclusion among the productive age in Purwakarta district.

Suggestion

Suggestions that has been elaborated by the writer based on the results of this research:
1. The local community leaders, government, financial service regulators and other stakeholders, such as firms, financial practitioners, political leaders, and influencers, can hold a collaborative actions and programs to aim on financial literacy and financial inclusion increase. One of the example of the collaborative actions is to have an open forum that can be offline or online to have discussions and exchange informations about financial goods and services, investment, the hazards of disinformation, fraud, and hoaxes, thereby protecting more individuals from the negative effects created by irresponsible parties in the financial industries.
2. Currently, many corporations are establishing factories in the Purwakarta region, which normally, corporations will engage in Corporate Social Responsibility (CSR) activities. Local community leaders can

commence cooperation with these companies to carry out CSR by hosting financial discussion forums to establish relationships between local communities and company personnel by exchanging information about financial education and financial services.

3. From the descriptive analysis of financial literacy, it can be determined that 68.75 % of the public's interest in accessing financial news is still inadequate. To overcome this issue, the community can collaborate with influencers or develop their own content that discusses the most recent valid and reputable news about finance with simple, relevant, and easy-to-understand explanations so that more people are interested in viewing the news material.

4. Local governments and regional financial institutions need to accommodate the aspirations of the community to create innovative financial products and services with terms and conditions adapted to the financial condition of the people of Purwakarta Regency, so that the products and services offered can be used by all financial levels of the society.

5. Regional governments and also The Indonesian Financial Services Authority (OJK) needs to improve the optimization of the implementation of programs that have been implemented, such as MSME transactions using digital payments, which is the Regional Financial Access Acceleration Team (TPAKD) program to realize the digitalization of the regional economy. The other programs that needs to be improved is the socialization of KEJAR or digital student savings programs, sharia financial inclusion programs, and several OJK programs. The socialization of this program is beneficial so that all programs have public exposure and more individuals utilizes OJK programs for saving, investing, and transacting activities, as well as funding and credit activities.

6. The Indonesian Financial Services Authority (OJK) must develop cooperation in order to utilize the social capital of communities of productive age in Purwakarta Regency and Indonesia in general. The ministry of education and culture, which governs school learning curricula throughout Indonesia from elementary schools to universities, may participate in the collaboration of the distribution of financial literacy through financial education. The actions that can be taken is providing socialisation by financial practitioners discussing financial literacy, implementing the digitization of financial services to facilitate access for all levels of age group in the society, develop socialization program regarding saving and investing, as well as make an easier access for the public to open savings and stock accounts to encourage people to invest in the stock market and other investment instruments,

7. Due to the abundance of alternative media, the government and regulators can engage in online collaborations with financial sector influencers to create podcasts and educational videos on social media to socialize financial regulations, banking products, and savings and investment instruments.

8. In this study, the researchers examined the productive age in Purwakarta Regency. For future research, the author advises to expand the object of study to include not only individuals of productive age but also those of other age groups, and for the extent of the area under study future researchers can try collecting samples from different areas in Indonesia. The indicators used in the future study object might be more specific, such as selecting objects from among universities students, private organization employees and entrepreneurs, individuals with monthly salaries below the regional minimum salary level, etc. Future researchers can also investigate the penetration rate of financial products such as crowdfunding, peer-to-peer lending, etc. to identify the level of financial product distribution among the general society. Further research can also investigate various variables within the field of financial behavior, including financial self-efficacy and many others. This study employs quantitative methods, the next researcher is expected to employ qualitative methods by conducting direct interviews with respondents. This is a cross-sectional study, thus it is recommended that future researchers would be able to use the longitudinal research.

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Analysis of the quality of service mobile application tukang sayut.co

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Abstract

This research was made with the aim of knowing the service quality and satisfaction of the Tukang Sayur.co App. Tukang Sayur.co it has the advantage of a high rating and its already wide sales reach to various cities compared to other applications. However, behind these advantages there are still many problems and complaints related to the application Tukang Sayur.co from consumers. As for the average consumer complaints due to delays in delivery that do not comply with the specified estimated schedule, lack of service response from the management Tukang Sayur.co, the use of the application is less qualified'E-Service Quality Analysis (SERVQUAL) and Importance Performance Analysis (IPA) are research methods used by App Tukang Sayur.co users. The method used is a non-probability sampling technique, and sampling is by using the method of determining special characteristics, especially the users of the application, and using a sample of 100 people.The results of this study indicate that the service quality of the Tukang Sayur.co App is good, although there are still some indicators that the service is sufficient. Dimensions included in the sufficient category are: Access, Reliability, and Assurance. Meanwhile, the dimensions included in the good category are: Ease of Navigation, Security/privacy, Responsiveness, Site aesthetics, Price knowledge, Efficiency, Flexibility and Personalization. As for satisfaction, it shows that overall there is a gap between the results of reality and consumer expectations of -15.24. From the final result of attribute mapping, there are 3 attributes.

Keywords- Service Quality, SERVQUAL, Importance Performance Analysis, Tukang Sayur.co

I. INTRODUCTION

Technological developments, especially in the digital era as it is today, help entrepreneurs improve their business. Technology is the foundation of the company in innovating, not only as a complement to the business, but also the main key of a business that continues to grow and is able to continue to compete. For this reason, the existence of technology is the foundation of innovation in the company. The role of technology is not only engaged in telecommunications but has developed in the fields of health, education, communication and services (Noor, 2016). An example of the rapid development of information technology is the development of mobile apps which have a major impact on the habits of using these devices.

With the mobile app people are easier to carry out activities such as buying and selling. With the mobile app makes people more happy to make transactions online without having to go directly to the store. Because in the mobile app there are already features that manufacturers can offer consumers to make purchases. Indonesia is one of the fastest growing E-commerce in the world, where the growth reached 78% in 2020, and there are 100 million internet users in Indonesia. That way, there are various types of startups that make applications in agriculture.

Vegetables are one of the food ingredients needed by the body because it provides many benefits and many vitamins. Vegetables can be accepted to consumers because there are steps that start from farmers, sellers, and then come to us as consumers. However, the problem often faced by us as consumers is that the vegetables obtained are not always fresh, and producers also do not always provide and sell fresh vegetables. So, to overcome this, an application is made that can solve that problem, the problem faced by farmers, producers, and consumers. With the

application, it makes it easier for consumers to find fresh vegetables. Currently there are many applications that appear, one of which is the application Tukang Sayur.co.

Based on the ratings and reviews written by previous consumers about the application that they give negative reviews about service complaints Tukang Sayur.co, such as the quality of products that are not Fresh, delivery of goods that do not match the promised estimate, transaction failure, and responsivity in the application Tukang Sayur.co. from these reviews, it should be application Tukang Sayur.co investigate the factors that affect the problem, so as to improve the quality of products and service quality of the application.

The customer complaints Tukang Sayur.co, namely they say " after 3 years of subscription I finally moved to the application next door. Because of Service tukang sayur.co it's getting worse. Packaged products of finished origin. I bought kale 1 kg, fitting came at all not in the tie and the roots are still grounded. Buy salted fish of very poor quality, full of mites and smelly. Moreover, the price of the product does not follow the market and is increasingly expensive. Comparison of curly chillies in other stalls 20rb / kg in this application 40rb / kg.", "Has been a message since yesterday (tgl. 30/3/2020) paid via transfer. Promised to come today (tgl. 31/3/2020) before the clock 19.00. Since 15.00 still on the road, in aplication mobile chat not read. Until 20.00 did not come either, no news. Can not be traced the whereabouts of The Courier. Although materials are needed immediately. The aplication is detrimental, the admin is unprofessional, and is not responsible It can be reported to the police, right."The goods sent are not fresh instead tend to be damaged because they are sent already in the afternoon."Those are some of the complaints said by consumers.

Of these complaints, it is necessary for the application Tukang Sayur.co to review the quality of its services. Customer expectations of the application Tukang Sayur.co and hope for the application Tukang Sayur.co, following the results of interviews conducted by researchers:

Table 1.1

Interview Results

No	Statement	Results
1	How information about the product in the application Tukang Sayur.co ?	Based on the results of the mini survey 16 of 20 respondents answered Good and 4 of them answered product information in the application Tukang Sayur.co not compatible with available products.
2	Whether when opening the application Tukang Sayur.co often have errors?	Based on the survey results 18 out of 20 answered Never and 2 others answered never experienced an error.
3	Are the products categorized by Category ?	Based on the survey results, all respondents answered the appropriate category.
4	Is the product ordered in accordance with the order ?	Based on the results of the mini survey 15 of 20 respondents answered not appropriate, such as: the condition of the product is not fresh, there are less products, the presence of product errors. And the other 5 answered according to the order.
5	Is the delivery of the product in accordance with the promised estimate ?	Based on the results of the mini survey 18 out of 20 respondents answered not appropriate, often the

		occurrence of delays in delivery. While 2 answer according to estimate or right.
6	How to respond application Tukang Sayur.co in response to consumer problems ?	Based on the results of the mini survey 16 of 20 respondents answered the response of the Tukang Sayur.co not good and the other 4 answered Good.

Source : research survey

Based on Table 1.1 it is known that respondents stated the quality of Service application Tukang Sayur.co not good because of some errors and lack of response from the management Tukang Sayur.co. not a few consumers are moving to other similar applications.

Customers' expectations of the Tukang Sayur.co App and their expectations of the Tukang Sayur.co App can be measured using Importance Performance Analysis (IPA). This study intends to adopt IPA to determine the service quality analysis of the Tukang Sayur.co App.

Tukang Sayur.co it has the advantage of a high rating and its already wide sales reach to various cities compared to other applications. However, behind these advantages there are still many problems and complaints related to the application Tukang Sayur.co from consumers. As for the average consumer complaints due to delays in delivery that do not comply with the specified estimated schedule, lack of service response from the management Tukang Sayur.co, the use of the application is less qualified because there are still consumers who have difficulty contacting and discrepancies Courier number that has been listed in the application and the quality of the product is not fresh.

II. LITERATURE REWIEW

2.1 Marketing Management

According to Kotler and Armstrong (2017), Marketing Management is a way carried out by a company from starting to plan, coordinate to carry out marketing activities to achieve the desired goals.

2.2 E-Business

According to Ahmadi and Hermawan (2013: 7), E-Business is an interconnected system that provides information desired by its users, which focuses on strategy and function with technological capabilities.

2.3 E-Commerce

E-Commerce is one of the emerging technologies today where transactions are made through online without having to meet producers and consumers, and payments are made by transfer, and others

2.4 Service Quality

Service quality is an effort made by a person or a company in providing quality or good services to consumers where if consumers are satisfied with the services provided, then consumers will also trust the company, so that the impact occurs consumer loyalty to the manufacturer.

III. RESEARCH METHODOLOGY

The method used in this study is the qualitative method, which is the technique of collecting data by using triagulation or the combination of observation, finding information directly to the object, and documentation. In addition, the method also describes the results of research that has been done by the author, and this study uses Confirmatory factor analysis. Based on the unit of analysis, researchers use individual units of analysis. Population and samples used in this study is the user of artisan applications Sayur.co, and the sample used using non probability sampling by using special characteristics, characteristics in particular are people who have used the Artisan application Sayur.co. analysis conducted by gap Analysis, Performance & Importance and mapping using IPA.

IV. RESULT / FINDING

4.1 Characteristics Of Respondents

The data search procedure carried out by researchers is by distributing questionnaires to 100 respondents, and the distribution of questionnaires is done using google form. Respondents who became a sample in this study should have characteristics such as domicile of Tangerang area which amounted to 26 people with a percentage of 26% it is because of the many enthusiasm of the Tangerang community towards the use of applications Tukang Sayur.co. most who make purchases are women aged 21-25 who are mostly young mothers, with private employee work.

4.2 Descriptive Analysis

The following is a recapitulation of the overall E-Service Quality Score:

Tabel 4.1

Overall E-Service Score Recapitulation

No	Dimensions	% Total Score	% Ideal Score	Category
1	*ACCESS*	66,3	100	**Enough**
2	*EASE OF NAVIGATION*	74,1	100	**Good**
3	*RELIABILITY*	65,5	100	**Enough**
4	*SECURITY/PRIVACY*	70,5	100	**Good**
5	*RESPONSIVENESS*	72,5	100	**Good**
6	*ASSURANCE*	65,3	100	**Enough**
7	*SITE AESTHETICS*	72,1	100	**Good**
8	*PRICE KNOWLEDGE*	73,4	100	**Good**
9	*EFFICIENCY*	83,2	100	**Good**
10	*FLEXIBILITY*	76,3	100	**Good**
11	*PERSONALIZATION*	72,1	100	**Good**
Average		**71,94**		**Good**

Source : research survey

V. DISCUSSION

5.1 Discussion *Importance Performance Analysis* (IPA)

5.1.1 SERVQUAL analysis by item by item

SERVQUAL analysis can not only show the quality of service, but also can show customer satisfaction. The following is a table of GAP values based on item by item studied:

Table 4.2

GAP analysis by item by item

No Attribute	Hope Score (Importance)	Reality Score (Performance)	GAP
1	4,2	3,48	-0,72
2	4,26	3,15	-1,11
3	4,2	3,15	-1,05
4	4,26	4,17	-0,09
5	4,21	2,95	-1,26
6	4,2	3,6	-0,6
7	4,18	3,45	-0,73
8	4,31	3,6	-0,71
9	4,31	3,25	-1,06
10	4,13	4	-0,13
11	4,26	3,47	-0,79
12	4,06	3,06	-1
13	4,19	3,91	-0,28
14	4,15	3,3	-0,85
15	4,34	4,16	-0,18
16	4,2	3	-1,2
17	4,23	3,84	-0,39
18	4,48	4,18	-0,3
19	4,39	3,88	-0,51
20	4,39	3,75	-0,64
21	4,23	3,85	-0,38
22	4,29	3,03	-1,26

Source : research survey

Based on Table 4.2 it is seen that the value of SERVQUAL all attributes are negative meaning that the performance of Mobile Application Services Tukang Sayur.co perceived consumers are still less than the value of expectations, although it can be said that the quality of Mobile Application Services Tukang Sayur.co it has been good or has met consumer expectations because the value of the gap is low.

5.1.2 SERVQUAL analysis by Dimension by Dimension

The following is a table of Gap values based on dimension by dimension studied :

Tabel 4.3

GAP analysis by Dimension by dimension

No	Dimensions	Hope (Importance)	Reality (Performance)	Gap (GAP)	Ranking
1	*Access*	8,46	6,63	-1,83	10
2	*Ease of Navigation*	8,37	7,41	-0,96	2
3	*Reliability*	8,41	6,55	-1,86	11
4	*Security/privacy*	8,49	7,05	-1,44	7
5	*Responsiveness*	8,44	7,25	-1,19	6
6	*Assurance*	8,32	6,53	-1,79	9
7	*Site Aesthetics*	8,34	7,21	-1,13	4
8	*Price Knowledge*	8,36	7,34	-1,02	3
9	*Efficiency*	8,41	8,32	-0,09	1
10	*Flexibility*	8,78	7,63	-1,15	5
11	*Personalization*	8,52	6,88	-1,64	8

Source : research survey

Based on Table 4.3 it can be seen that the performance value is lower than the expectation value, so the gap value is all negative. This could indicate that the quality of Service application Tukang Sayur.co still low. The largest gap value is in the Reliability dimension with a gap value of -1.86. The value of Gap Reliability illustrates that the form of service quality application Tukang Sayur.co as the product according to the order, the speed in the delivery of the product is still less according to consumers. while the smallest gap value contained in the Efficiency dimension with a gap value of -0.09 illustrates that in terms of innovation, payment methods, ease of use is quite good. Although the value of this Gap is the smallest but the value is still negative and indicates that according to consumers is still less then the service should be improved again.

5.1.3 Overall SERVQUAL analysis

Q (*Quality of Service*) = Xi(Reality) – Yi(Hope)

Q = 78,8 – 92,9 = -14,1

Gap.the negative shows it..Fun..between performance and expectations. consumers. Performance given Application Tukang Sayur.co can not meet consumer expectations. The value of -14.1 gap is not too big because consumers are not satisfied with the performance provided by the application.

5.1.4 Performance Difference Test

The results of different tests that have been done can be seen as follows :

Table 4.4

Performance & Importance Difference Test Requirements

		Paired Samples Test							
		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Importance - Performance	69,818	171,872	36,643	-6,386	146,022	1,905	21	,071

Source : research survey

Based on Table 4.2 obtained results of the calculation of performance and importance difference test shows that the mean or average value of expectations and reality shows positive results, meaning that there is a difference between expectations and the reality of the quality of Service application tukang Sayur.co.

5.1.5 Analysis *Importance Performance Analysis* (IPA)

The following is the data distribution score Importance and consumer Performance, that is:

Table 4.5

Importance and Performance score and suitability level

Dimensions	No Atrtibute	Reality Score (Xi)	Hope Score (Xi)	Degree Of Conformity (Tki)%
Access	1	348	420	82,9
	2	315	426	73,9
Ease of Navigation	3	315	420	75,0
	4	426	417	102
Reliability	5	295	421	70,1
	6	360	420	85,7
Security/Privacy	7	345	418	82,5
	8	360	431	83,5
Responsiveness	9	325	431	75,4
	10	400	431	96,9
Assurance	11	347	426	81,5
	12	306	406	75,4

Dimensions	No Atrtibute	Reality Score (Xi)	Hope Score (Xi)	Degree Of Conformity (Tki)%
Site Aesthetics	13	391	419	93,3
	14	330	415	79,5
Price Knowledge	15	434	416	104
	16	300	420	71,4
Efficiency	17	384	423	90,8
	18	448	418	107
Flexibility	19	388	439	88,4
	20	375	439	85,4
Personalization	21	385	423	91,0
	22	303	429	70,6

Source : research survey

Then, the attributes are mapped into the diagram. The Cartesian diagram can be seen as follows :
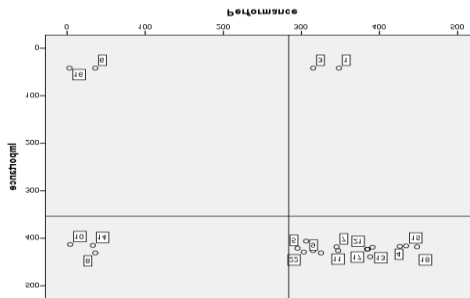
Picture 4.1 Kartesius

Source : research survey

For more details what attributes with dimensions can be seen as follows :

Table 4.6

Attribute Mapping Results In Cartesian Diagram

Dimensi	No. Attribute	Reality Score (Xi)	Hope Score (Xi)	Quadrant
Access	1	348	420	D
	2	315	426	B
Ease of Navigation	3	315	420	D

Dimensi	No. Attribute	Reality Score (Xi)	Hope Score (Xi)	Quadrant
	4	426	417	B
Reliability	5	295	421	B
	6	360	420	C
Security/Privacy	7	345	418	B
	8	360	431	A
Responsiveness	9	325	431	B
	10	400	431	A
Assurance	11	347	426	B
	12	306	406	B
Site Aesthetics	13	391	419	B
	14	330	415	A
Price Knowledge	15	434	416	B
	16	300	420	C
Efficiency	17	384	423	B
	18	448	418	B
Flexibility	19	388	439	B
	20	375	439	B
Personalization	21	385	423	B
	22	303	429	B

Source : research survey

1. Quadrant a Concentrate Here (concentration/top priority), where customers as respondents feel these attributes are very important and have high expectations but have not felt the maximum performance. The attributes are as follows:

Table 4.7

Result Attribute In Quadrant A

No Attribute	Statement
	Attribute In Quadrant A
8	In my opinion, the transactions made in the application Tukang Sayur.co safe and trustworthy.
10	Application Tukang Sayur.co provide notification to consumers if the product has been delivered.

14	application system Tukang Sayur.co provides a stable display on all smartphones.

Source : research survey

2. The table above shows that the attributes are considered important but the performance given has not been able to satisfy the consumer. The results of asnalysis attribute quadrant B can be seen as follows :

Table 4.8

Result Attribute In Quadrant B

Attribute In Quadrant B	
No Attribute	**Statement**
2	Page on the application Tukang Sayur.co never error
4	The location of the search field is easy to find in the application Tukang Sayur.co
5	Products are delivered quickly and on time
7	I believe my personal data and contacts are protected by the application tukang Sayur.co
9	Application Tukang Sayur.co always be responsive in serving orders
11	Application tukang Sayur.co provide a guarantee if the product does not match the order
12	Application Tukang Sayur.co handle returns well.
13	application display Tukang Sayur.co easy to understand
15	Application Tukang Sayur.co provide products accompanied by the price
17	In my opinion, the application Tukang Sayur.co has good innovation so easy to use
18	application Tukang Sayur.co provide a wide range of payment methods in transactions
19	Features in the application Tukang Sayur.co very easy to understand
20	Products in the application Tukang Sayur.co grouped by Category
21	In my opinion, the quality of the application system Tukang Sayur.co very good because of the availability of service features that can meet the needs.
22	Artisan application Tukang Sayur.co have the ability to always serve quickly

Source : research survey

3. Quadrant C Low Priority (low priority), this quadrant shows about this attribute is less satisfactory, because the influence given less important according to consumers, as for those included in this quadrant are the following attributes :

Table 4.9

Result Attribute In Quadrant C

Attribute In Quadrant C	
No Attribute	**Statement**
6	Products ordered in accordance with existing in the application TukangSayur.co
16	In my opinion, the products in the application Tukang Sayur.co cheaper compared to other applications.

Source : research survey

4. Quadrant d Possible Overkill(excessive), this quadrant shows attributes that according to consumers are less important but in the realization of the service is considered too excessive. So that this attribute is considered less important but satisfactory in its implementation. The attributes included in this quadrant are:

Table 4.10

Result Attribute In Quadrant D

Attribute In Quadrant D	
No Attribute	**Statement**
1	Network systems are used For Applications Tukang Sayur.co for hugely accurate and accurate transactions
3	Application System Tukang Sayur.co it is believed to have been more than one of his accounts.

Source : research survey

VI. CONCLUSION AND RECOMMENDATION

Conclusion

After the results that have been presented by the author, it can be taken conclusions as follows :

1. The total score of the Gap between the desired reality and consumer expectations of the service is negative. Negative score indicates the reality of artisan app services Sayur.co can not meet the consumer. This is because the 5th attribute is "the product is delivered quickly and on time" is still low, so there are still many consumers complain because the delivery speed is often late or not in accordance with the promised estimate. Consumer perception of the quality of application services provided is still not good, can be seen with the resulting score is negative. This is because the application has not met the wishes of consumers.
2. Based on the results of the test the difference between kenyatan and expectations. It is known that the mean value is based on reality and positive expectation. This means that there is a difference to the reality and expectations of the quality of Service applications Tukang Sayur.co. which is where consumer expectations are higher compared to the reality of the services provided.

3. By using the method of IPA as a whole obtained results that berpengarub be in Quadrant A, because it is considered very important but the performance has not been maximized. It can be seen that consumers are still complaining about the services provided by The application Tukang Sayur.co.

4. Attributes that must be improved that is about the service application Tukang Sayur.co still low related to the stability of applications in various types of smarthphone, often experience errors including the presence and absence of notifications to users. In addition, the application Tukang Sayur.co also a very important attribute but in fact that consumer confidence in transactions in the application Tukang Sayur.co still low. For attributes that exist in this quadrant should be a top priority to be improved so that satisfaction can be higher than expectations.

Recomendation

1. For applications Tukng Sayur.co should improve the quality of services provided to consumers, can be responsive in providing services, and features in the application is further improved so that consumers are satisfied with the services provided by The application Tukang Sayur.co so that consumers will be loyal and trust in the application.

2. To increase repeat purchases on consumers, this application should provide the right price and affordable with good quality so that consumers will still choose this application and will not choose other applications.

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Poverty Factors in Grobogan Regency 2010-2020 Period

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Abstract

Poverty is often a problem that occurs in Indonesia, Grobogan Regency is included in an area with poverty which shows that the percentage of poor people is still quite large. This study aims to determine the effect of the Human Development Index and Economic Growth on the Poverty Level by using the multiple linear analysis method during the 2010-2020 period. The results showed that the Human Development Index and Economic Growth had a significant effect on the Poverty Level with a negative correlation. The human development index has an effect on the level of poverty, this can be seen through the data on the percentage of HDI which increases every year. Economic growth affects the Poverty Level,

Keywords—Human Development Index (HDI); Economic growth; Poverty level

VII. INTRODUCTION

Poverty is a problem related to the economic aspects faced by almost every country, both in developing and developed countries. In general, a person's poverty in meeting the basic needs of his life. Only this ability is not measured materially but psychologically in someone who fails to meet the requirements if he cannot fulfill his basic needs, namely food, clothing and shelter (Sriyani, 2021). The Central Bureau of Statistics defines poverty as an inability that can be measured from an economic, material and physical point of view in meeting basic food and non-food needs by measuring expenditure. The problem of poverty itself is a very complex social problem, this is caused by the factors that influence it and usually each region has different aspects as the cause of poverty. Factors that influence poverty are education level, minimum wage and movement (Putut N, 2021). According to Zuhdiyati & Kaluge (2017) the factors that influence poverty are the Human Development Index and Economic Growth. Meanwhile, according to Rachman et al (2019), economic growth is one of the factors that most influence poverty. Kaluge (2017) factors that influence poverty are the Human Development Index and Economic Growth. Meanwhile, according to Rachman et al (2019), economic growth is one of the factors that most influence poverty. Kaluge (2017) factors that influence poverty are the Human Development Index and Economic Growth. Meanwhile, according to Rachman et al (2019), economic growth is one of the factors that most influence poverty.

Economic growth and poverty as indicators that can be used to measure success in the development of a country. Therefore, every country always strives to achieve economic growth, these efforts are made to reduce poverty. So the way that the government can do to increase economic growth in an area is to improve the quality of human resources (HR) and natural resources (SDA). From the Poverty Circle theory put forward by Nurkse that poverty is caused by underdevelopment of human resources and natural resources, because the management of natural resources depends on human competence itself (Jhingan, 2016). If an area has quality human resources that are competent and able to manage natural resources properly and optimally, then development in an area will be carried out. The implementation of economic development properly will increase the standard of living of the community which will also reduce the number of poor people in the area (Kurniawati, 2017). The HR index includes three dimensions, namely education, decent living per capita income and health, where these three dimensions greatly affect the quality of human resources (Prasetyo and Sukmawati, 2018).

Grobogan Regency is one of the areas in Central Java that cannot be separated from poverty. In 2020 Grobogan ranks 12th out of 35 districts/cities that present poverty levels in Central Java Province.
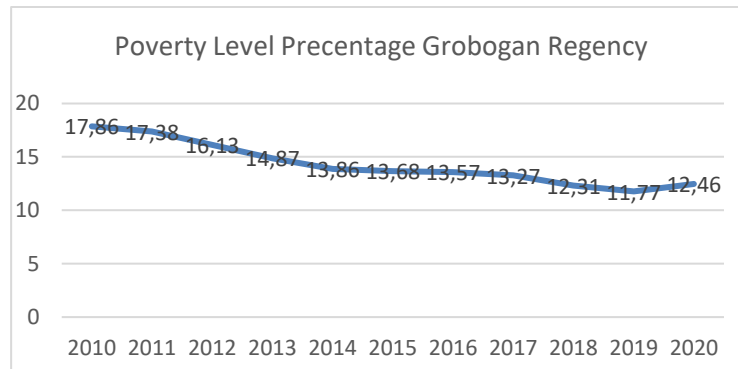
Fig 1. Poverty Level Data in Grobogan Regency

From these data, that from 2010-2020 shows that there is a decrease in the percentage of poverty in Grobogan Regency every year. Although the data shows a downward trend, until 2020 the number of poor people in Grobogan Regency is still relatively large, namely 172.26 thousand people. Based on the Central Statistics Agency, the percentage of poverty in Grobogan Regency is still relatively large compared to other regencies or cities in Central Java, where in 2020 the percentage of Grobogan Regency's poverty rate is 12.46% which is ranked 12th out of 35 cities. /province in Central Java.

From this description, the formulation of the research problem is whether Economic Growth and Human Development Index affect the Poverty Level in Grobogan Regency during the 2010-2020 period. The aim to be achieved is to determine and also analyze the effect of Economic Growth and HDI on the Poverty Level in Grobogan Regency for the 2010-2020 period.

VIII. LITERATURE REVIEW

A. Poverty

An area will be called poor if its population with an average per capita expenditure reaches the basic poverty line (Shafa and Niniek, 2022). Poverty that occurs in society is not because someone wants this situation, but it is difficult to avoid (Bayu et al., 2018). According to Jhingan in (Ari and U. Sulia, 2018), the cause of poverty that occurs is due to the lack of human resources and natural resources, where the natural resources of an area will depend on human productivity. The management of these resources must be encouraged by people who have high quality, if the population has low education then activities, knowledge, and technical skills will result in neglected and undeveloped resources. Measurement of poverty can be done by looking for a comparison between the level of public consumption and the poverty line, namely expenditure for consumption in a month. The poor can be said to be people whose monthly per capita expenditure is below the average.

The causes of poverty are structural poverty and cultural poverty. Structural poverty is poverty caused by socially and culturally, economically, and politically dominating community groups, which consequently does not realize equality in all levels of society and the quality of self-development does not develop. Cultural poverty is poverty caused by culture. The culture in question is a poor culture, where people feel lazy to try to be better (Farathika, 2020).

B. Human Development Index

The Human Development Index aims to encourage human development with a better quality of life (Nurul and Lilies, 2021). According to Farathika (2020) the Human Development Index (IPM) contains three scopes in the field of human development, namely age, knowledge possessed, and a decent standard of living. The Central Bureau of Statistics states that the Human Development Index (HDI) indicator is measured by life expectancy, school expectations, and per capita expenditure. The higher the number of indicators that make up the Human Development Index (HDI) it will reduce poverty, in other words it will affect the welfare of the community to live decently.

C. Economic Growth

Economic growth is an indicator used to find out how the prospects for success in development are directed at reducing poverty (Imade, 2020). Economic growth is an activity in the economic field that can increase the cost of products and services in order to improve people's welfare (Hugo et al., 2022). Economic activities carried out by the community are expected to increase the income of the owners of production factors.

The problem of economic growth that arises is a long-term macroeconomic problem. Changes in each period result in the production of goods and services continuing to increase, where the quality and quantity of production also increases. The workforce will also continue to grow due to the increasing population density, people who are experts in their fields, educated people, and work experience. (Hugo et al., 2022) This economic activity aims to review the growth rate of Gross Domestic Product (GDP) with the addition of the amount generated by production activities in the economy (Heppy, 2018).

D. Hypothesis

H1: The Human Development Index (HDI) has a significant positive effect on poverty in Grobogan Regency in 2010-2020 with a negative correlation.

H2: Economic growth has a significant positive effect on poverty in Grobogan Regency from 2010 to 2020 with a negative correlation.

E. The Effect of Human Development Index (HDI) on Poverty

The Human Development Index (HDI) adheres to three basic scopes of life, namely education, age of life, and a decent standard of living for humans with the aim of increasing human development to overcome poverty into shared prosperity. According to Yani Mulyaningsih (2008), the human development index consists of three dimensions of development, namely the fulfillment of long life needs, healthy living to gain knowledge, and access to resources to meet the needs of life. these three dimensions have an important influence on poverty.

Based on the new growth theory which states the important role of government in increasing HDI and encouraging research and development in order to increase human productivity. What can be done is to improve the quality of human resources through education. The output to be obtained is an increase in one's ideas and knowledge. The higher the level of education, knowledge and skills of a person can increase one's work productivity. This knowledge and expertise will provide benefits in various sectors, for example in the formal sector in a company if someone has high knowledge and expertise, it can encourage work productivity in the company so that in return the company will also provide higher wages. So it can be said that if someone has a high level of productivity then he will get a better level of welfare which can be seen through income and consumption. according to research (Nadya et al., 2019) states that HDI has a positive and significant effect on poverty levels. This is reinforced by research from Dia (2020) which states that HDI has a significant and positive influence on poverty levels in Riau Province.

F. The Effect of Economic Growth on Poverty

Economic growth is a factor supporting the success of development to reduce poverty levels through activities in the economic sector. Economic growth is one of the indicators used to determine the success of economic development, besides that economic growth is also a requirement to minimize poverty. If an area experiences an increase in economic growth, the poverty rate will decrease. So that the relationship between the two becomes very important where the government must accelerate economic growth so that poverty can be reduced. According to research conducted by (Ridho et al., 2018), economic growth, especially GRDP, has a significant and positive effect on poverty levels, and is in line with research from Nadya et al.

G. Previous Research

The research conducted by Laga Septian and Wiwin Priana P (2022) entitled Analysis of Factors Affecting Poverty. This study uses the Ordinary Least Square (OLS) method, namely multiple linear regression analysis. The results of the study show that the Provincial Minimum Wage (UPM) and Human Development Index (IPM) have a negative and insignificant effect on poverty, while Economic Growth has a positive and significant effect on poverty in East Java.

Furthermore, research from Ari Kristin P and U. Sulia Sukmawati (2018) entitled Analysis of the Effect of HDI, Economic Growth and Unemployment on Poverty in Indonesia. This research uses path analysis method and panel data. The results show that HDI has a direct and negative effect on the poverty level, while Economic Growth has no

significant effect on the poverty level, then Unemployment has a positive effect on the poverty level of 33 provinces in Indonesia.

Furthermore, the research conducted by Bariyyatin Nafi'ah (2021) entitled Analysis of Factors That Can Affect Poverty Alleviation in Indonesia (2016-2019). This study uses the REM method with panel data regression analysis. The results showed that Zakat, Infaq, Sadaqah had an effect on the poverty level, while HDI and inflation had no effect on the poverty level in Indonesia.

IX. RESEARCH METHODOLOGY

This research uses a quantitative approach with secondary data as a data collection technique. The research data got from the Central Bureau of Statistics of Grobogan Regency during the period 2010-2022. The analytical method used of research is the Multiple Linear Analysis method, linear analysis aims to determine the changes that occur in the dependent variable (Y) refers to known independent values variable (X). Thus, the use of linear analysis is used to determine changes from the dependent variable (poverty) to the independent variable (HDI and Economic Growth). Multiple linear analysis in this study is formulated using this equation.

$Y = \alpha + \beta 1 + X1 + \beta 2X2 + e$

Which:

Y	= Dependent variable
α	= constant
$\beta 1$ $\beta 2$	= Regression coefficient
X1 X2	= Independent variable
e	= Standard error

This method is used to see the effect of HDI and Economic Growth on the poverty rate in Grobogan Regency.

A. Population and Sample
Population

The population of this study is all dataindex of human development, economic growth and poverty in Grobogan Regency 2010-2020.

Sample

The sample of this research is annual data fromhuman development index, economic growth and poverty rate in Grobogan Regency in 2010-2020 so that the total is 10 years.

B. Variable Operational Definition
The research variables consist of the dependent variable and the independent variable.

Human Development Index (HDI)

This variable was taken from the Central Bureau of Statistics of Grobogan in 2010-2020 which was measured through 3 categories, namely health and longevity, knowledge and a decent life, the data obtained in the form of percent.

Economic Growth

Economic Growth Variables were obtained from data from the Central Statistics Agency (BPS), especially Grobogan Regency's GRDP in 2010-2020 in percent units.

Poverty

Poverty variable is the percentage of the population that has not met the poverty line obtained from the Central Statistics Agency (BPS) of Grobogan Regency in 2010-2020 in percent units.

X. RESULT/FINDINGS

A. Regression Test
Coefficient of Determination (R2)

The Coefficient of Determination Test selects a function to measure the model's ability to provide an explanation of the variation in the dependent variable. The value of the coefficient of determination is in the range of zero (0) and one (1). If the value is small, it indicates that the ability of the independent variable to explain the dependent variable is minimal. However, if the value is close to one (1), this indicates that the independent variable is able to provide all the information to predict the variation of the dependent variable. To determine the coefficient of determination in the study can be observed in the following table.

Table 1. Coefficient of Determination Test Results

Model Summary

Model	R	R Square	Customized R Square	Std. Estimated Error
1	,993a	,986	,983	,26852

a. Predictors: (Constant), HDI, Economic Growth
b. Dependent variable: Poverty
source : SPSS Output SPSS Secondary Data Processed 2022

The results of the analysis of the coefficient of determination (R2) obtained the significance value of Adjusted r square is 0.986,. This shows the ability of the independent variable to explain the dependent variable by 98.6%, and the remaining 1.4% is explained by other variables not used in the study.

B. Simultaneous Test (F)

The F test basically functions to determine whether each independent variable thus in the model has a simultaneous effect on the dependent variable. From the F test, it means that all independent variables are explained significantly through the dependent variable simultaneously. here is the result of Simultaneous (F):

Table 2. Simultaneous Test Results (F)

ANOVA

Model	Number of Squares	df	Square Average	F	Signature.
Regression	41.174	2	20,587	285,529	0.000
Remainder	0.577	8	0.072		
Amount	41,750	10			

a. dependent variable poverty
b. predictor: (constant). HDI, Economic Growth
source: SPSS output secondary data processed (2022)

From the table of data processing results, it is known that the P Value is 0.000 <0.05. So it can be said that economic growth and HDI simultaneously affect poverty.

C. Partial Test (T)

Partial Test (T) was conducted with the aim of knowing the effect of each independent variable, namely HDI and also Economic Growth. Partially the effect of two independent variables on poverty in Grobogan Regency is shown in the figure below:

Table 3. Partial Test Results (T)

From these results obtained the following regression equation:

coefficient

Y= 93.976 - 0.093(X1) - 1.169(X2)

Model		Non-standard coefficient		Standard Coefficient	t	Signature.
		B	Std. Error	Beta		
1	(Constant)	93.976	3.365		27,930	,000
	Economic growth	-,093	0.040	-,098	-2,311	0.050
	HDI	-1.169	0.049	-1.006	-23.821	,000

a. Dependent Variable: Poverty

source : SPSS secondary data output processed, 2022

Referring to the regression equation, it can be described as follows:

a. The constant of 93.976 shows the value of the poverty variable if the independent variables, namely economic growth and HDI are considered zero, meaning that it is not influenced by the independent variable, the magnitude of poverty is 93.976.
b. The economic growth regression coefficient (X1) is -0.093, meaning that if the economic growth variable is added by 1 unit, then poverty will be reduced by 0.093.
c. The HDI regression coefficient (X2) is -1.169, meaning that if the HDI is added by 1 unit, poverty will decrease by 1.169.
d. From table 3, it is obtained that the t value of the economic growth variable is 2,311 and the HDI variable is 23,821. the value of t table with n is equal to 11, k = 3 then the value is 2,306. because t count is greater than t table, then HDI and also economic growth partially have a significant effect on poverty with a negative correlation.

D. The Poor in Grobogan District

Grobogan Regency is one of the regencies in Central Java Province and the administrative center of Grobogan Regency is in Purwodadi City. Administratively, Grobogan Regency consists of 19 sub-districts and 280 villages/kelurahan. The area owned by Grobogan Regency is 1,975.86 KM2. The results of the population census in 2020 noted that the population of Grobogan Regency in 2020 was 1,453,526 people with an average annual population growth rate of 1.02%.

The percentage of poor people in Grobogan Regency although from 2010-2020 tends to show a decline, but the poverty rate of Grobogan Regency still ranks the 12th largest in Central Java Province. When compared to other districts in Central Java Province, the percentage of poverty in Grobogan Regency is 12.46% or around 172,265 people. This figure has increased when compared to the percentage of poverty in 2019 of 11.77 or around 161,921 people (BPS).

Gross Regional Growth (GRDP) in Grobogan Regency fluctuates every year with an average GRDP growth rate of 5.11%. The highest economic growth occurred in 2018 which was 5.83%, while in 2019 economic growth decreased to 5.37%. The structure of the economy in an area is determined by the size of the economic sectors in producing goods and services. The formation of Grobogan Regency's total GRDP is dominated by three main sectors, namely; First, the agricultural sector contributed 28.64%. Second, wholesale and retail trade, car and motorcycle repairs contributed 19.91%. Third, is the manufacturing sector which contributes 13.70%.

The Human Development Index in Grobogan Regency has increased even though in the Covid-19 pandemic situation where in the midst of a limiting situation due to the Covid-19 outbreak, Grobogan Regency's HDI in 2020 grew by 0.01 points from 69.86 points in 2019 which grew to 89.87 in 2020. In the last decade the status of human development in Grobogan Regency is included in the "moderate" category. Although the HDI achievement in Grobogan Regency is generally still below other regencies/cities in Central Java Province, Grobogan Regency's HDI growth still shows a positive trend. HDI growth in 2020 is still much lower than in previous years, especially 2018-2019. This is due to the Covid-19 outbreak which has caused the wheels of the economy to not turn, including Central Java. The economy in Central Java experienced a deep contraction in 2020, resulting in a decrease in the income of most people, including the people of Grobogan Regency. As a result of the decline in income, the average per capita expenditure also decreased.

E. The Effect of Economic Growth on Poverty

From the hypothesis test (X1), economic growth has a significant effect on poverty with a negative correlation. This statement implies that economic growth can affect the poverty level, that is, if there is an increase in economic growth, the poverty rate will decrease. Economic growth as measured by Gross Regional Domestic Product (GRDP) can be used as a reference to see the welfare of the population in an area. This can happen if the GRDP in an area increases, this shows that the welfare of residents in that area is increasing. Thus it can be said that economic growth is a prerequisite for minimizing poverty levels.

Economic growth is a factor supporting the success of development to reduce poverty levels through activities in the economic sector. According to research conducted by (Ridho et al., 2018), economic growth, especially GRDP, has a significant and positive effect on poverty levels, in line with research from Nadya et al. (2019) which states that economic growth has a positive and significant effect on poverty levels, which in his research explains that if an area increases economic growth, this will affect the decrease in poverty levels.

F. The Effect of the Human Development Index on Poverty

From the hypothesis test (X2), the HDI results have a significant positive effect on poverty. HDI is a variable that describes human development or the quality of human resources, where if it increases, the work productivity of the community also increases. When there is an increase in community work productivity, it will reduce the poverty rate in the area.

The results of Syafifullah and Gandasari's research (2016) explain that HDI has a positive effect on poverty levels. The HDI consists of three important dimensions, which include meeting the needs of a long life, living a healthy life, and gaining knowledge, meaning that these three dimensions contribute to poverty levels. This research is also supported by research from Prasetyoningrum and Sulistyowati (2018) which also explains that if the human development index increases which will then reduce poverty, this means that HDI can increase human productivity and can increase human income to fulfill a decent life. The three dimensions of HDI greatly determine the quality of human life. Education plays an important role in absorbing and developing modern technology that can support

economic growth and development. In addition, the health dimension is also important because health is a prerequisite for increasing productivity. So in this case education and health are components in economic development, especially poverty alleviation. The results of Edfrida's research (2019) also show the same results, namely HDI has a positive effect on poverty levels.

XI. CONCLUSIONS AND RECOMMENDATIONS

A. *Conclusion*

From the discussion above, conclusions can be drawn:

a. Economic growth (X1) has a significant positive effect on poverty with a path coefficient value of -0.093.
b. The HDI Human Development Index (X2) has a significant positive effect on poverty with a coefficient value of -1,169.

B. *Recommendation*

The suggestions from the research results and conclusions are:

a. The Grobogan Regency Government should carry out sectoral development that dominates increasing the quality and quantity of production by utilizing existing human and natural resources so as to increase economic growth, especially GRDP.
b. Increasing the Human Development Index (HDI) is more oriented to easy access to education at every level so that people can gain knowledge so that they become human beings who have potential resources.

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E-Government and Corruption Indonesian Government Studies

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Abstract
The purpose of this article is to assess the impact of introducing e-Government on the likelihood of corruption in Indonesian local governments. As a proxy for the e-Government variable, this study used the Ministry of Communication and Information of the Republic of Indonesia's e-Government rating index of provincial governments in Indonesia. Meanwhile, corruption is investigated using 172 local government samples from 2011 to 2013. The governance characteristics examined in this study include accountability, fairness, decentralization, transparency, professionalism, and responsiveness. The e-government variable is measured by the Indonesia e-Government Ranking. A logistic model is used in the study procedure. This study includes calculating the governance index, which is analyzed using the PCA approach. The findings demonstrate that introducing accountability, professionalism, and e-government reduces the likelihood of corruption. However, decentralization increases the likelihood of corruption. Meanwhile, justice, transparency, and responsiveness have failed to reduce the amount of corruption. Furthermore, the study finds that instituting complete governance can minimize the amount of corruption. This report makes recommendations for the government to prevent corruption, such as improving oversight on follow-up recommendations, raising the professionalism of the apparatus, and implementing e-government, in addition to adopting thorough governance to minimize corruption.

Keywords—E-Government, corruption, Local Government, Governance

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I. INTRODUCTION

According to Law No. 20/2001, corruption is defined as violating the law by doing acts to profit oneself or others at the expense of the state or its economy. Not only result in losses In state finances, but corruption also has nonfinancial effects, such as diminishing the integrity of the government's accountability system, diminishing public faith in government, and interrupting public services. Each year, the number of corruption cases reported for investigation in Indonesia grows dramatically. ICW (2020) documents an annual average of 181 corruption instances that can be probed by law enforcement. In the meanwhile, the average number of individuals identified as suspects is 412. Since 2018, a deterioration in law enforcement performance has been seen. Nonetheless, there was a rise the next year, although it was not statistically significant. The same holds true for the element of identifying the culprit. Moreover, there has been a substantial increase in the value of state losses from 2018 to 2020.

In collaboration with the Corruption Eradication Commission (CEK) and the courts, the government has taken action against corruption culprits. Additionally, the government has leveraged information and communication technology (ICT) by constructing an electronic government (e-Government) for public services. Implementing e-Government aims to reduce information asymmetry conditions between agents and principals (Elbahnasawy, 2014) so that opportunities for corruption can be reduced or even (Asorwoe, 2014; Bertot et al., 2010).

Even though the government has adopted e-Government, the number of corruption cases continues to rise, raising the study topic of whether or not e-Government can reduce corruption in Indonesia. Previous research on e-Government and corruption has been conducted (Andersen, 2009; Bhatnagar & Apikul, 2006; Choi, 2014; Emirullah Pemerintahan & Kajian Internasional, 2014); however, the majority of these studies rely on cross-national data. First, UNDP (2006) conducted research on e-Government and corruption in developing and developed countries members of the Organization for Economic Co-operation and Development (OECD) and discovered that e-Government could reduce corruption in developing countries but not in developed countries. Second, Andersen (2009) concluded that the introduction of e-Government was advantageous for reducing corruption in 149 non-OECD nations between 1996 and 2006. Emirullah (2019) discovered empirical evidence that good eGovernment may reduce corruption in 17 Asian nations. Fourthly, Choi (2014) discovered that the deployment of eGovernment in the form of online participation, online services, and improved ICT infrastructure contributed to reducing the country's corruption rate. Fifth, Setyobudi and Setyaningrum (2019) came to different conclusions than UNDP (2006), e.g., e-Government in developed countries

has a practical effect on eradicating corruption since it is already in the transaction and transformation phase compared to its deployment in developing nations.

Intriguingly, despite the fact that the majority of prior research on e-Government and corruption has revealed evidence of a link between e-Government and the elimination of corruption, the indices, and variables employed in this study are derived from a variety of sources. The research results cannot be relied upon (Grönlund & Flygare, 2011) This circumstance inspired Gronlund and Flygare (2011) to analyze the robustness of numerous indices utilized in studies on the influence of e-Government on corruption, including the e-government index, namely the Environmental Data and Governance Initiative (EDGI), Brown university index, Waseda university index, the Economist's e-readiness index, and the International Telecommunication Union's Government Core Indicator (ITU). Indicator for corruption variables utilizes both the Corruption Control Index (CCI) and the Corruption Perception Index (CPI). According to the findings of Gronlund and Flygare (2011), the usage of several e-Government indices resulted in correlation coefficients ranging from 0.49 (less significant) to 0.95. (very significant). In order to achieve accurate study results, Gronlund and Flygare (2011) recommend that future researchers utilize an index or variable that represents reality and not simply perception.

In addition, research on e-Government and corruption in Indonesia has been conducted (Kurnia et al., 2018; Manurung et al., 2019; Nugroho, 2014; Simarmata, 2017). These investigations were undertaken from a legal standpoint. According to research by Nugroho (2014), Kurnia et al. (2018), and Simarmata (2017), the deployment of e-Government in government administration facilitates public services and reduces corruption by enhancing openness and accountability. However, Manurung et al. (2019) reach a different conclusion. The amount of corruption incidents in the purchase of goods and services through the Electronic Procurement Service (LPSE) demonstrates that Indonesia's e-government is not yet trustworthy in combating corrupt activities (Manurung et al., 2019). ICT has no meaningful impact on eliminating corruption and instead creates new chances for it (Heeks, 2020). The findings of Manurung et al. (2019) are consistent with the research completed in 2013 by the Harvard, MIT, and U.Michigan research groups on 20,000 and 14,000 e-procurement-using road building contracts in India and Indonesia, respectively, as mentioned by Holman (2014). The study team discovered that e-procurement did not considerably reduce the manipulation of technical standards in India and Indonesia road building projects. The auditors were unable to quickly discover the manipulation that happened, which contributed to state losses. Indonesian study on e-Government and corruption is extremely intriguing due to the discrepancy of prior research results. Therefore, the purpose of this study is to collect real information regarding e-Government interactions and corruption in Indonesia.

Two contributions are made to this research. Firstly, research has influenced the evolution of public accounting. The research presents empirical evidence that e-government is a crucial aspect considered in the governance planning activities of public-sector organizations in order to decrease corruption chances within organizations. Second, research has aided governments by giving information on the efficiency and utility of e-government implementation for overseeing public service operations in Indonesia.

II. LITERATURE REVIEW

a. Agency Theory and Corruption

The agency theory outlines the potential for conflict between the agent and the principle (Jenson & Meckling, 1976). There are also agency interactions in public sector organizations. Individuals serve as principals, whereas governmental officials operate as agents. By designating the State Civil Apparatus, public authorities are liable for public service actions (ASN). The reason of the dispute between the principal and the agent is the agent's opportunistic behavior (Jenson & Meckling, 1976; Klitgaard, 2020). For every choice they make, agents prioritize their own or their group's interests over the public's. By engaging in bribery, embezzlement, fraud, nepotism, and extortion, agents pursue their own self-interests (Pirannejad, 2017)

The definition of corruption is currently expanding. According to Klitgaard (2020) and Rose-Ackerman, corruption is not simply motivated by economic factors (1999). However, it is also motivated by other factors, like the desire to preserve political power (Sikka, 2008). According to Hopkin (1997), corruption in the public sector is associated with political leadership. Political corruption happens at the highest levels of power, particularly when designing policies

and laws to reap economic gains for politicians and lawmakers (Bakre, 2008). Corruption incidents involving politicians and lawmakers in Indonesia occur mostly during the budgeting process and result in state financial losses (Maria & Halim, 2020).

According to Tanzi (1998), corruption in emerging nations is more serious than in developed nations. This is because corruption in developing nations is typically carried out at the discretion of influential public officials in the absence of an effective oversight structure. There are several opportunities for corruption there. In addition, legal enforcement is typically poor in developing nations. The law cannot serve as a disincentive for corrupt actors. Hence corruption flourishes in that area. Corruption distorts government expenditures and resource allocation and decreases investor trust in nations with high corruption levels (Elbahnasawy, 2014).

b. The Concept of E-Government in Indonesia

E-Government refers to the provision of online government services to the general public and companies, including e-tax, e-transportation, e-procurement, and e-participants (Gupta et al., 2016). In the 1970s, ASEAN began to create electronic government. Brunei Darussalam was the pioneer when it announced a vision in 2035. In the 1980s, Singapore then unveiled the Intelligent Nation programme. In 1997, E-Government was introduced in Malaysia. In 2001, the Indonesian government initiated the use of e-Government in public administration activities.

The ASEAN 2020 strategy plan fosters the development of e-Government services by all member states. Development relies on shared services to promote cross-border movement of people and things. Registration, licensing, and certification, money creation, and social returns are areas where E-Government is being explored. To ensure the success of the program, all ASEAN members must prepare themselves by advancing science, technology, and infrastructural innovation.

E-Government streamlines and integrates data and information management workflows and procedures to enhance the quality of public services. E-Government is used to perform services involving government personnel, people, the business sector, and other government agencies and their employees. The Ministry of Communications and Information in Indonesia has been preparing a blueprint for e-Government application since 2003. The blueprint application is meant to be adaptable since it is independent of organizational structure and policy changes in government agencies and allows each local government to translate and adapt it

Presidential Instruction No. 3/2003 on the National Policy and Strategy for the Development of e-Government regulates the implementation of e-Government in Indonesia. This rule defines four tiers or stages of developing e-Government in Indonesia. The initial phase is the preparatory phase. At this stage, activities include the creation of information sites for each government agency, the preparation of human resources and information technology infrastructure to support the e-Government implementation process, and the internal and external promotion of the information site. The maturation stage is the second phase. Activities at this level involve the creation of an interactive, interconnected public information website. The consolidation stage is the third phase. This phase includes the development of a website for public service transactions, as well as application and data connectivity with other government entities. The fourth phase is known as usage. At this level, Government to Government (G2G), Government to Business (G2B), Government to Citizen (G2C), Government to Employee (G2E), and Government to Employee (G2E).

G2G focuses on enhancing the administrative processes of central and local governments to reduce expenses from an economic and social standpoint. G2B focuses on government and private sector taxation, licensing, certification, and company reporting operations. Utilizing ICT is advantageous for enhancing supply chains and corporate competitiveness. G2C focuses on empowering individuals with the right to seek, produce, receive, and disseminate information on critical problems of government-provided public services. This position can promote the openness of public authorities' exercise of power by monitoring citizen safety, the budgeting process, and the operation of local government. Meanwhile, G2E focuses on payroll transaction assistance, employee happiness, and the labor market to boost employee productivity.

The establishment of the National Information and Communication Technology Council,, (DeTIKNas) in 2006 helped the government focus on addressing strategic issues of e-Government. There are 16 main agenda programs that must be realized, such as e-Procurement, Single Identity Number, e-Budgeting, e-Learning, e-Health, Digital TV, Tecno Park, including the preparation of policies and infrastructure to support the e-Government implementation process. Kurnia et al. (2018) stated that Law no. 11/2008 concerning Information and Electronic Transactions is a legal umbrella that dispels public doubts regarding the legitimacy of the use of information technology in public service administration activities. This law offers copyright protection for electronic publications. From 2014 to 2019, E-Government has been a priority area of the Indonesian broadband expansion agenda. Pitalebar is an always-connected, secure, tri-play internet connection with a minimum speed of 2 Mbps for fixed access and 1 Mbps for mobile access. Therefore, it is anticipated that pitalebar will be able to provide, process, and transmit information more rapidly, openly, accountably, effectively, and efficiently. The objective is for the information to maintain or increase its value to the community. This rule demonstrates the government's commitment to establishing e-Government at the national, regional, and municipal levels

c. Good Government Governance

Good governance consists of maintaining the mandate of the people, running the government to improve independence, fostering sustainable development, and attaining social justice. Corruption-free government administration means that GGG has been attained (KNKG, 2010).

Bappenas establishes several GGG principles in order to design a sound state administration system (Bappenas, 2007): visionary, openness and transparency, community participation, accountability, law enforcement, democracy, professionalism and competence, responsiveness, efficiency and effectiveness, decentralization, a partnership between the private sector and the community, reducing inequality, commitment to environmental protection, and achieving a fair market. In addition to Bappenas, the KNKG is the organization that creates governance to accomplish GGG. This committee is a group of GGG-interested specialists with the mission of formulating a plan for the implementation of GGG in Indonesia (KNKG, 2010). According to the KNKG, the GGG's guiding principles are accountability, supervision, responsiveness, professionalism, efficiency and effectiveness, transparency, justice and equality, foresight, involvement, and law enforcement. This study employs the GGG concept defined by KNKG to examine GGG. Accountability, fairness, decentralization, openness, professionalism, and responsiveness are some of the factors whose effects on corruption are explored. Due to a lack of data to undertake measurements, the additional components were not investigated.

d. Hypothesis Development

E-Government is the government's use of information and communication technology (TIK) to operate more efficiently, share information, and improve public services (UNDP, 2006). This concept relates to disseminating government information and services to individuals and companies via the internet and other digital platforms. UNDP (2006) defines corruption as public officials' misuse of power and authority for private gain. Corruption negatively influences a nation's economic progress (Elbahnasawy, 2014).

Klitgaard (2020) explains government corruption from an agency theory approach. Theoretically, the community serves as the principal, delegating authority to public officials as agents. It was discovered that the interests of the agent and the principal do not always coincide. This state motivates actors to behave strategically (Baiman, 1990; Eisnhardt, 1989; Jenson & Meckling, 1976). Agents are free to carry out their duties due to the high cost of supervision, which creates information asymmetry (Hopkin, 1997). The agent possesses more excellent knowledge than the principal. Informational inequality creates opportunities for corruption (Hopkin, 1997; Klitgaard, 2020). Thus, corruption is an issue of information asymmetry that may be described by the principal and agent models of agency theory

According to Klitgaard (2020), corruption occurs because there is a massive monopoly of authority and discretion in government decision-making, but the level of accountability is inadequate. In public sector organizations, monopoly power dominates policies, regulations, and even resources for the advantage of people or groups. Due to the complex and time-consuming bureaucracy in public sector companies, public officials' enormous discretion might provide the potential for abuse. Meanwhile, accountability is minimal since the community is not participating in decision-making.

The mathematical expression for corruption is K= M+D-A, where K=corruption, M=monopoly, D=discretion, and A=accountability (Klitgaard, 2020). In other words, boosting bureaucrats' capacity to manage and act arbitrarily on information will encourage corruption. Moreover, less responsibility and oversight from superiors and the general public can exacerbate corruption. When public officials have a monopoly of power and information, corruption is more likely to arise (Elbahnasawy, 2014; Klitgaard, 2020). Corruption occurs when public officials abuse their positions and authority for personal or group gain. To combat corruption, it is crucial to reform the relationship between principals and agents to remove monopolies of power and information access (Klitgaard, 2020).

According to agency theory, E-Government has the potential to transform the relationship between principals and agents in public sector organizations (Elbahnasawy, 2014; Mahmood, 2004; Pirannejad, 2017). E-Government can reduce the information gap between agents and principals, lowering or eliminating corruption (Elbahnasawy, 2014). The usage of TIK can increase government transparency, access to performance data, and the delivery of public services, hence increasing public trust in their government (Kolstad & Wiig, 2009)

E-Government contributes to increased accountability since the application makes it easier for citizens to monitor the choices and activities of agents. Also, e-Government was discovered to let the public criticize agents' use of arbitrary processes (Pirannejad, 2017). Using e-Government by the government can help streamline procedures and connections between the public and companies with public officials in government agencies, hence reducing corruption, particularly in the form of bribes and gratuities.

Cross-country research on e-Government and corruption revealed that introducing e-Government could reduce corruption (Andersen, 2009; Choi, 2014; Emirullah, 2014; Krishnan et al., 2013; UNDP, 2006; Setyobudi & Setyaningrum, 2019)On the other hand, earlier research undertaken in developing nations has yielded conflicting results (Mahmood, 2004). Holman (2014) and Manurung et al. (2019) discovered that electronic procurement of products and services in India and Indonesia was rife with corruption. This indicates that the deployment of e-Government in these two nations has not decreased corruption. In contrast to Kim et al. (2009), who found evidence that the implementation of online procedures enhancement for civil application (OPEN) in the Seoul Metropolitan Government, South Korea, can reduce corruption, we found that the implementation of online procedures enhancement for civil application (OPEN) does not affect corruption.

From a legal examination, Simarmata (2017) and Kurnia et al. (2018) determined that in Indonesia, current national or central rules and regulations on e-Government may be utilized as a foundation for local governments to manage e-government utilizing e-Government. The application of ICT has yielded positive outcomes and is exhaustive and transparent. In addition to facilitating services and reducing service costs, using ICT can decrease corrupt behaviors (Simarmata, 2017). The study hypothesis so describes the link between e-Government and corruption in local government in Indonesia.

H_1: The level of accountability reduces the probability of corruption.

e. The Impact of LKPD Fairness Level on Corruption Probability

Government officials' compliance with applicable norms and laws embodies the notion of fairness (KNKG, 2010). The connection between the fairness of financial statements and governance is that, with information from fair reports serving as a basis for decision making, the quality of decisions made will be enhanced (Heuer et al., 2007). The organization's information serves as a management tool for decision-making and assessment. Therefore, the accuracy of the information transmitted has a significant impact on decision-makers. The level of fairness of local government financial reports in Indonesia is evaluated by the BPK auditor based on the audit's view. It is anticipated that this opinion will serve as a whistleblower on problems in local government for both community and agency officials so that it will not occur again the following year.

Research on local government in Indonesia demonstrates that audit opinion has no substantial impact on corruption levels in Indonesia (Heriningsih, 2013). The contrary conclusion was reached by Masyitoh et al. (2015), whose research found that audit opinion had a substantial effect, namely a reduction in corruption. A favorable audit opinion helps minimize corruption since it offers assurance that the supplied financial information is correct and accounted

for. In addition, the regional government receives a fair judgment if it compiles financial reports in accordance with established accounting standards and the internal control system so as to decrease the likelihood of deviant activities leading to corruption. This study attempts to demonstrate that there is a relationship between the degree of justice and corruption by referencing past studies and existing viewpoints.

H_2: The level of fairness of LKPD reduces the probability of corruption.

f. The Influence of Decentralization Level on Corruption Probability.

Decentralization is supposed to improve the functioning of local governments. However, the growth of decentralization and autonomy might weaken oversight, which can encourage public sector corruption (Von Maravic, 2007).

Wu's (2005) research demonstrates that decentralization without accountability increases corruption. The existence of decentralization increases the flexibility of local governments in managing finances, thereby increasing the opportunity for corruption if it is not accompanied by an adequate control system (Klitgaard, 2020), while Saputra (2012) demonstrates that it has a negative effect on corruption levels.

The dispersion of government officials' jurisdiction enhances the level of oversight. Similarly, Fiorino et al. (2015) asserted that fiscal decentralization affects curbing corruption. After three to five years of adopting fiscal decentralization, this reduction is much more pronounced if the quality of governance has improved. Based on the hypothesis and prior research

H_3: The level of fiscal decentralization decreases the likelihood of corruption.

g. The Influence of Transparency Level on Corruption Probability

Transparency is the ease with which the public may receive information in a timely and trustworthy way, including information on economic, social, and political concerns pertinent to stakeholders' requirements (Al-Mahayreh, 2015; Kolstad & Wiig, 2009). The expenses that result from the utilization of resources illustrate the direct influence of openness on corruption; without transparency, it cannot be determined whether the apparatus has committed corruption or not (Kolstad & Wiig, 2009). However, information supporting transparency must be pertinent to corruption instances that may be perpetrated by government officials, such as information on government income, expenditures, and contracts, as well as purchases of products by government officials.

According to Lindstedt and Naurin (2005), transparency, exemplified by media freedom, is a tool that may be used to combat corruption. However, openness cannot have a detrimental effect on corruption without proper accountability and publicity. Implementing GGG transparency in Indonesian government agencies is characterized as the disclosure and provision of adequate, stakeholder-relevant, and easily accessible information (Bappenas, 2007).

Setyaningrum et al. (2017) said that transparency aids the implementation of GGG in Indonesia's fight against corruption. In order to conduct impartial oversight of governmental management through openness. Considering the experience and prior studies.

H_4: The level of transparency reduces the probability of corruption.

h. Professionalism's Impact on the Probability of Corruption

The realization of GGG, which is characterized by the establishment of a corruption-free state, demands the professionalism and skill of state administrators. Increasing professionalism and skill is one method for preventing corruption (Doig & Riley, 1998). Increased competency influences professionalism to enhance the integrity of state officials (Whitton, 2015). Professionalism is a person's ability to behave in accordance with applicable norms and standards when doing their obligations, whereas competence is a person's education/training/experience-based expertise in performing his duties. The training that is followed to increase their expertise has an effect on their understanding of the norms, values, service standards, sanctions, and rewards in carrying out their duties so that they can be expected to behave professionally by providing better services to the community and generating trustworthy, accountable reports. To decrease the prevalence of corruption.

Training for government personnel is a method for preventing corruption over the long run (Poerting & Vahlenkamp, 1998). Knowledge of acts of corruption will strengthen government officials' ability to determine which behaviors constitute acts of corruption, recognize the existence of acts of manipulation, and recognize the necessary procedures to avoid them. The PP no. 101 of 2000 about education and training for state employees governs the increase in the professionalism of government officials in Indonesia. It is expected that the professional demeanor of government officials in carrying out their responsibilities with the utmost honesty will preclude conduct that might be detrimental to the interests of the community. This study believes that with the skills acquired via education and training. Government officials may run the government and manage resources with a high level of professionalism and honesty. Based on past study and experience.

H_5: Professionalism decreases the likelihood of corruption.

i.   The Impact of Responsiveness on Corruption Probability

Responsiveness indicates the attitude of state officials who are responsive in providing services to the community, resulting in improved service quality. The relationship between responsive integrated services and corruption is that responsive integrated services allow the administration to be conducted in a single location, simplify procedures, increase transparency, and reduce face-to-face contact between officials and the community, reducing the likelihood of corruption. Investors who need to take care of licensing come to a centralized location to take care of different permissions and non-licensing, complain about business-related issues, and receive resolutions to these issues (Bappenas, 2014). Based on past studies and experience

H_6: Responsiveness decreases the likelihood of corruption.

j.   The Impact of E-Government on Corruption Probability

Reduce the direct link between government officials and the general people to combat corruption (Klitgaard, 2020). Information and communication technology is the ideal instrument for this strategy. Transparency enhances and decreases inconsistencies through increasing information sharing, simplifying operations, and facilitating data retrieval. E-government decreases the information gap between the local administration and the community (Klitgaard, 1998). This knowledge imbalance can be minimized by the use of information and communication technologies (Elbahnasawy, 2014; Pirannejad, 2017). Elbahnasawy (2014), Lio et al. (2017), Bertotet al. (2010), and Andersen (2009) have demonstrated that e-government has a detrimental impact on the impression of corruption. Conclusion: the usage of information and communication technologies has an effect on eliminating corruption in Indonesian local governments. Based on past study and experience.

H_7: The use of e-government in local governments reduces the probability of corruption.

III. RESEARCH METHODOLOGY

k.   Research Model

This study's model is divided into two parts.

Model 1:

$$logit\ kor_{it} = \beta_0 + \beta_1 ACCT_{it} + \beta_2 FAIR_{it} + \beta_3 DEC_{it} + \beta_4 TRANS_{it} + \beta_5 PROF_{it} + \beta_6 RESP_{it} + \beta_7 EGOV_{it} + \beta_8 IPM_{it} + \beta_9 Wage_{it} + \beta_{10} COMPLEX_{it} + \varepsilon$$

l.   Data Analysis

The gathered samples consisted of 172 samples representing 172 local governments for three years, including 59 local governments in 2011, 45 local governments in 2012, and 68 local governments in 2013. The research population consisted of all Indonesian local governments. Local governments polled by the Ministry of Communication and Information (Kemenkominfo) so that e-government index data is accessible or known as the Indonesian E-

Government Ranking comprised the sample for this study. This local government prepares LKPD and seeks an opinion from the BPK about the auditing outcomes of financial accounts. According to Andersen's research, the data in this study are imbalanced panels since they consist of time series elements and cross-sectional characteristics (2009). The estimate method utilized in this study is ordinary least square (OLS).

m. Variable Operational Definition

n. Dependent Variable

The researcher's aims dictate the choice of measuring application. Because this study aims to estimate the likelihood of corruption in local governments, the probability is measured using a dummy variable, with a value of 1 if corruption cases are being investigated by the KPK and the Attorney General's Office and a value of 0 otherwise. The statistics collected pertain to instances of corruption from 2011 to 2013. Salih (2013) implemented the technique of measuring corruption with probability, which assesses the likelihood of corruption by splitting the sample into two categories: the sample of nations thought to have corruption and the sample of countries seen to be free of corruption. The categorization is based on Transparency International's Corruption Perceptions Index (CPI). The CPI value is turned into a dummy variable with a value of 0 if the CPI value of a nation is low, suggesting a low amount of corruption and a value of 1 otherwise. This study calculates the values 0 and 1 using the approach of maximum likelihood.

o. Accountability Independent Variables (ACCT)

The level of accountability is defined by the proportion of suggestions that were followed up on plus those that could not be followed up on, divided by the total number of recommendations (TLRHP) (Liu & Lin, 2012). The greater the TLRHP level, the more eager the local government is to improve the management of state funds to establish a GGG implementation that represents a government free of corruption.

p. Fairness (FAIR)

Heriningsih and Merita (2013)utilized an ordinal variable, such that if the WTP or WTP opinion were gained, the DPP would receive 1 point. However, if the WDP, TW, and TMP received points, the DPP would receive 0 points. This assessment provides the basis for determining whether the local government has implemented good governance from the perspective of creating a government that is clean and devoid of corruption and collusion

q. Decentralization Level (DEC)

The level of fiscal decentralization is an indicator of the efficiency and effectiveness of local governments (Goel & Nelson, 2011; Treisman, 1999). This research used the ratio of Regional Original Income (PAD) to overall Regional Income to measure fiscal decentralization, citing Saputra's work (2012). The greater the decentralization value produced from comparing PAD to total regional revenue, the greater the financial autonomy of the local government (Saputra, 2012).

r. Transparency (TRANS)

Disclosure in financial statements is an indicator of openness, according to a study by Djasuli et al. (2013). CALK refers to the Guidelines for Government Accounting Standards (PSAP), which gauges the amount of compulsory disclosure based on PP no. 71 of 2010 Appendix II. Disclosure is measured via LKPD content analysis, specifically by comparing disclosures in LKPD to PSAP (Heriningsih, 2013). To improve the impact of openness on the degree of corruption, the only relevant information is disclosed, including information on income levels, expenditure levels, contracts held by local governments, and information on purchases of commodities by local governments.

s. Professionalism (PROF)

This study implies that professional growth results from education and training that enhances competence. As a result of their education and training, government employees are better able to apply values and standards to their jobs, increasing their professionalism. The indicator is whether or not local government expenditures are

allocated for education, training, and scholarships for local government officials in a particular year.

t. *Responsiveness (RESP)*

Bappenas measures the responsiveness level of local government personnel based on the existence or absence of the one-stop integrated service (PTSP) (2014). The local government's PTSP services include services for different permissions required by the community to be more responsive to community demands. The provision of many permits at a single location minimizes the frequency of encounters between authorities and the community, limiting corruption potential.

u. *E-Government (EGOV)*

Using the Indonesian e-Government Rating, the Ministry of Communication and Information assesses e-government in Indonesia (PeGI). The index assesses the deployment of technology and information in central and regional government organizations. The PeGI index value issued to each local government is utilized in this study. Based on the PeGI index, the following is a measurement of the implementation of e-government in Indonesia: (Kominfo, 2015)

3,60 ≤ Very Good < 4,00

2.60 ≤ Good < 3.60

1.60 ≤ less < 2.60

1.00 ≤ very less < 1.6

v. *Variable Control*

1. *Human Development Index*

Rajasa (2014) uses the human development index (HDI) to estimate the province's level of education. The Human Development Index (HDI) has demonstrated that it helps reduce corruption in Indonesia (Rajasa, 2014). Community ownership of adequate education will boost government implementation oversight, hence reducing the likelihood of corruption. Education is crucial to combating corruption (Lin and Liu, 2012). It is intended that a high level of knowledge for residents will strengthen citizen oversight of local government operations. This research uses the BPS-published Human Development Index proxy.

w. *Wage Rate (WAGE)*

The degree of salary is utilized by Treisman (2000), Liu and Lin (2012), and Dong and Torgler (2013) as a controlling variable that can influence the level of corruption. Government officials' degree of compensation influences their desire to engage in corrupt behavior. With a large wage, it is believed that the desire to commit acts of corruption will decrease. In addition, there is the GONE hypothesis, of which Greed is one component (Bologna, 1993). The hypothesis asserts that officers' avarice is the root of corruption, such that they continue to perform corrupt crimes despite their high pay.

x. *Level of Complexity*

Government agency complexity is one of the variables that contribute to corruption. According to Prud'homme (1995), operating complexities and elaborate regulations without oversight might contribute to the spread of corruption. According to Nurhasanah's (2016) research, the complexity of ministries/agencies is assessed by the number of work units. This study employs the number of local government work units (SKPD) as a measure of complexity based on prior research.

IV. RESULT / FINDING

a. *Research Result*

Table 1. Descriptive Statistical Results

Variabel	Obs	Mean	Std. Dev	Min	Max
ACCT	172	0,61	0,263	0,16	1
DEC	172	0,08	0,07	0,02	0,53
TRANS	172	0,70	0,05	0,61	0,82
EGOV	172	1,7	0,49	1,01	3,49
IPM	172	70,69	4,51	57,43	79
WAGE	172	533,7 Billion	322,58 Billion	168,31 Billion	2,049 Trillion
COMPLEX	172	48,67	18,42	22	170

ACCT is determined by comparing the number of suggestions that have been implemented and those that cannot be implemented to the total number of recommendations made by the BPK examiner during the previous year. DEC is a measure of fiscal decentralization determined by dividing the total local revenue by the overall income. TRANS number of income, spending, contract, and purchase-related disclosures per total disclosure. EGOV for the e-government category, HDI for the human development index, WAGE for local government salary expenditures, and COMPLEX for the number of SKPD in local governments.

Table 2. Frequency Table

Variabel		2011	2012	2013
KOR	0 - no corruption cases	90	87	85,3
	1 – corruption case	10	13	14,7
	Total	100	100	100
FAIR	0 – other than the opinion of WTP and WTP DPP	88,14	77,78	54,41
	1 – opinion of WTP and WTP DPP	11,86	22,22	45,59
	Total	100	100	100
PROF	0 – no disclosure of local government apparatus training	8,5	13,33	10,29
	1 – there is disclosure of training for local government officials	91,5	86,67	89,71
	Total	100	100	100
RESP	0 – no PTSP	8,47	11,11	8,82
	1 – PTSP	91,53	88,89	91,18
	Total	100	100	100

KOR whether there are examples of corruption. FAIR is the view of LKPD in the previous year acquired by the local government, measured by WTP and WTPDPP is 1 and 0 if not. PROF represents the existence or lack of education and training offered by the local government, assessed by a dummy, 1 if there is and 0 if there is no training education. RESP represents the existence or absence of One Stop Services (PTSP) in the local government, assessed by a dummy of 1 if there is and 0 if there is no PTSP in the study year

Table 1 contains descriptive statistical information about study data. The findings of descriptive data indicate that the average degree of accountability of local governments in Indonesia is 61%, showing that local governments are willing to handle finances more responsibly by implementing audit suggestions from prior years. Comparatively, the amount of decentralization, as measured by the ratio of original revenue to total local government revenue, was, on average, 8%, ranging from 2% to 53.3%. This demonstrates that, on average, local governments in Indonesia have lower local income than overall revenues, which contributes to their lack of autonomy in handling regional budgets. As evaluated by obligatory disclosures, the average degree of openness in CALK regarding corruption is 70%, with

the lowest transparency value being 61% and the highest being 82%. The high degree of local government transparency in Indonesia suggests that local governments in Indonesia comply with disclosure requirements in their financial reports. The average e-government implementation in Indonesia has attained a score of 1.7, with the highest implementation scoring 3.49 and the lowest implementation scoring 1.01. Based on the Kominfo reference, the PeGI index indicates that the average implementation of e-government in Indonesia is still deemed inadequate and must be enhanced in quantity and quality. The controlling variable indicates that the average degree of human development in Indonesia is 70.69 percent, while the average local government wage spending is 533.7 billion. The number of task units per local government showed a moderate complexity of 48.67 percent. In the three years of the survey, there was an increase in the number of local government corruption cases, while the proportion of local governments with WTP and WTP DPP attitudes climbed from 11.86 percent to 45.59 percent. These data imply that the financial management of local governments in Indonesia has improved. As indicated by the disclosure of local government officials' training status, the professional variable declined from 91.5 percent to 89.71 percent. Comparatively, the responsiveness determined by the presence or absence of PTSP decreased from 91.59 percent to 91.18 percent.

b. Regression Results

Table 3. Model 1 Regression Results

variabel	Uji	Ekspektasi tanda	Tanda	Odds Ratio	Prob.	Ket.
C			+	0.000	0.254	
Variabel independen						
ACCT	H1	-	-	0.17	0.025	**
FAIR	H2	-	+	2.11	0.118	Tidak Signifikan
DEC	H3	-	+	64.86	0.000	***
TRANS	H4	-	-	0.062	0.260	Tidak Signifikan
PROF	H5	-	-	0.062	0.000	***
RESP	H6	-	-	0.513	0.256	Tidak Signifikan
EGOV	H8	-	-	0.246	0.015	**
Variabel kontrol						
IPM		-	-	0.868	0.0175	**
WAGE		-	+	12.936	0.044	**
COMPLEX		+	+	1.027	0.02	**
Pseudo R-squared						0.2554
Prob>chi2						0.0021
Log Pseudolikehood						48.97

***Signifikansi pada level 1%

**Signifikan pada level 5%

*signifikan pada level 10%

The regression results in model 1 show that hypothesis 1, namely the level of accountability affects reducing the probability of corruption, hypothesis 4, namely the effect of professionalism on decreasing the probability of corruption, and hypothesis 7 that e-government plays a role in reducing the probability of corruption, is proven to be supported by data, while hypothesis 3 is the level of fiscal decentralization has an effect on increasing the probability of corruption significantly

The three primary factors in this study, fairness, transparency, and responsiveness, were not demonstrated to impact the amount of corruption. In contrast, the regression findings of the control variables in model 1 revealed that the HDI level variable influenced the chance of corruption. In contrast, the income level (WAGE) and complexity (COMPLEX) affect rising corruption chances.

c. Additional test Results

Model 2

$$logit\ kor_{it} = \beta_0 + \beta_1 GGG_{it} + \beta_2 EGOV_{it} + \beta_3 IPM_{it} + \beta_4 Wage_{it} + \beta_5 COMPLEX_{it} + \varepsilon$$

According to the research of Setyaningrum et al. (2013) and Zou et al., the GGG index was constructed using the principal component analysis (PCA) technique (2006). Eliminating the connection between independent variables into new, unrelated variables is the technique's objective. A linear combination of components is created without PCA, which is difficult to comprehend. Table 4 below displays the regression with model 2 as an additional test:

Table 4. Model 2 Regression Results

Variabel	Uji	Ekspektasi tanda	Tanda	Odds Ratio	Prob.	Ket.
C				0.000	0.003	
Variabel Independen						
GGG	H1	-	-	0.454	0.008	***
EGOV	H2	-	-	0.459	0.09	*
Variabel Kontrol						
IPM		-	-	0.895	0.042	**
WAGE		-	-	7.887	0.06	*
COMPLEX		+	+	1.021	0.04	**
Pseudo R-Squared					0.1117	
Prob >Chi2					0.0118	
Loglikehood					-58.424	

***Signifikan pada level 1%

**Signifikan pada level 5%

*Signifikan pada level 10%

KOR if there are instances of corruption Results of the GGG government governance index PCA EGOV category e-gov HDI human development index WAGE expenditures on local government wages COMPLEX the number of SKPD inside local governments.

The regression results of model 2 indicate that the implementation of comprehensive governance, which is comprised of accountability, fairness, decentralization, professionalism, transparency, and responsiveness, significantly reduces the likelihood of corruption. In contrast, the regression results of model 2's control variables yield the same results as model 1: the HDI level reduces the likelihood of corruption, whereas the salary level (WAGE) has no effect.

V. DISCUSSION

The results of the research on hypothesis 1, which demonstrate that the level of accountability influences the likelihood of corruption, are consistent with the findings of Liu and Lin (2012), who found that the local government's willingness to implement the examiner's recommendations influences the likelihood of corruption. In conjunction with the number of findings recorded by the examiner, the number and kind of irregularities committed by government personnel serve as a proxy for accountability. The supervision of compliance with the implementation of local government management with the control system and law encourages local governments to effectively manage their resources to promote accountability and decrease authority abuse and embezzlement. These results are consistent with Klitgaard's (1998) assertion that accountability can be a strategy for reducing corruption when there is a great deal of discretion in managing the apparatus's resources.

This study could not demonstrate the relationship between the assessed degree of local government opinion fairness and the likelihood of eliminating corruption. These results concur with Heriningsih and Merita (2013) but contradict Masyitoh et al. findings (2015). This is because the BPK's opinion is not based on the presence or absence of deviant activities or actions that lead to corrupt behavior but on the adequacy of the regional government's records and accounting standards.

Following Wu's (2005) findings, fiscal decentralization has a strongly favorable effect on the potential of corruption. Due to the transfer of responsibility from the central government to local governments, fiscal decentralization favors corruption. However, this effect is not accompanied by enhanced accountability and effective oversight. This study confirms Klitgaard's (1998) assertion that the delegation of authority without adequate oversight encourages local governments to engage in deviant behavior that leads to corruption.

The results indicate that the method for providing information on local governments' earnings, expenditures, contracts, and purchases has not been able to lower the likelihood of corruption. These findings contradict Kolstad and Wiig's (2009) research on natural resource-rich nations. The application of CALK LKPD as a proxy for transparency in local government cannot be a factor that reduces the likelihood of corruption. The low level of punishments received if caught in the act of corruption, the low likelihood of corruption being exposed, the high degree of information asymmetry, and the low amount of public oversight are all factors that do not influence the level of corruption transparency.

The study findings on the relationship between professionalism and the likelihood of corruption indicate that professionalism can minimize the likelihood of corruption. This conclusion confirms the opinion of Doig and Riley (1998) that education and training will increase the apparatus's understanding of appropriate local government administration, strengthen monitoring, and inform government employees about the repercussions of engaging in deviant behavior. It is anticipated that a rise in professionalism will raise the proficiency of government officials in doing their duties correctly, making the process of reviewing the performance of the apparatus more efficient. A well-functioning performance evaluation permits the provision of incentives to motivate government employees to carry out their responsibilities correctly by increasing the incentives they get rather than by raising their income through dishonest conduct. This study did not demonstrate that responsiveness reduces the likelihood of local government corruption. This is because the responsiveness evaluated by the One-Stop Integrated Service (PTSP) has not been standardized, and there are regional disparities in service quality (Bappenas, 2014). In addition, the still-complicated service processes prevent PTSP from impacting the government's attempts to lower the likelihood of corruption. Improving the functionality of PTSP requires the seriousness of the local government in developing public services policy.

The eighth research hypothesis asserts that e-government has been shown to reduce the likelihood of corruption. This finding corroborates the findings of Lio et al. (2017), Bertot et al. (2010), and Elbahsanawy (2014), who evaluated the detrimental influence of e-government on the international level of corruption. According to Elbahsanawy (2014), technology deployment in local governments reduced corruption. Technology makes information readily accessible and data retrieval facilitated, hence reducing acts that violate rules. The greater availability of information has led to increased internal and external oversight. The research findings on the HDI variable show that a greater level of public education will raise the monitoring capability of the community, hence decreasing the likelihood that local government officials will engage in deviant behavior. The public's oversight is vital to preventing corruption, although wage level

has a role in raising the likelihood of corruption. This confirms the GONE hypothesis (Bologna, 1993) that corruption is fueled by greed, therefore, despite a high pay, the motivation to increase revenue through corruption remains. The research findings on the complexity variable indicate that the degree of local government complexity positively influences the corruption likelihood. The results of this study concur with those of research (2016) and Lin and Liu (2012), which indicate that the more complex an organization is, the more corruption will emerge.

In this study, further test findings demonstrate that the influence of governance on lowering the likelihood of corruption is powerfully demonstrated. These findings provide empirical evidence that the governance components developed by Bappenas (2007) and KNKG (2010) can minimize the likelihood of corruption when applied concurrently. In addition, the findings are consistent with Klitgaard's (1998) assertion that government control can provide the desired outcome, namely a decrease in the rate of corruption.

VI. Conclusion and Recommendation

Accountability, professionalism, and e-government, which may be derived through research analysis, have an empirically negative influence on corruption. Meanwhile, data do not support the degree of fairness, transparency, and responsiveness in lowering the likelihood of corruption. The study's test level of fiscal decentralization results indicates that fiscal decentralization influences the likelihood of corruption incidents. Delegating authority from the center to the regions for decentralization is intended to strengthen oversight. In practice, however, it improves the freedom of local government officials in managing resources, which motivates them to engage in corrupt behavior.

Suggestions for further study are the development of a professionalism measure. This study's measure of professionalism is based solely on the presence or absence of training held by the local government, not on the type/subject of training held; therefore, it is unable to capture the types and topics of training that are most relevant to efforts to reduce the likelihood of corruption. Future study is anticipated to enhance analysis based on additional measures, such as grouping by kind of training, such as whether or not anti-corruption training is provided. The weakness of this research is that it only investigates corruption based on the existence or absence of local government corruption; thus, it is recommended that future research validate these findings by conducting surveys and interviews to provide a more comprehensive analysis. This study believes that competence influences enhancing the apparatus's professionalism, but in actuality, competence has a different meaning. Competence can be determined based on the equipment's degree or type of education. In contrast, government employees' professionalism is judged by their adherence to appropriate norms, principles, and standards. Therefore, the next study should include a metric that differentiates the degree of competence and professionalism.

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Affecting Factor Analysis On Earning Management Of LQ45 Manufacture Company

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Abstract
The main objective of this research is analyzing the factors affecting earning management which consists of institutional ownership, size of enterprise, and financial leverage. Analyzing factors that effect to Earning Management can help the manufacture company gain strong factors to be developed. The method is associative population of manufacturing companies registered in LQ45 during 2014-2021. Research sample determining by certain criteria till gain five samples of manufacture company. The data analysis used is descriptive statistics and hypothesis testing using the IBM SPSS Statistics Version 23 program. The result using multiple linear analysis method, indicates that institutional ownership has a significant negative effect on earning management, size of enterprise has no effect on earning management, and financial leverage has no effect on earning management.

Keywords- factor analysis, earning management, manufacturing company

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I. INTRODUCTION

Profit is a benchmark to measure whether the performance of a company good or bad. Profit is a value remaining after manufacture company expenses have been paid. Profits are also used as the basis for making economic decisions by investors and other interested parties. Companies usually use the basis of accrual accounting calculations because it is considered more rational and reflects actual state of the company. However, this basic calculation is not always best way, sometimes it has a weakness that is easy to be manipulated by the company's management. Some factors analysis, still have to be found to improve some effective ways to improve profit. Then earning management can be upgraded year to year. Some factors that affect earning management can derive a simple way of estimating the profit efficiency measure. As researcher Fare and Zelenyuk 2020 state on their research entitled "profit efficiency: generalization, business accounting and the role of convexity", found that factors measurement on earning management is needed to adapt economic situation.

Accrual accounting which allows companies to recognize revenues and expenses regardless of cash receiving and issue, gives willing for management to choose and use certain accounting methods as long as they do not violate generally accepted principles (Sulistyanto, 2018).. That risk is taken for the profit of the regional energy service providers (RESP). This researcher firstly defines conditional robust profits (CRP) based conditional value-at-risk and uses it constructs a risk-averse model. He found some factors to analyze the impact to the profit (Zhang and Yang, 2022). It is necessary for company especially manufacture firm to analyze some factors affected and influence to earning management.

Institutional ownership is sharing ownership owned by an external company which is considered to be able control the company's management. It is indicated preventing management from carrying out earning management. Another factor is the size of enterprise which is considered based on company volume, larger company means higher practice activities of earnings management. Large companies usually have higher political costs. In this condition, they tend to defer current period income to the future so that profits can be minimized and tax payments are smaller. Small and medium-sized manufacturing enterprises (SMMEs) have been facing the financing contradiction of "strong demand" and "weak trust" for a long time almost in many countries. It needs to find the problem solving that related to the production efficiency of manufacturing enterprises. It is related with the research that has been done by Jiang, Duan, Sun and Liu, 2021.

The next factor is financial leverage which is used as a measuring tool for the size of the company's assets obtained from debt. Companies with high financial leverage will make any trigger management to do earnings management. Company tries to make it looks fine by increasing the earning profit even with high debt levels. In this study, we take the manufacturing sector as the object because of the discovery of earnings management cases

consisting of PT. Indofarma Tbk, PT. Kimia Farma Tbk, and PT. Ades Alfindo Tbk prove to practice earnings manipulation. The phenomenon of earnings management itself becomes very interesting to study because it describes the behavior of company management, and by looking at the results of previous studies which still have different results (Murni et al., 2016) showing that size of enterprise affects to earning management, while research conducted by (Pratama, 2016) does not show the effect between firm size and earning management.

The urgency on this research is finding some factors which are strong effect to earning management especially in this situation where the pandemic happen in the world. By knowing those factors, some companies can learn and find solving problem to earn profit even in hard situation. The objective of activities on this research is analyzing and finding empirical evidence on the effect of institutional ownership, size of enterprise, and profit leverage on earning management with the object of research being manufacturing companies listed on the 2014-2021 on accessing LQ45 index.

II. Literature Review

A. Earning management

Earning management is the impact of the company manager freedom in using and choosing certain accounting methods compiling the information contained in the financial statements. Managers can easily choose to increase or to decrease company profits as long as they do not violate applicable accounting principles. . Earning management includes managerial fraud, because it is consciously carried out by management to achieve personal goals. Earning management in this study is chosen by discretionary accruals obtained using the modified Jones model.

Earning management will show how much profit can be earned by firm. Analyzing some factors that related to this management is needed, other that company can prepare some strategies to earn big profit every period. Such Koke and Moehler resume on their journal that ensuring benefit realization, a project or program control must extend beyond program end. For gaining an effective profit, the company should make evaluation and analyze some factors which are having a big impact on gaining profit and influence management.

B. Institutional ownership

Institutional ownership is sharing ownership owned by external parties (investors) in a corporate institution that can supervise internal parties (management) in carrying out their performance. The percentage of institutional ownership, can be determined by comparing the number of shares owned by institutional investors to the number of shares outstanding in the company. According to the research of Dang and Hoang (2021), they state that the relation between institutional ownership and commonality in liquidity and whether this relation differs across country-level institutional and information environments. Institutional company relate to other aspect on firm.

C. Size of enterprise

Size of enterprise is the size of the company indicates from the total value of assets owned by the company. Firm size also represents profits generated by the company calculating logarithmic value of total assets. Size of enterprise can relate strongly to earning management. As Hadid and Hamdan said on their research that focusing on firm size, as the most examined and confusing variable in this contingency literature, they develop and test more complex relations than in prior studies to provide more insights into its role.

D. Financial leverage

Financial Leverage is a measurement used to determine the amount of assets owned by company. It is resulting from debt. So higher level of Financial Leverage in a company, it reflects the high debt owned by the company, and vice versa. It states if the company has high debt, it is feared that it will not be able to pay off all its debts. Management will do all possible things to keep investors willing to invest. One of possibility way is by practicing earnings management. Financial leverage in this study is calculated using the debt to asset ratio by comparing the total debt owned by the company, to the total assets owned by company. In line with another research that investigates whether financial leverage is affected by financial reporting quality. Financial reporting quality is measured by employing the outcome of the Vietnam Annual Report Awards and earnings quality (Tran, 2021).

III.   RESEARCH METHODOLOGY

This research uses an associative approach with quantitative research. The design of activities is finding secondary data source carried out by downloading data from the financial statements of manufacturing companies from the official website of the Indonesian Stock Exchange (IDX), namely www.idi.co.id. The purposes of this study are to know the impact of three indicators: institutional company, size of enterprise and financial leverage to earning management. This research analyzes the impact especially during seven years which is the latest three years are pandemic era. From this research we will find the impact, the impact on managing the benefit of manufactured company.

The populations of this study are manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2013 to 2020 and meet the following criteria:

1. Manufacturing companies in LQ45 from 2013 to 2020 and have always been consistently registered during the observation period.
2. Complete financial reports for 2013 to 2020 are available in rupiah.
3. There is institutional ownership above 10% in its share ownership structure.

Based on the standard of 10 manufacturing companies listed in LQ45, 5 manufacturing companies met the standard of this research sample. The data processing technique uses descriptive analysis techniques and multiple linear analysis for hypothesis testing which is processed using SPSS version 23.

IV.   RESULT/FINDING

A. *Statistic Descriptive*

Here are the data of three indicators: Institutional ownership, Size of enterprise and financial leverage as we can see from the table.

Table 1. Research Sample

	N	Minimum	Maximum	Mean	Std. Deviation
Kepemilikan Institusional	40	.10	.69	.4613	.19653
Ukuran Perusahaan	40	30.06	33.49	31.7266	1.02286
Leverage	40	.13	.53	.3361	.14655
Manajemen Laba	40	.00	.01	.0017	.00192
Valid N (listwise)	40				

Sumber: Output SPSS 23

Based on table 4.1 the total number of research samples is 40. From the results of the descriptive analysis, it can be seen that this institutional property has a minimum value of 0.10 and a maximum value of 0.69 with an average value of 0.4613, which means that institutional ownership in the manufacturing companies sampled survey average of 43.16%. Firm size, measured by log total assets, has a minimum value of 30.06 and a maximum value of 33.39 with an average of 31.722, which means that all firms in the study sample own more than 30%. The leverage variable has a minimum value of 0.13 and a maximum of 0.53 while the mean is 0.3361. The mean value lower than 1 indicates the company has not too high debt. Earnings management has a minimum of 0.00 and a maximum of 0.01 with an average of 0.0017 because a positive average means the company follows more earnings management practices reporting higher earnings than it should.

B. Double linier analysis

Table 2. Hypothesis Test Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.465a	.216	.151	.00177	2.170

From Table 4.8, the corrected number of R Square (R2) is 0.216. This shows that the percentage contribution of institutional property. Company size. The leverage for managing profits is 21.6%. While the remaining 78.4% is influenced by factors other than the regression model.

C. F test (Fitting Test)

Stimulant effect testing is basically to determine whether the explanatory variable affects the dependent variable simultaneously or simultaneously, so that the model built can be continued to test the partial hypothesis (T-Test).

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.000	3	.000	3.310	.031b
	Residual	.000	36	.000		
	Total	.000	39			

It is known from the SPSS processed table above, the calculated F value is 3.310, and the F table value for level = 5 is 2.86, so F-count>F TABLE (3.310>2.86), it is also known that the probability value of the test The above F is 0.031, lower than the 0.05 level of significance. T test.

D. T test (Parsial test)

The t-test shows that it has a high influence on the independent variable on the dependent variable. The t-test in this study can be seen in Table 4.8, namely:

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.006	.016		.385	.702
	Kepemilikan Institusional	-.005	.002	-.489	-2.763	.009
	Ukuran Perusahaan	.000	.001	-.064	-.224	.824
	Leverage	.005	.003	.374	1.401	.170

The explanation of the table above is as follows:

a. The calculated t variable of institutional ownership is 4,444 2,763, and the value of t table is a = 5% (α / 2; nk1). df = 0.025;26 is 2.056, then T Count>T table (2.763>2.056), Sig is 0.009<0.05 (reject H0, accept H1), indicating that institutional stock ownership has a significant negative effect on earnings managements.

b. The firm's scale variable is T Count 0.224, and the value of T table and a = 5% (α/2; nk1). df = 0.025;26 is 2.056, then T Count < T table > 0.05 (H0 is accepted, H2 is rejected), indicating that the firm's scale variable has no effect on the company's management performance. So, H2 (firm size affects earnings management) is rejected.

c. The value of T Calculate the financial leverage variable is 1.041, and the value of t table is a = 5% (α/2; nk1). df = 0.025;26 is 2.056, then T Count < T table > 0.05 (H0 is accepted. H3 is rejected) This means that there is no influence between financial leverage and earnings management, so the third hypothesis is rejected.

V.   DISCUSSION

a.   The Effect of Institutional Ownership on Earnings Management.

The test results show that organizational ownership partially has a significant and negative effect on earnings management. This means that the higher the ratio of organizational ownership, the lower the possibility of earnings management practices. With additional oversight from institutional investors such as outsiders, companies can prevent management from acting opportunistically in financial statements, and management will be more likely to choose policies to achieve their goals, profits that investors want.

b.   The Effect of Firm Size on Earnings management.

Partly, there is no effect of firm size and profitability management. Therefore, firm size has no effect on managing results. According to (Paramitha & Firnanti, 2018), there is no incentive to practice yield management because large companies are more interested in shareholders and foreigners, but not necessarily small companies practice performance management. Since small businesses want better growth opportunities and require considerable external capital, they need to improve good corporate governance.

c.   Effect of Financial Leverage on Earnings management.

Some test results lack leverage and yield management. This means that the higher or lower the debt does not affect the practice of earnings management. Indeed, the companies studied are companies with a leverage value of less than 1 or 100%, so they are always classified as safe companies.

VI. CONCLUSSION AND RECOMMENDATION

A. *Conclussion*

The results of research and discussion of data analyzing show the impact of organizational ownership, company scale and financial leverage on profitability management in manufacturing companies listed in LQ45 for the 2013-2020 period, in this study conclusions can be drawn as we can see below:

The results of the model fit test (F-test) show that institutional ownership, firm size and leverage all affect earnings management in manufacturing companies listed in LQ45.

1. The higher the institutional share ownership, the lower the company's earnings management practice because of the tight supervision of institutional investors, so there is an unfavorable effect on management's earnings management.
2. In part, company scale does not affect earnings management. Company size, which is calculated as the log of total assets, is not a yardstick for earnings management companies as there are many other factors that investors take more into account.
3. Partially, financial leverage does not affect earnings management. This means that high and low leverage ratios Represented by the debt-to-asset ratio (DAR), the company will not be forced to manage earnings, because if the company's leverage level is high, the company may not be able to pay all of its guaranteed debt and guaranteed assets, if that happens. , the company will not choose Earnings Management because there will be strict supervision by lenders.

B. *Recommendation*

The recommendations from the researcher for the next researcher who will study with the same topic, we consider:

1. By looking at the results of the coefficient of determination in this study which is still quite low, namely 21.6%, the researcher suggests to any party who wants to re-examine that other variables are added.
2. It is hoped that for further researchers the number of research samples will increase not only by utilizing the manufacturing sector but also other sectors so that the results can be compared

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