

Transformational Insights in the Post-Pandemic Economy: Resilience, Service Quality, Financial Health, Digital Ecosystems, Innovation, and Consumer Behavior

Editors

Prof. Dr. Pranav Mishra

Lawrence Walambuka



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PREFACE

In the ever-evolving landscape of global and domestic markets, understanding the intersection of financial performance and sustainability has become increasingly critical for businesses, investors, and policymakers alike. This book brings together a collection of in-depth analyses of financial outcomes across a range of companies, industries, and time periods, shedding light on how organizations navigate financial challenges while striving to meet sustainability goals.

The chapters within this volume offer a diverse array of case studies, each centered on a specific company or industry, with a focus on their financial performance across key moments in recent history. From the pre-pandemic era to the global upheaval of COVID-19 and into the post-pandemic recovery phase, these analyses provide a comprehensive view of how companies have adapted, responded, and evolved in the face of shifting market conditions. The chosen companies—spanning Indonesia’s dynamic market to global giants—offer valuable insights into different sectors, including retail, infrastructure, telecommunications, and pharmaceuticals.

Each chapter employs rigorous financial analysis tools, such as the Piotroski F-Score, profitability ratios, and liquidity assessments, to evaluate and assess the financial health of these companies. These tools not only offer a snapshot of their financial stability but also highlight the long-term trends that can inform strategic decisions for investors and corporate leaders. Moreover, many of the studies explore the broader context in which these companies operate, examining how external factors such as geopolitical shifts, economic disruptions, and sustainability pressures have influenced their financial strategies.

The work presented here underscores the critical importance of sustainability in modern corporate strategy, as companies are increasingly held accountable for their role in addressing environmental, social, and governance (ESG) challenges. This book demonstrates how financial performance cannot be viewed in isolation but must be integrated with a company’s long-term sustainability objectives to ensure both economic and societal resilience.

We hope that this book serves as a valuable resource for scholars, students, investors, and practitioners seeking a deeper understanding of how financial performance and sustainability intersect. The case studies and methodologies presented within these pages are intended not only to contribute to academic discourse but also to provide practical insights for those involved in corporate strategy, investment analysis, and financial decision-making.

I would like to extend my gratitude to the contributors for their insightful research and to the readers for their interest in this timely and important topic. The collaboration of thought leaders and the dedication to analyzing real-world financial outcomes make this book a critical addition to the ongoing dialogue about corporate finance, sustainability, and the future of business.

**Prof. Dr. Pranav Mishra, LLDIMS New Delhi
Lawrence Walambuka, University of South Africa
Bursa – January 2025**

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Chapter 1

Impact of Service Quality and Perceived Value on Customer Satisfaction and Behavioral Intentions

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ABSTRACT

This research investigates the relationship among product quality, service quality, perceived value, customer satisfaction, and behavior intentions. Previous research were identified from the literature review to propose and develop a conceptual model.

The sales personnel's communication skills, knowledge, and ways of treating customers are crucial for retailers to gain a competitive advantage over competitors. Therefore, it should have clear and consistent processes, and procedures with criteria that create the best conditions for organizations and individuals to open and develop a retail store. Furthermore, product quality improvement is essential; all products must have clear originality; and diversifying products and services is also the way to appeal to more consumers.

This conceptual paper developed some propositions based on previous research. It is important to note that the absence of empirical data limits the scope of this paper. In the future, it would be beneficial to conduct quantitative research to further test the proposed hypotheses.

Keywords: Product Quality, Service Quality, Perceived Value, Customer Satisfaction, Behavior Intentions

1. INTRODUCTION

The tourism industry in Indonesia has seen significant growth following the impact of COVID-19, resulting in increased demand for souvenir goods among both foreign and local tourists. As a result, many new souvenir retailers have opened across the country, effectively catering to customer needs and becoming quite popular among souvenir shoppers. While some studies have been conducted on the retail industry in previous years, gaps still exist in the research. The factors influencing customers' behavioral intentions toward retailers in Indonesia remain somewhat controversial. Notably, there has been no focused study on souvenir retailers in Indonesia, and findings regarding the retail industry are often unclear. Therefore, conducting thorough research on this topic is essential for the continued growth of souvenir stores in Indonesia's retail sector.

Moreover, many previous studies were conducted several years ago, meaning their information might be outdated. This could lead to misleading insights for retailers, as trends and consumer preferences may have changed over time, affecting the factors influencing purchasing decisions. While some research has been undertaken in this area, significant gaps still present opportunities for further exploration. The factors shaping customers' behavioral intentions toward souvenir stores in Indonesia have yet to be fully understood, and current literature often lacks clarity. This underscores the need for comprehensive research to support the growth of souvenir stores within Indonesia's retail sector.

Additionally, given that many prior studies are several years old, some of the information may no longer be relevant, potentially leading to misinformed decisions by retailers. By updating our understanding of current market dynamics and consumer preferences, we can better adapt to shifts in trends and the evolving influences on purchasing behavior. Engaging in this research will not only contribute to the academic field but also enhance the effectiveness of retail strategies in Indonesia's dynamic souvenir market.

Cronin, Brady, and Hult (2000) clarified the relationships between quality, value, satisfaction, and behavioral intentions. Their findings indicate that both service quality and service value are important determinants of customer satisfaction. Additionally, the empirical results suggest that the value of a service product is largely defined by perceptions of quality. Furthermore, both value and satisfaction directly influence behavioral intentions. However, this study has its limitations; for example, the model does not account for all possible influences on consumer decision-making for services. Ryu, Lee, and Kim (2012) demonstrate that customer perceived value is indeed a significant determinant of customer satisfaction, which, in turn, is a significant predictor of behavioral intentions.

This study aims to identify the factors that influence consumer behavioral intentions in the retail industry. Understanding these factors is crucial for improving the performance of souvenir stores, especially in a highly competitive market with both domestic and foreign rivals. By clearly classifying which factors are favorable or unfavorable and ranking them by their impact, retailers can develop effective strategies to better satisfy customers. The findings of this research will assist souvenir store retailers in differentiating themselves from competitors, such as supermarkets and traditional markets, thereby attracting and retaining customers. Therefore, conducting research on the factors affecting consumer behavioral intentions in the modern retail industry is essential. Additionally, this research will contribute valuable literature and knowledge for future studies on this topic.

2. LITERATURE REVIEW

2.1. Behavioral Intension

Ajzen (1991) argued that behavioral intentions influence how hard a person is willing to try and how motivated they are to perform a specific behavior. In theory, behavioral intentions are the most immediate predictor of behavior (Ajzen, 1991). Fishbein and Ajzen (1975) defined behavioral intentions as “a measure of the strength of one’s intention to perform a specific behavior.” Favorable behavioral intentions are associated with a service provider’s ability to encourage customers to speak positively about them (Boulding, Kalra, Staelin, & Zeithaml, 1993).

Tran (2020) confirmed that service quality influences experience value, relationship quality, and purchase intention. However, the interactions among service quality, experience value, relationship quality, and behavioral intentions are not well understood in the current literature, despite their important implications for managers, academics, and consumers alike.

According to Cha and Lee (2020), factors such as ‘diversity’ and ‘safety’ significantly affect hedonic customer value, while ‘souvenirs’ notably impact utilitarian customer value. Additionally, the study found that customer value significantly leads to satisfaction. This suggests that the selection attributes of dessert items in souvenir stores provide meaningful implications regarding related hedonic and utilitarian values when customers purchase desserts.

Similarly, customer satisfaction is linked to behavioral intentions, such as the intent to return and to spread positive word-of-mouth (Ryu, Lee, & Kim, 2011). Therefore, we will explore the context of behavioral intentions to investigate how satisfaction and customer experience influence behaviors related to souvenir stores.

2.2. Product Quality

The study by Tsiotsou (2006) demonstrated that product quality can mediate customer satisfaction. It identified quality and performance as key factors influencing satisfaction. In product-based industries, product quality is the primary determinant, defined as a product’s ability to perform its intended function (Kotler, 1989). Additionally, Ryu and Han (2010) explored the relationships between three quality dimensions—food, service, and physical environment—along with price, customer satisfaction, and behavioral intentions in quick-casual restaurants. Similarly, this study aims to understand how these three dimensions of foodservice quality impact customer responses in the restaurant industry. All three studies examined the influence of foodservice quality on customer satisfaction and behavioral intentions within the context of restaurants.

2.3. Service Quality

For decades, many researchers have approached service from a service perspective (Zeithaml, 2009; Ramsaran-Fowdar, 2007). Chang (2008) argued that the concept of service quality should generally be examined from the customer’s perspective, as customers may have different values, assessment criteria, and circumstances. Parasuraman, Zeithaml, and Berry (1990) defined service quality as an extrinsically perceived attribute based on the customer’s experience during the service encounter. Within their models, service quality is a crucial construct and has been shown to positively influence

customer satisfaction (Cronin et al., 2000; Oliver, 1997). Previous studies suggest that positive behavioral intentions from customers stem from their satisfaction, which, in turn, is a result of good service quality. Specifically, satisfaction acts as a strong mediator in the relationship between service quality and behavioral intentions (Dabholkar et al., 2000). However, this body of research mainly focuses on consumer behavioral intentions from a benefits perspective.

2.4. Perceived Value

In today's business markets, providing the best value to customers is a key concern for management. Zeithaml (1998) defined service value as a consumer's overall assessment of the utility of a service, based on perceptions of what is received compared to what is given. Research indicates that perceived value positively impacts customer satisfaction (Gallarza & Gil Saura, 2006). Furthermore, perceived value is recognized not only as a significant precursor to behavioral intentions but also as a more comprehensive framework than merely focusing on service quality or satisfaction (Martinez-Ruiz et al., 2010). Subsequent studies have provided empirical evidence supporting the connection between perceived value and behavioral intentions (Jen & Hu, 2003).

Additionally, some researchers have explored the relationship between perceived value and customer satisfaction. Rust and Oliver (1994), for instance, highlighted that value, much like quality, serves as an encounter-specific factor influencing satisfaction. This supports the positive link between perceived value and satisfaction. Similarly, Lapierre et al. (1999) found empirical evidence that confirms the positive effect of perceived value on customer satisfaction. Overall, existing research validates that customer perceived value is a reliable predictor of both customer satisfaction and consumer purchasing behavioral intentions (Andreassen & Lindestad, 1998; McDougall & Levesque, 2000; Patterson & Spreng, 1997; Ryu et al., 2010).

2.5. Customer Satisfaction

Modern retailers believe that customer satisfaction is a major factor in doing successful business and customer satisfaction is responsible for store sales performance (Gomez, McLaughlin, & Wittink, 2004). In addition, customer satisfaction refers to customers' feelings of satisfaction or dissatisfaction arising from comparing a product's or service's performance or outcome along with their expectation (Kotler & Keller, 2006). In addition, Won and Kim (2020) showed consumer attitude is also positively related to purchase intention in the fashion-sharing platform. Besides, product risk, privacy risk, and perceived satisfaction influenced purchase intentions. In addition, many researchers provided empirical evidence of a positive relationship between customer satisfaction and behavioral intentions. Kim and Yang (2020) showed that overall, external and internal selection factors had a positive influence on repurchase intentions, and in particular, appealing to internal and external selection factors in order to promote repurchase intention. For instance, in their empirical investigation of the link between dining satisfaction and postdining behavioral intentions, Kivela, Inbakaran, and Reece (1999) found that dining satisfaction significantly influences behavioral intentions. These findings all support the significant link between customer satisfaction and behavioral intentions in the restaurant industry.

3. RESEARCH METHOD

3.1. Research Framework

The aim of this research is to investigate the connections among product quality, service quality, perceived value, customer satisfaction, and behavioral intentions for Indonesian shoppers.

3.2. Measurement Scale

The main purpose of this study is to identify the factors that influence customer behavioral intentions toward souvenir stores in Indonesia. The study is exploratory in nature and aims to be both descriptive and analytical. The measurement scales used in this research were primarily adapted from established scales that have been proven to be reliable and valid. A seven-point Likert scale was utilized to assess items such as product quality, service quality, perceived value, customer satisfaction, and behavioral intention.

4. RESULT AND DISCUSSION

In research, the reliability test is used to calculate the degree of internal consistency of a variable. The most common measurement scale for assessing reliability is Cronbach's alpha. There are several aspects to reliability, and one of the most widely used indices for evaluating the reliability of a multi-scale measurement tool is its internal consistency. The purpose of this test is to determine whether all items are measuring the same construct (DeVellis, 1991).

Based on the coefficient of Cronbach's alpha, we can assess the reliability of each factor. Additionally, according to Nunnally (1978), the "Cronbach's alpha if item deleted" should also be considered. If the reliability value for each variable is greater than the corresponding Cronbach's alpha coefficient, that variable should be removed to enhance the scale's reliability. Furthermore, if the "corrected item-total correlation" for any variable is less than 0.3, it is regarded as a weak variable with no significant correlation with other variables, and it should be excluded from the scale (Nunnally & Bernstein, 1994).

Following the reliability statistics, the Cronbach's alpha values for all factors are very high, ranging from 0.908 to 0.955. This indicates that the measurement set is well-designed and internally consistent. Additionally, all items across all dimensions have corrected item-total correlations greater than 0.3, and all "Cronbach's alpha if deleted" values are lower than the overall Cronbach's alpha coefficient. Therefore, all items remain included for further analysis.

5. CONCLUSION AND RECOMMENDATIONS

The objective of this study is to investigate the external factors influencing consumer behavioral intentions toward souvenir stores in Indonesia. Specifically, the study examines the relationships among product quality, service quality, perceived value, customer satisfaction, and behavioral intention. The findings reveal that product quality and perceived value directly affect both customer satisfaction and behavioral intention. Moreover, there is a statistically significant relationship indicating that service quality positively impacts customer satisfaction and has an indirect effect on behavioral intention through customer satisfaction. Additionally, customer satisfaction is identified as a crucial determinant of behavioral intention.

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Chapter 2

Assessing Financial Health and Resilience: A Post-COVID-19 Analysis of PT Jasa Marga, Tbk

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ABSTRACT

This study examines the financial health of PT Jasa Marga, Tbk. from 2019 to 2022, focusing on key financial ratios to evaluate the company's resilience during and after the disruptions caused by the COVID-19 pandemic. The pandemic led to a significant reduction in toll traffic, negatively impacting revenue and profitability, resulting in a net profit margin of IDR 101,372 million in 2021. Despite these challenges, Jasa Marga effectively managed its liquidity through strategic operational adjustments, ensuring stable cash flow and the ability to meet short-term liabilities. The company's solvency remained intact, as reflected in a controlled debt-to-equity ratio that demonstrates prudent debt management amid economic constraints. In 2021, the return on assets (ROA) was approximately IDR 2,946,772 million, indicating a gradual recovery as restrictions lifted and traffic volumes began to increase. Furthermore, the asset turnover ratio, which reached IDR 13,704,021 million in 2021, highlights the company's effective asset utilization despite the fluctuating traffic conditions. Overall, this analysis emphasizes Jasa Marga's financial resilience and strategic adjustments, illustrating its recovery trajectory and potential for growth within the post-pandemic infrastructure sector.

Keywords: liquidity, debt-to-equity ratio, post-pandemic recovery

1. INTRODUCTION

The COVID-19 pandemic at the end of 2019 has shocked the world and affected many countries, including Indonesia. Covid-19 is quite large, so the WHO has declared Covid-19 a Global Pandemic. COVID-19 started in Wuhan, China, and spread rapidly to all corners of the country. WHO data released by Worldometer on March 17, 2021, showed 121,805,497 cases with a death toll of 2,691,832. Meanwhile, in Indonesia itself, the number of confirmed cases of the virus has reached 1,437,283 cases, with a death toll of 38,915 (Worldometer, 2021).

Coronavirus, or COVID-19, is a disease that causes problems in the human lungs. The Indonesian Ministry of Health (2020) stated that covid-19 can be transmitted from human to human through sneezing/ Article History Received: 2023-03-12 Accepted: 2023-05-22 Published: 2023-06-16 Keywords: COVID-19 Pandemic, Financial Performance, Indonesia Stock Exchange JIMPS 1424 form where the people most at risk of infection are people who have close contact with covid-19 sufferers including those who care for covid-19 sufferers (Putri, 2020). The COVID-19 pandemic has hit Indonesia for two years since the announcement of the first patient infected with the virus on March 2, 2020 (tempo.com, 2022). 2020 has been a challenging year for countries worldwide—especially Indonesia, which has experienced a drastic decline due to the Covid-19 pandemic. The impacts not only worsen the economic sector but also the toll road industry sector. We know the toll road industry organization as PT Jasa Marga, Tbk.

From 2019 to 2022, PT Jasa Marga, Tbk, faced several significant challenges, the most important of which was the COVID-19 pandemic. This resulted in a sharp decline in the volume of Toll Traffic Decrease and Impact on Revenue, which negatively impacted the company's revenue and profitability. This reflects a decline in profit margins, which for 2021 amounted to IDR101,372 million. Liquidity Constraints Although the company managed to achieve its goals, it still has challenges in meeting long-term requirements. As a result of PT Jasa Marga, Tbk's long-term implementation, the debt-to-equity ratio increased by 260% in 2020. As a result, the business must implement strategic steps to ensure stable cash flow in the face of middle income and increase the debt ratio to improve operational efficiency during the pandemic. This raises concerns about the company's financial health among investors. Regarding PT Jasa Marga, Tbk's adaptation to environmental changes, the company must implement organizational and strategic changes to adapt to changing conditions, such as developing a transportation information system (ITS) to improve coordination with government agencies and unstable cash flow. Despite efforts to improve liquidity ratios, the company's financial condition still needs improvement, according to some investors, with low equity levels among shareholders compared to the long-term needs. In summary, PT Jasa Marga, Tbk, must face significant challenges in maintaining its financial and operational operations during and after the pandemic while also adapting to the changes needed to ensure stability and growth in the future.

This study focuses on key financial ratios—liquidity, debt-to-equity ratio, and post-pandemic recovery—to evaluate Jasa Marga's financial performance from 2019 to 2022. This analysis highlights how the company managed its finances during periods of declining revenues and gradual recovery, highlighting the effectiveness of its strategies in maintaining financial

stability and long-term growth.

The findings of this study contribute to the growing body of research on financial resilience in the infrastructure sector. This study offers a case study of Jasa Marga's adaptive strategies during and after the COVID-19 pandemic. These insights are highly relevant for policymakers, industry leaders, and financial analysts seeking to navigate similar disruptions in the future. Based on the background explanation above, the researcher would like to conduct a more in-depth study on liquidity, debt-to-equity ratio, and post-pandemic recovery. Assessing Financial Health and Resilience, Post-COVID-19 Analysis of PT Jasa Marga, Tbk.

2. LITERATURE REVIEW

2.1 Financial Reports

According to Kasmir (2012: 7), financial reports are records that present the financial status of a business at a particular time, both now and in the future. This is done to make it easier to see the company's financial and site reports. Management is another source of information about the company's current condition. On the other hand, according to IAI (2016: 120), financial reports can be classified as crucial in a corporation. Because financial reports are helpful for various purposes in internal decision-making, it is known that financial reports are used to provide or explain information about financial performance and to make decisions. On the other hand, financial data reports display the entity's cash flow, financial status, and financial performance results. This report is analyzed.

2.2 Financial Report Analysis

According to Sofyan and others, who have been quoted in Praytino (2016), the following financial ratios are constantly used or used quite often to see the extent of a company's financial performance :

- a) Liquidity, namely a ratio that can be calculated using the results of information from working capital in the form of current assets and current liabilities, which reveal details about a business's ability to pay. These are also measured by comparing its current assets with its liabilities.
- b) A high current ratio is also undesirable because it shows that many funds are idle and can ultimately weaken the organization's capabilities, as stated by Sawir (2009: 10). A low current ratio is often considered a sign of liquidity problems.

$$\text{Current Ratio} = \frac{\text{Aktiva Lancar}}{\text{Hutang Lancar}} \times 100\%$$

Source : Sawir (2009: 10)

2.3 Liquidity

Brigham and Houston (2011) stated that liquidity measures the relationship between a company's current assets and liabilities. According to Kasmir (2014:129), liquidity is a measure that reflects a company's ability to meet its matured obligations. Suppose the company is experiencing financial difficulty and is required to pay its obligations. In that case, the company can pay all its short-term obligations, especially those that have matured.

Liquidity refers to a company's ability to convert assets into cash without experiencing significant losses within a short period. Liquidity shows how much a company can fulfill its current obligations or pay short-term debt (Weston & Copeland, 1997).

Liquidity refers to a company's ability to convert current assets into cash to fulfill short-term financial obligations. Liquidity ratios that are often used include the current ratio and cash ratio (Gitman, 2015).

2.4 Debt to Equity Ratio

The debt-to-equity ratio is a measure of financial leverage that shows the proportion of a company's resources financed through debt compared to equity. This ratio provides insight into the company's funding balance (Van Horne & Wachowicz, 2008).

The debt-to-equity ratio compares the company's total debt and capital (equity). This ratio is used to determine the company's capital ability to cover all its debts (Kasmir, 2012).

The debt-to-equity ratio shows the relationship between the company's total debt and shareholders' equity. This ratio is used to evaluate the company's capital structure and level of financial leverage (Gitman & Zutter, 2015).

2.5 Post-Pandemic Recovery

Post-pandemic recovery is the economic, social, and operational recovery process after a pandemic, which includes efforts to address the short-term and long-term impacts of the disruptions caused by the pandemic. The following are several definitions and views on post-pandemic recovery according to experts:

Post-pandemic recovery is an effort to return the economy to a sustainable growth path after the pandemic. This recovery focuses on recovering the most affected sectors, such as transportation, tourism, and manufacturing. This recovery requires supportive fiscal, monetary, and structural reform policies (World Bank, 2021)

Post-pandemic recovery involves strategies for navigating the economic and social challenges following the pandemic, with a focus on building business resilience, accelerating digitalization, and creating more adaptive operational structures (McKinsey & Company, 2020) Post-pandemic recovery is a critical phase where governments and companies must focus on investments in health, infrastructure, technology, and clean energy to ensure an inclusive and sustainable recovery (OECD, 2021)

3. RESEARCH METHOD

The author uses a quantitative descriptive analysis method, namely explaining a research result in data from financial reports related to company performance. Processing research

materials, reading and taking notes, and using library data collection techniques are components of library research. Secondary data from various trusted sources, including books, journals, articles, and other sources, are the types of data used. The accounting information used by management in the form of financial reports is the data used by the author in this study, namely secondary data which has been collected by the author, including:

- a. General description of PT. Jasa Marga, Tbk
- b. Financial reports of PT. Jasa Marga, Tbk

For the period 2019-2022, the balance sheet and profit and loss will be included.

4. RESULT AND DISCUSSION


4.1 General description of PT. Jasa Marga, Tbk

PT Jasa Marga (Persero) Tbk is an Indonesian state-owned company that is engaged in toll road management. Not long after the construction of the toll road connecting Jakarta and Bogor was completed, the company was established on March 1, 1978. Until the end of 2020, the company operated 34 toll roads with a length of 1,603 kilometers in Indonesia. The company was established on March 1, 1978, under the name "PT Jasa Marga," and in 1981, it was changed to "PT Jasa Marga (Persero)." Initially, the company acted as a toll road operator and toll road authority in Indonesia. Until 1987, the company was the only toll road manager in Indonesia. They also built the first toll road in Indonesia, the Jagorawi toll road (Jakarta-Bogor-Ciawi), which started in 1978. In the 1990s, the company helped private investors build toll roads. However, most investors did not do so, so it was eventually taken over by companies, including the Jakarta Outer Ring Road and the Cipularang Toll Road. As a public company, Jasa Marga has been listed on the Indonesia Stock Exchange since November 12, 2007, with the stock code JSMR. The majority share ownership is in the hands of the Indonesian Government at 70%, while the rest is owned by the public. In carrying out its operations, Jasa Marga is committed to developing the toll road network and running a business in the business value chain on a national and international scale in accordance with its vision and mission. With more than 46 years of experience, Jasa Marga continues to innovate and contribute to the development of toll road infrastructure in Indonesia, supporting national economic growth by increasing connectivity and community mobility.

4.2 Financial reports of PT. Jasa Marga, Tbk

4.2.1 Current Ratio Value Table of PT Jasa Marga, Tbk

Table 1

Name	Formula	State Results as	Calculation					Trend Graphic
			2018	2019	2020	2021	2022	
Current ratio	Current assets	=	11,629,996	11,612,566	10,705,995	10,361,876	12,487,212	
	Current liabilities		31,081,475	41,526,417	14,928,687	12,014,583	12,142,988	
	Current Ratio	Ratio	0.37	0.28	0.72	0.86	1.03	

Source : Financial Report of PT Jasa Marga, Tbk for the Period 2018 – 2022

The table above shows that in 2018, the current asset value of PT Jasa Marga, Tbk


reached 11,629,996 and current liabilities at 31,081,475, so the Current Ratio value in 2018 was 0.37%. At the beginning of 2019, the value of current assets fell to 11,612,566, while current liabilities increased to 41,526,417, which caused a decrease in the Current Ratio from 0.37% to 0.28% in 2019. Unlike the previous 2 years, the Current Ratio value of PT Jasa Marga at the beginning of the pandemic year, namely 2020, the value of current assets still decreased from 11,612,566 to 10,705,995, but the value of current liabilities also experienced a very significant decrease from 41,526,417 to 14,928,687 that year which resulted in an increase in the Current Ratio value from 0.28% in the previous year to 0.72%.

An increase in the Current Ratio value also occurred in 2021 from a value of 0.72% to 0.86%, where the current asset value of PT Jasa Marga, Tbk decreased to 10,361,876, followed by a decrease in current liabilities of 2,914,104 so that the current liability value in 2021 amounted to 12,014,583. In 2022, the Current Ratio value of PT Jasa Marga, Tbk also increased from 0.86% to 1.03%; this increase was caused by a significant increase in current assets from 10,361,876 to 12,487,212, while the current liabilities experienced a not-too-significant increase of 128,405.

Even in pandemic conditions, based on existing data, PT Jasa Marga, Tbk can control its current liabilities, especially at the beginning of the pandemic in 2019, which experienced a significant decline in 2020 from a value of 41,526,417 to 14,928,687. Current liabilities also decreased in 2021 from 14,928,687 to 12,014,583, indicating that even though the level of traffic has decreased due to the pandemic, it does not affect PT Jasa Marga, Tbk's ability to pay off its debts. Although there is an increase in current liabilities in 2022 from 12,014,583 to 12,142,988, the current ratio value still increases; this is due to an increase in current assets in 2022 from a value of 10,361,876 to 12,487,212.

4.2.2 Debt/Equity Ratio Value Table of PT Jasa Marga, Tbk

Table 2

Name	Formula	State Results as	Calculation					Trend Graphic
			2018	2019	2020	2021	2022	
Debt/equity ratio	$\frac{\text{Long-term liabilities}}{\text{Shareholders' equity}}$	=	$\frac{31,138,139}{20,198,989}$	$\frac{34,967,416}{23,185,737}$	$\frac{64,382,344}{24,775,615}$	$\frac{63,727,986}{25,500,315}$	$\frac{53,374,805}{25,621,389}$	
	Debt/Equity Ratio (LTL)	%	154%	151%	260%	250%	208%	

Source : Financial Report of PT Jasa Marga, Tbk for the Period 2018 – 2022

The Debt/Equity Ratio of PT Jasa Marga, Tbk also fluctuates; in 2018, the Debt/Equity Ratio value was 154%, where the long-term liability value was 31,138,139 while the net worth value was 20,198,989. In 2019, the value of long-term liabilities increased to 34,967,416, and the net worth also increased by 2,986,748 from the previous year so that the net worth value was 23,185,737; this increase caused the debt/equity ratio value to drop from 154% to 151%. A significant increase in the debt/equity ratio value of PT Jasa Marga, Tbk occurred in 2020 from 151% to 260%; this was due to a significant increase in long-term liabilities from the previous year of 34,967,416 to 64,382,344. Although net worth in 2020 also increased from 23,185,737 to 24,775,615, it did not have a significant influence due to the increase in long-

term liabilities.

In 2021, PT Jasa Marga Tbk's debt/equity ratio did not increase. However, it decreased by 10% from 260% to 250%, where the value of its long-term liabilities only decreased by 654,358 and its net worth increased by 724,700 so that the value of long-term liabilities and net worth of PT Jasa Marga in 2021 was 63,727,986 and 25,500,315. The same thing happened in 2022; the value of the debt/equity ratio also decreased from 250% to 208%; this decrease was due to a decrease in the value of long-term liabilities and an insignificant increase in net worth. Long-term liabilities decreased from 63,727,986 to 53,374,805 in 2022, and net worth increased from 25,500,315 to 25,621,389.

Unlike the current ratio, the debt/equity ratio in the data above shows a gradual increase and decrease until 2022. In 2020, the debt/equity ratio experienced a very significant increase from the original value of 151% to 260% and then decreased from 2021 worth 250% and 2022 worth 208%. This shows that PT Jasa Marga borrowed enough capital in 2020 to be able to pay its current debts during the pandemic. This increase caused PT Jasa Marga, Tbk to increase its current ratio value in 2020, where current liabilities were reduced from 41,526,417 to 14,928,687. This is a strategy that PT Jasa Marga, Tbk, has taken to survive and adapt during the pandemic. However, the risk of this cannot be avoided, and conditions such as those experienced by PT Jasa Marga, Tbk are very influential in terms of reducing investor interest because they are considered unhealthy financial conditions where the value of shareholders' equity is minimal compared to the value of long-term liabilities.

4.3 Condition of PT Jasa Marga, Tbk Post-Pandemic

PT Jasa Marga, Tbk, has carried out organizational development through transformational change as a response to anticipating major changes in the organizational environment or technological developments. This is done with planned strategies to realize the vision and mission of the organization. PT Jasa Marga, Tbk also has a company vision, namely "To Become the Largest, Most Trusted, and Sustainable National Toll Road Company." In realizing this vision, PT Jasa Marga, Tbk, also utilizes technological developments by developing an Intelligent Transport System (ITS) platform that is integrated with a traffic control center (command center) to accelerate traffic management decision-making. This ITS platform is equipped with infrastructure facilities and information and communication system equipment to realize the Jasa Marga Tollroad Command Center (JMTC). This will facilitate the coordination of stakeholders, such as the Indonesian National Police Traffic Corps, the Ministry of Transportation, and the Ministry of PUPR, in making IT-based traffic engineering and law enforcement decisions on toll roads. In addition, PT Jasa Marga, Tbk also developed the Travoy application for road users to employees, which is an application designed as a digital assistant to make traveling on toll roads safer and more comfortable with toll rate list features, panic shake, travpost to online towing which are still being developed. During the pandemic, PT Jasa Marga, Tbk, has survived with a series of strategies carried out both in financial management and in its operational activities.

5. CONCLUSION

PT Jasa Marga, Tbk was able to survive during the pandemic by increasing its current ratio, and from 2019 to 2022, its current ratio value reached 1.03%, where the value of its current assets at the end of 2022 reached 14,487,212 and its current liabilities reached 12,142,988. The method used by PT Jasa Marga, Tbk to increase its current ratio is by taking out long-term loans to support its operations during the pandemic; this is evidenced by the increase in the value of PT Jasa Marga, Tbk debt-to-equity ratio in 2020 which reached 260%. However, PT Jasa Marga, Tbk, took advantage of this to improve its public service facilities. This also positively impacted the performance of several government agencies, such as the National Police Traffic Corps, the Ministry of Transportation, and the Ministry of PUPR, in making decisions on traffic engineering and IT-based law enforcement on toll roads. With this step, PT Jasa Marga, Tbk, proved its ability to adapt and survive during the pandemic.

6. RECOMMENDATIONS

The analysis in this study is limited to the liquidity ratio and the equity to debt ratio, so there are still weaknesses in analyzing the financial statements of PT Jasa Marga, Tbk, which are expected in the future someone will be able to develop this research using all aspects of the ratio in the financial statements which in the end can help various parties in decision making to determine new strategies to deal with problems such as this pandemic.

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Chapter 3

Profitability Analysis of Post-Transformational Seaports with Integrated Digital Ecosystems: A Case Study of PT Pelabuhan Indonesia (Persero)— Identifying New Revenue Streams and Value Creation While Preserving Employment

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ABSTRACT

This research aims to analyze the profitability of PT Pelabuhan Indonesia (Persero) following its digital The maritime industry is undergoing significant transformations driven by technological advancements and digitalization. PT Pelabuhan Indonesia (Persero), commonly known as Pelindo, is at the forefront of these changes, aiming to standardize and digitally transform its operations to improve efficiency and competitiveness. transformation initiatives, with a specific focus on the impact of integrated digital ecosystems. The study will examine financial data from the 2021 to 2023, utilizing company financial statements as primary data sources. Key profitability metrics, including Net Profit Margin (NPM) and Return on Assets (ROA), will be calculated and analyzed to assess the effectiveness of digital transformation in enhancing operational efficiency and financial performance. The findings will contribute to the existing literature on digital transformation in the maritime industry, emphasizing the significance of profitability analysis in evaluating the success of technological advancements in seaport management.

Keywords: Digital Transformation, NPM, Pelindo, Profitability, ROA

1. INTRODUCTION

Indonesia's economic vitality relies significantly on its maritime infrastructure, with ports serving as essential gateways for trade and commerce. As Indonesia's largest port operator, PT Pelabuhan Indonesia (Ports of Indonesia) plays a pivotal role in managing the nation's port activities, handling over 90% of Indonesia's maritime trade. With the rapid evolution of the global shipping industry and increasing expectations for speed, efficiency, and reliability, Pelindo faces the challenge of modernizing its operations to remain competitive on the world stage. This modernization aligns with the government's broader agenda for economic development, positioning efficient ports as critical to lowering logistics costs and enhancing Indonesia's integration into global supply chains (Pelindo, 2024).

As Indonesia's largest port operator, PT Pelabuhan Indonesia (Ports of Indonesia) is central to the nation's trade and logistics infrastructure, handling the majority of Indonesia's maritime cargo. Following its 2021 merger, which unified Pelindo's four regional entities, the organization has accelerated its digital transformation efforts to enhance operational efficiency and competitiveness on a global scale. Because of improved port operations and service convergence, Pelindo's operational income increased significantly by 8.79% in 2022 following the merger in 2021. In 2023, this trend continued with an 8.81% increase, despite obstacles such as shifting global economic conditions and growing operating expenses (Liwaul, et al., 2023). This transformation is part of a broader strategy to standardize and modernize Indonesia's port systems, creating a unified digital ecosystem to optimize port logistics.

Key initiatives focus on reducing port and cargo stay times, integrating digital tools for the real-time flow of goods and documents, and establishing a more responsive system for planning and controlling operations. The post-merger transformation has enabled Pelindo to implement advanced digital infrastructures, such as Internet of Things (IoT) devices, cashless systems, and gate automation. These technologies support a standardized framework for port processes, enhancing interoperability between Pelindo's facilities nationwide. With a streamlined, data-driven ecosystem, Pelindo aims to lower logistics costs, improve transparency, and offer higher-quality services to clients and stakeholders. In order to sustain revenue sustainability, technology-based logistics services have been essential. Pelindo has been able to broaden its services thanks to digital advancements, which is crucial in a business that is highly competitive. In addition to streamlining operations, the company's emphasis on incorporating digital tools has given it a competitive edge (Liwaul, et al., 2023).

Launching app-based services or entering the e-commerce market, which saw a 15-20% increase in revenues within two years, helped diversify digital transformation in technology-based industries, overcoming significant market fluctuations and offering revenue alternatives (Ramadan et al., 2024). Over the last five years, technological advancement and the global economic crisis have had an impact on the financial restructuring and revenue optimization of transportation corporations in developing nations (Haris et al., 2024). The degree to which a business sustains steady financial performance in the face of upcoming global economic crises depends heavily on its financial health (Kebede et al., 2024).

This study aims to evaluate the impact of financial restructuring and digital service innovation on improving company profitability, with a specific focus on PT Pelindo's financial performance post-merger. The research emphasizes profitability as the primary indicator, analyzing its dynamics amid economic fluctuations and operational challenges within the port sector.

2. LITERATURE REVIEW

2.1. Overview of PT Pelabuhan Indonesia (PELINDO) merger

PT Pelabuhan Indonesia I (Persero), PT Pelabuhan Indonesia II (Persero), PT Pelabuhan Indonesia III (Persero), and PT Pelabuhan Indonesia IV (Persero) are state-owned enterprises (SOEs) in Indonesia, fully owned by the Ministry of State-Owned Enterprises, representing the Republic of Indonesia. These entities play a crucial role in the management and operation of ports across the nation (Pelindo, 2024).

2.2 Legal Framework and Merger Process

On October 1, 2021, a significant restructuring occurred when PT Pelabuhan Indonesia I, PT Pelabuhan Indonesia III, and PT Pelabuhan Indonesia IV were merged into PT Pelabuhan Indonesia II, which became the surviving entity. This merger was formalized under Government Regulation No. 101 of 2021, which aimed to enhance operational efficiency and create value within the national port services sector. The merger was officially witnessed by high-ranking officials, including the President of Indonesia, Joko Widodo, who signed the regulation on the same day. From this merger, PT Pelabuhan Indonesia II amended its name to **PT Pelabuhan Indonesia (Persero)**, commonly referred to as **PELINDO**. This rebranding was accompanied by changes to its Articles of Association and company logo as per the Ministerial Letter No. S-756/MBU/10/2021 (Pelindo, 2024).

2.3 Roles and Responsibilities of PELINDO

As a consolidated entity, PELINDO is tasked with a comprehensive set of duties that are essential for port operations and logistics in Indonesia. These responsibilities include:

1. **Provision of Port Services:** Managing port pools and waters for ship traffic and berthing.
2. **Pilotage Services:** Offering pilotage and managing ship delays.
3. **Infrastructure Management:** Providing docks and facilities for various types of cargo including containers, liquid bulk, dry bulk, general cargo, and passenger services.
4. **Loading and Unloading Operations:** Facilitating loading and unloading services for diverse cargo types.
5. **Terminal Operations:** Operating container terminals and other specialized terminals for different cargo types.
6. **Warehousing Services:** Managing warehouses, stacking yards, and stockpiles of goods.
7. **Land Provisioning:** Offering land for industrial buildings and multimodal transport needs.
8. **Utility Services:** Providing electricity supply, drinking water, and waste disposal installations.

9. **Fuel Services:** Supplying fuel for ships and vehicles within port areas.
10. **Logistics Support:** Facilitating consolidation and distribution of goods.
11. **Consultancy Services:** Offering educational and training services related to port operations.

2.4 Strategic Implications of the Merger

The merger is viewed as a pivotal move towards enhancing the efficiency of port management in Indonesia. By consolidating resources and operations under one umbrella organization, PELINDO aims to reduce logistical costs significantly—targeting a decrease to 20% of GDP by 2024. Furthermore, this strategic initiative is expected to improve access to global markets while fostering innovation within the logistics sector. In conclusion, the establishment of PELINDO through the merger of its predecessor companies marks a transformative step in Indonesian port management, aimed at creating a more integrated and efficient logistics network that can compete on a global scale. The comprehensive scope of services provided by PELINDO will play an essential role in supporting economic growth and enhancing national connectivity through maritime transport.

2.2. Digital Transformation in Seaport Industry

Digitalization focuses mainly on the business process automation, operations automation, as well as on the processing of information. On the other hand, digital transformation (DT) is currently an important trend that penetrates many industrial and societal domains and may be defined as the use of new digital technologies (analytics or embedded devices) to enable business improvements (e.g. improving the customer experience, streamlining processes) or to innovate the business models in strategic, tactical and operational terms (E. Tijan, et al 2024).

In order to facilitate significant business changes, digital transformation is defined as the increased usage of traditional technology like enterprise resource planning (ERP) and advanced IT like analytics, mobile computing, social media, and smart embedded devices (Chanias, 2017). The term "digitalization" at ports describes the use of cutting-edge technologies and digital solutions to enhance port operations' sustainability, safety, and efficiency. This covers the application of technologies including cloud computing, blockchain, big data analytics, automation systems, artificial intelligence (AI), and Internet of Things (IoT) sensors. These technologies improve supply chain management, expedite processes, and improve logistics (Brunila, et al., 2021).

2.3 NPM

The ability of a business to produce net profits after tax deduction is demonstrated by the Net Profit Margin (NPM) ratio (Mahruzal & Khaddafi, 2020). A comparison between net income and sales yields the net profit margin. The higher the NPM, the more productive the company will be and the more confident investors will be to put money into it. This ratio demonstrates the portion of net profit that each sale generates. A higher ratio indicates that the business is more likely to generate large profits (Munawir, 2001). The correlation between net sales and net income after taxes demonstrates management's capacity to run the business profitably enough to leave some margins as fair recompense for owners who have contributed

their capital to take on risk. The computations' outcomes show the net profit per dollar of sales. Investors in the capital market must be aware of the company's profitability. Knowing this allows the investor to assess the profitability of the business (Mahruzal & Khaddafi, 2020).

2.4 ROA

The ratio of the company's earnings to the capital or assets that generate it is known as its profitability. Otherwise, profitability refers to a company's capacity to turn a profit over a specific time frame (Kurniawan, 2021). Return on assets calculates the amount of net income that may be made from all of a company's invested and owned assets (asset efficiency). It can be said that the higher the return on assets (ROA), the more efficiently the company uses its assets to produce net profit after taxes. As a result, shareholders will receive higher dividends. This demonstrates that the business's capacity to manage its resources profitably is appealing and might persuade investors to purchase company stock, raising the stock price (Kurniawan, 2021).

2.5 SWOT

A SWOT analysis assesses an organization's exterior opportunities and threats in addition to its internal strengths and weaknesses. The organization's intrinsic resources, capabilities, core competencies, and competitive advantages are identified through internal study. The external study looks at the resources of rivals, the industry environment, and the overall environment to find market opportunities and dangers (Sammut-Bonnici, 2015). A SWOT analysis is a strategic technique that looks at an organization's Strengths, Weaknesses, Opportunities, and Threats to assess both internal and external issues. Internal benefits like a solid reputation for the brand, devoted clients, or distinctive technology that give a competitive edge are examples of the strengths. Conversely, weaknesses are internal constraints that need to be addressed in order to enhance overall performance, such as antiquated systems, a lack of resources, or ineffective procedures. External factors such as new markets, advantageous laws, or market trends that present chances for development and expansion might create opportunities. Last but not least, threats are outside issues that could provide serious risks if improperly handled, such as escalating competition, shifting consumer habits, or economic volatility (Sammut-Bonnici, 2015).

3. RESEARCH METHOD

3.1. Financial Data

The primary source of quantitative data for this study will be the financial statements of PT Pelabuhan Indonesia (Persero). This includes essential documents such as:

- **Balance Sheets:** These provide a snapshot of the company's assets, liabilities, and equity at specific points in time, allowing for an assessment of financial stability and liquidity.
- **Income Statements:** These statements detail the company's revenues, expenses, and profits over the reporting periods, offering insights into operational performance.
- **Cash Flow Statements:** These documents track the inflow and outflow of cash within the organization, highlighting its liquidity position and cash management practices.

To evaluate the company's profitability, key financial metrics will be calculated using established formulas:

- **Net Profit Margin (NPM):** This metric measures how much profit a company makes for every dollar of revenue generated. It is calculated using the formula:
 - **Net Profit Margin = (Net Operating Income / Net Sales) × 100 %**
- **Return on Assets (ROA):** This indicator assesses how efficiently a company utilizes its assets to generate earnings. The formula for calculating ROA is:
 - **Return on Assets = (Net Income / Total Assets) × 100 %**

These calculations will provide critical insights into PT Pelabuhan Indonesia's profitability trends over the study period.

3.2. Data Sources

The financial statements utilized in this research will be sourced from multiple releases, including:

1. **Audited Financial Reports:** These reports are prepared by independent auditors and provide a reliable basis for assessing financial performance. They include detailed disclosures that adhere to applicable accounting standards.
2. **Unaudited Financial Reports:** While these may not have undergone external verification, they can offer timely insights into recent performance trends and operational changes.

Specific data points will be extracted from various financial reports published by PT Pelabuhan Indonesia (Persero), including:

- The consolidated statement of profit or loss for the year ended September 30, 2022, which indicates significant operational revenue and expenses.
- The balance sheet as of December 31, 2022, reflecting the company's asset composition and liabilities.
- Cash flow statements that outline cash movements during specific periods.

3.3. Analysis Framework

The analysis will focus on identifying trends in profitability metrics over the specified timeframe. By comparing NPM and ROA across different periods, this research aims to ascertain the impact of strategic decisions made post-merger on PT Pelabuhan Indonesia's financial health. Additionally, contextual factors such as market conditions, regulatory changes, and operational efficiencies gained through the merger will be considered to provide a holistic view of the company's performance. In summary, this quantitative study aims to deliver an in-depth analysis of PT Pelabuhan Indonesia (Persero)'s financial performance through structured data collection and rigorous metric evaluation over a defined period. The findings are expected to contribute valuable insights into the effectiveness of corporate restructuring efforts within state-owned enterprises in Indonesia.

4. RESULT AND DISCUSSION

4.1 Analysis Strength

PT Pelabuhan Indonesia has several internal strengths that can be used as a foundation for digital transformation in developing the port business in Indonesia. These internal strengths include a diversified portfolio, dominating the container market, and having reliable human resources to develop the company in digital transformation.

In the strengths analysis mapping, PT Pelabuhan Indonesia has 5 (five) strengths that can be used as the basis for developing the company's digital transformation business, including:

1. Has a wide and largest service coverage area throughout Indonesia.
2. Has a strategic location to be used as a transshipment hub, namely Kuala Tanjung Port and Belawan Port which are located on the main trade route between Asia and Europe.
3. Access to an extensive port network provides opportunities for the implementation of digital transformation at various points of operation.
4. Pelindo has access to strong funding sources, both from operating income and government support.
5. Each subholding has an integrated digital system to facilitate port services to customers seamlessly (TOS Nusantara and palapa for container business, PTOS-M for non-packaging business, Yard Operating System (YOS) and Behandle Operating System (BOS) for logistics business and Phinisi for ship services).

4.2 Analysis Weaknesses

Weaknesses analysis was conducted to assist PT Pelabuhan Indonesia in identifying potential internal barriers that exist, in both operational and functional business domains. In the weaknesses analysis, PT Pelabuhan Indonesia has 5 (five) weaknesses that must be addressed immediately in the development of the company's business digitalization, including:

1. Non-packaging market share is still low (11%) when compared to other BUMN players.
2. Uneven HR competencies due to low fulfillment of HR certification and the absence of HR indicators and programs that meet global scale competencies.
3. PT Pelabuhan Indonesia's profitability is still low (13%) when compared to global port operator reports (>20%).
4. Development of services in the logistics, hinterland and property segments that have not yet developed
5. Organizational structure that is not yet agile and adaptive to changes in new business models, making it difficult to compete with private competitors

4.2 Analysis Opportunities

Digital transformation in the logistics and port sector presents strategic opportunities for PT Pelabuhan Indonesia (Pelindo) to strengthen its position as a major player in the industry. With the increasing need for efficiency, transparency and integration along the global supply chain, Pelindo has a great opportunity to leverage digital technology to deliver innovative solutions that meet market demands. PT Pelabuhan Indonesia (Pelindo) has 4 (four) opportunities that can be utilized for the development of digital transformation, among others:

1. Government programs that are in line with improving logistics connectivity with the existence of downstream regulations based on Law No.3 of 2020
2. There is potential for strengthening integrated port services through synergies with the SOE logistics cluster
3. Potential expansion of new container service networks to the Asian region which has controlled 55% of the global container market share
4. Programs such as the National Logistic Ecosystem (NLE) encourage the integration of digital logistics systems, creating opportunities for Pelindo to become a pioneer in the ecosystem.

4.3 Analysis Threats

Although digital transformation opens up various opportunities for PT Pelabuhan Indonesia (Pelindo), the company also faces a number of threats that could affect the success of its digital initiatives. In an era of increasingly fierce global competition, challenges such as rapid technological development, cybersecurity risks, and reliance on uneven digital infrastructure in Indonesia pose serious threats. In the threats analysis mapping, PT Pelabuhan Indonesia has several threats in the company's digital development, including:

1. Geopolitical conditions that have an impact on economic uncertainty
2. Projected stagnant growth of container and non-packaging business both globally and nationally
3. Massive digitalization opens up potential cybersecurity threats, such as hacking, data theft, and ransomware attacks. Such incidents can disrupt port operations, damage reputation, and cause financial losses.
4. Unconnected modes of transportation between land, sea, and air, resulting in low connectivity between regions.

4.4 Net Profit Margin PT Pelabuhan Indonesia

PT Pelabuhan Indonesia faces several challenges in its revenue growth over the period 2021 to 2023. In the analysis of operating revenue growth, PT Pelabuhan Indonesia recorded a compounding annual rate growth (CAGR) of 3.8%. Based on the Figure 2.1 in 2021, the Net Profit Margin at PT Pelabuhan Indonesia is 11.0%. In 2022, the net profit margin had an increase of 2.2% to 13.2%, while in 2023 the net profit margin decreased to 12.9%. The decline was due to significant competitive challenges with other Global Terminal Operators (GTOs). In addition, the decrease in net profit margin is due to higher human resource and financial expenses.



Figure 2.1 Net Profit Margin PT Pelabuhan Indonesia

Although Pelindo recorded a net profit of IDR 4.01 trillion, an increase from IDR 2.96 trillion in 2020, NPM growth was not proportional to the increase in profit. Pelindo's revenue also grew to IDR 31 trillion from IDR 29.7 trillion in the previous year (Pelindo, 2024). Pelindo has undertaken various post-merger transformation programs to improve operational efficiency. While these aim to improve long-term performance, the initial investment in new technology

and operational systems may have led to increased costs at the beginning of the financial reporting period (Pelindo, 2024).

Based on the performance of PT Pelabuhan Indonesia's financial statements, in the first quarter of 2024 PT Pelabuhan Indonesia's net profit margin decreased to 11%. Pelindo recorded a net profit of IDR 530.59 billion in the first semester of 2024, which shows a 61.67% decrease compared to IDR 1.38 trillion in the same period in 2023 (IDN Financials, 2024). Despite the increase in revenue, operating profit decreased to Rp 2.08 trillion from Rp 3.21 trillion. This was due to an increase in operating and construction expenses which reached Rp 12.40 trillion and Rp 1.16 trillion.

Digital transformation often requires significant initial investment in technology and infrastructure. While the goal of this transformation is to improve efficiency and reduce costs in the long run, during the initial implementation phase, operating costs may increase. This can result in a decrease in NPM, especially if the increase in revenue is not proportional to the increase in costs incurred for new technology and human resource training (Supply Chain Indonesia, 2019). Early-stage digital transformation may fall short of achieving desired efficiency, as seen with uneven implementation or technical issues in systems like Pelindo Terminal Operations System (PTOS-M). Such challenges can hinder cost optimization, potentially reducing Net Profit Margin (NPM) (Ramadhan, et al., 2024).

4.5 Return on Asset PT Pelabuhan Indonesia

A financial term called return on assets (ROA) analyzes how profitable a business is in relation to its total assets. It shows how effectively a business uses its resources to produce profits.



Figure 2.2 Return on Asset of PT Pelabuhan Indonesia

Based on Figure 2.2 Return on Asset (ROA) of PT Pelabuhan Indonesia from 2021 to 2023, there is an increase in asset efficiency performance. In 2021, ROA was at 2.73%, which indicates a relatively lower return on assets. A significant improvement occurred in 2022, with ROA reaching 3.30%. In 2023, ROA remained stable at 3.39%, indicating that the company managed to maintain a good level of efficiency. Overall, this positive trend shows that PT Pelabuhan Indonesia has succeeded in improving the efficiency of asset use, although there are still opportunities to further optimize asset management to achieve a higher ROA.

The increase in ROA from 2021 to 2022 was due to an increase in the total assets of PT Pelabuhan Indonesia, from \$116.97 trillion in 2021 to \$118.35 trillion in 2022 (Pelindo, 2022). The implementation of technologies such as multipurpose operational systems (PTOS-M) and inaportnet can speed up operational processes at ports. This can reduce waiting time and increase productivity, which in turn can increase net profit without increasing the large proportion of assets owned.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

By leveraging its internal assets, including a wide service area, a strategic position, and access to strong finance sources, PT Pelabuhan Indonesia (Pelindo) has made notable progress in its digital transformation path. PT Pelabuhan Indonesia is in a position to improve its operational effectiveness and competitiveness in the worldwide market these advantages and integrated digital systems. Potential obstacles to future success, however, include issues like unequal HR competences, low profitability in comparison to international norms, and an organizational structure that lacks agility. Notwithstanding these shortcomings, PT Pelabuhan Indonesia has a lot of prospects, such as government initiatives to enhance logistics connection and the growth of its network of container services in the Asian market.

Based on the financial performance, PT Pelabuhan Indonesia has had a fluctuating performance record. While its net profit margin (NPM) and return on assets (ROA) have improved recently, a decline in NPM in 2023 points to increased operational costs and competitive challenges. Profitability has suffered as a result of the company's early infrastructure and technology investments during its digital transformation. Pelindo's rise in ROA from 2021 to 2023.

5. 2 Recommendation

To increase its Net Profit Margin (NPM), PT Pelabuhan Indonesia should focus on optimizing operational efficiency by expanding and enhancing its digital systems like PTOS-M, which can reduce costs, improve throughput, and minimize inefficiencies. Investing in HR training and certification programs will help close competency gaps, improving employee productivity and reducing operational errors. PT Pelabuhan Indonesia should also focus on expanding its market share in non-packaging and logistics, offering competitive pricing and value-added services to drive growth in these areas.

PT Pelabuhan Indonesia (persero) should explore greater collaboration with other state-owned enterprises (SOEs) within the logistics cluster to strengthen its position and expand service offerings. Synergizing operations across the cluster can improve efficiency, reduce costs, and create integrated, seamless solutions for customers. This collaboration could also align with the government's regulatory programs (such as Law No.3 of 2020), which aim to improve logistics connectivity.

Although Pelindo has shown improvements in Return on Assets (ROA), there is still room for optimization. Pelindo should continue to focus on maximizing asset efficiency by

further refining its asset management practices. This includes better utilization of existing infrastructure, reducing idle time, and exploring opportunities for monetizing underused assets. Moreover, Pelindo can invest in automation and technology to optimize asset management and improve overall productivity without significantly increasing the size of its assets.

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Chapter 4

Brand Sustainability and Social Responsibility: Impact on Consumer Loyalty in the Local Beauty Sector Amidst Geopolitical Crises

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ABSTRACT

The beauty market in Indonesia has been seeing significant growth annually from 2019 until now. As consumers grow increasingly discriminating, a beauty brand's dedication to ethical practices, including awareness of environmental, socio-political, and geopolitical issues, may distinguish it from rivals. The importance of corporate social responsibility (CSR) in shaping consumer perceptions has intensified due to the geopolitical crises occurring in light of the Palestine – Israel conflict. Consumers now anticipate brands to voice their opinions on social and political issues, and the degree to which a brand aligns with their own values influences their purchasing decisions. This paper will be focusing on the local beauty brands in Indonesia who are doing CSR initiatives in relation with the Palestine-Israel boycott issue. There is sufficient previous research on this topic. However, there is still limited research focusing on the CSR initiatives done as a result of boycotting the products to consumer loyalty. Therefore, this study aims to explore the effectiveness of the CSR initiatives done by local beauty brands who are supporting Palestine as oppose to the phenomena of boycotting as an effect to consumer loyalty as part of brands' sustainability and social responsibility seen in the evidence of the product user in Indonesia. This is a descriptive conceptual paper that proposes a comprehensive framework for understanding how local beauty brands can effectively leverage CSR strategies to foster consumers loyal in times of social and political turmoil. The proposition shows that CSR initiatives positively influence consumer loyalty through improving brand image, fostering trust, and resonating with consumer values amid the geopolitical conflict where consumer prefer brands showing authentic social responsibility and community support. This study is a conceptual study, hence the limitation of this paper lies in the absence of the empirical data. Future studies should be conducted quantitatively to test further the proposition and hypothesis.

Keywords : Corporate Social Responsibility (CSR), Consumer Loyalty, Local Beauty Brand, Geopolitical Issue, Brand Sustainability

INTRODUCTION

In recent years, consumers have transformed to be more value-oriented, choosing brands that correspond with their social and sustainable principles, showing a trend that has reshaped the beauty industry. Consumers are using their purchasing power to convey their ideals and expect brands to be held accountable for every action they are doing (Nazahra, 2024). The geopolitical tension happening between Palestine and Israel has changed the world's perspective, impacting consumers loyalty to a certain brand and their purchase intention. Brands that responded differently towards social or political form their consumers perception may jeopardize their reputation, resulting in losing consumer trust and loyalty. On the other hand, brands that actively participate in actions and efforts that resonate with consumer values may enhance their reputation and grow a loyal consumer base (Jungblut and Johnen, 2021). Some may seek for alternatives from brands that don't align with their personal values, as their demand for brands to speak out their voices toward this issue is expected. Boycott efforts are initiated by consumer behavior favoring local products as an alternative. This action is well known as consumer ethnocentrism, where consumer is more likely to purchase local products that is against the crises, which is ethically preferable rather than buying other brands that supports the act. This is a chance for local business owners and government to collaborate in fortifying local industry, enhancing its competitiveness in the national market, and preparing for competition (Nguyen et al., 2018). In the present socio-political climate, Corporate Social Responsibility (CSR) programs have become crucial for beauty brands seeking to enhance their brand image, increase awareness, and retaining loyalty of their current consumers. With the change of environment and the growth of technology, the beauty business sector stands at the intersection of consumer demands and ethical responsibilities. It is important for beauty brands to stay agile when facing and adapting to these evolving dynamics. These crises act as a test for a brand's dedication to sustainability and social responsibility, pointing out a clear position or the potential to alienate their audience. Indonesia has a really large crowds for their beauty products users, beauty influencer/trendsetters, and also beauty enthusiast / experts. With this big crowd, brands can leverage the power they have on doing offline and online marketing initiatives on retaining their current consumer. How loyal a consumer is to a certain brand can be tested through their behavioural pattern, where disloyal consumer is likely to disengage quickly and seek for alternatives if a brand faces an issue. While, loyal consumers do a wait-and-see strategy, to see the brand's response to issues prior to determining whether to maintain their support or not. This study examines the impact of brand responses and effort on their brand's sustainability and social responsibility to maintain consumer loyalty within the local beauty market, especially amid geopolitical crises. This study examines how CSR programs and sustainability pledges may mitigate the continuing effect of boycotts and position the brand on their social responsibility commitment, fostering a long-lasting brand, consumer trust and loyalty.

BACKGROUND

Palestine – Israel Geopolitical Crises

The Palestine – Israel geopolitical tension dates back to May 14th, 1948 and still continues up til today. It was first cause by the United Nations' implementation of the Partition Plan, which resulted in the initial Arab-Israeli conflict by dividing Palestine into Arab and Israel nations. Israel's launched hundreds of rockets, artillery bombardments, and airstrikes, which targeted both military and civilian infrastructure, including residential structures, media headquarters, and places for refugees and hospitals, resulting in the deaths of over millions of Palestinians

(Centre for Preventive Action, 2024). This humanitarian catastrophe has intensified annually, as noted by the United Nations Development Programme (2024), which is due to the extensive devastation of the environment, the physical and psychological damage of thousands of casualties, the massive fatalities, and food poverty; the mass displacement and dearth of secure areas, as well as Israeli limitations on the distribution of products and services, are also contributing factors to this issue. Additionally, consumer scrutiny has been intensified and global brand perceptions have been altered as a result of geopolitical crises. Brands that are associated with funding Israel or are known to take stance on Israel are spotlighted with public backlash by their consumers worldwide, who take part in boycotts. In 2005, Palestinian civil society initiated the Boycott, Divestment, and Sanctions (BDS) movement, which aimed to boycott Israeli companies and institutions. Although BDS is not an international treaty, it has gained significant support, leading to boycott actions against Israeli products. This also correlates with consumer ethnocentrism, which is the belief that purchasing domestic products is morally superior to purchasing foreign products; a consumer behaviour that prioritizes local products as alternatives as a result of boycotts (Nguyen et al., 2018). This shows an opportunity for the government and local brand owners to collaborate in order to fortify the local industry, enhance its competitiveness in the national market, and even prepare for competition. The boycott of foreign products, particularly those manufactured in Israel and supporting Israel, has a positive impact on the development of domestic product income (Ula et al., 2024).

Brands, Boycotts, and CSR Initiatives

In Indonesia, Fatwa No.83/2023 was issued by MUI (*Majelis Ulama Indonesia*) in relation to boycotts to refrain consumers from using products associated with Israel. Muslims are advised to stop the purchase and use of products that are associated with Israel, as well as those that advocate for Zionism. This fatwa was well-received and adhered to by majority of the population in Indonesia, as the majority of the population is Muslim. The boycott of foreign products, particularly those manufactured and supporting Israel by giving donation and supporting it, in Indonesia itself has a positive impact on the development of domestic product income. The boycott movement led to a 30-40% increase in the sales of specific local products, where this illustrates that boycotts of foreign products in Indonesia foster the growth of local product sales (Handayani, 2023). In order to stay competitive, it is important for brands to develop a distinctive product and branding due to the increasing number of competitors. It is important for brands to implement diversification in their marketing strategies and products. In the beauty industry, which is linked to ethical, environmental, and social issues, corporate social responsibility (CSR) initiatives serve as a marketing strategy for branding. A robust corporate social responsibility (CSR) strategy can assist in reducing the risks associated with negative public perception or retaliation. Beauty brands may contribute to humanitarian operations and promote peace during periods of crisis, such as the Israel-Palestine conflict, by implementing corporate social responsibility (CSR) initiatives in a form of giving support and direct donations. The actions of these brands can also serve as a reflection of consumer loyalty, as consumers are more likely to purchase from brands that share their perception and abandon brands that contradict their perception.

Consumer Loyalty

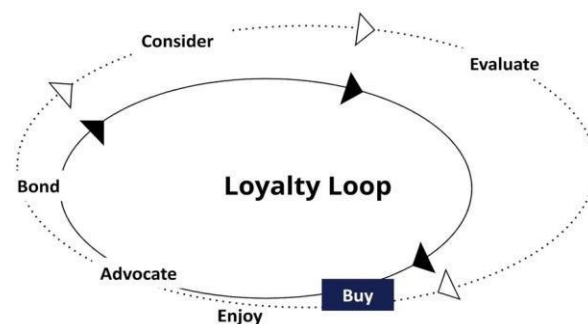


Figure 1. The loyalty loop diagram
(Source: Kulle and Helsten, 2017)

The consumer loop theory, explains that after deciding to purchase a product the next thing to do know is which brand consumers are purchasing from. In the circular consumer decision loop, this is referred to as brand consideration. At first, consumers only prioritize the brands that they are already familiar with due to the availability of the products on the market. However, as they begin to more actively evaluate brands, understand the value of the brand, how conscious and responsible the brand is to the community, they might expand their selection. After the consumer selects the brand they want to purchase, brands need to maintain their consumers loyalty through post-purchase experiences. The three main stages are, “enjoy”, “advocate” and “bond”, which influences their decision if they have 2 options to pick from. Numerous post-purchase activities may influence brand loyalty, including information that aids the consumer in their active evaluation and online resources available for consultation following product purchase. To cultivate loyalty, interactions must be carefully selected to impact the consumer throughout the contemplation to closing process. Essentially, the loyalty loop has a feedback mechanism where consumers continuously assess their purchases even post-purchase of the product. This is something that brands needs to consistently provide exceptional performance and experience to consumers; or else, loyal consumers may begin to consider alternative brands. For brands, it is advantageous to have consumers who are loyal to their brand, as this enables them to leverage a strategic Word-of-Mouth Marketing technique, which is more effective in influencing the purchasing decisions of others. This shows the establishment of enduring brand value, cost reduction, price insensitivity, and an increase in profitability and growth. The development of self-brand and brand-social linkages is facilitated by word-of-mouth marketing, which in turn promotes consumer sharing behaviour and increases consumer loyalty (Dapi and Phiri, 2015). The cosmetics industry is a dynamic market in which brand loyalty is both difficult to acquire but also simple to lose. Brand loyalty is characterized by actions that impact both pre- and post-purchase experiences. Engaging consumers throughout their purchase journey and ensuring their loyalty by consistently providing pertinent information, persuasive communication, offering appropriate content at the right time, and engaging with them on social media. According to Kulle and Hellsten (2017), a single error can have an irreparable impact on a brand's consumer loyalty. Consequently, numerous organizations prioritize the development of consumer loyalty as a critical objective in their marketing strategies. There is sufficient previous research the effect of social responsibility initiatives that brands done to consumer loyalty. However, more research is needed to analyse how that can affect the brand's sustainability as well.

METHODS

This study is a descriptive qualitative paper, which describes the CSR initiatives done by local beauty brands in Indonesia to as a form of their social responsibility to maintain brand sustainability and consumer loyalty. A method used to answer the research question is by analyzing and synthesis of existing research to have more profound comprehension on the topic. Conceptual descriptive approach is used to analyze literature, identifying theories, frameworks, also relating it with the boycott & geopolitical crises phenomena. Empirical descriptive approach is used by doing surveys and social media analysis to get handful more information for this study. This study is also a type of phenomenological research that reveals the boycott phenomenon, as a result to reduce income and profits from products affiliated to Israel, and as a way for brands to show their social responsibility to community. This data analysis used in this study is content analysis technique, specifically the examination of news content published in a variety of online media and social media platforms. This study will focus on local beauty brands in Indonesia that are showing their social responsibility through creating sympathy and taking sides on the Palestine – Israel issue. This study will focus on 20 (twenty) local beauty brands which includes: Aubree, Avoskin, Bhumi, Esqa, Facetology, Kahf, Labore, Luxcrime, Make Over, Mother of Pearl, Pratista, Raecca, Rei Skin, Rose All Day, Runa Skin, Skin Game, Teratu Beauty, Trueve, Wardah, and Whitelab.

Population and Sample

This study will focus on Indonesian citizens especially Generation Z in the age range of, residing in the Jabodetabek area. The sample will include 40 loyal consumers of brands that shows their stance to Palestine, including those who engage in boycott actions against brands who are affiliated and brands who are not affiliated. This sampling strategy shows an extensive understanding of the effect that influence consumer loyalty by the initiatives done for the brands sustainability and social responsibility. Another qualitative approach is being used by conducting surveys with consumers, which is done through online platforms. The following are the semi-structured questions: 1. Are you an active users of local beauty brands in Indonesia? 2. Do you use any of these brands mentioned: Aubree, Avoskin, Bhumi, Esqa, Facetology, Kahf, Labore, Luxcrime, Make Over, Mother of Pearl, Pratista, Raecca, Rei Skin, Rose All Day, Runa Skin, Skin Game, Teratu Beauty, Trueve, Wardah, Whitelab? 3. On Oct - Nov 2023, many beauty brands are showing their side on the Palestine - Israel crises. If your selected brands are standing on the different perspective than what you have, will you switch to another brand? 4. Do you boycott brands who have the opposite perspective than you? 5. What do you think of brands that uses this phenomenon to increase their sales and image only? 6. Does doing CSR Initiatives like giving donation to Palestine makes you more loyal to that brand?

RESULTS AND DISCUSSION

Table 1. Social responsibility initiatives of local beauty brands

No	Brand Name	Initiatives Done
1	Aubree	Posted their stance to Palestine through Instagram Post, voice comes from not only the brand but the owner of the brand
2	Avoskin	- Posted their stance to Palestine through Instagram Post - Collaborate with Kitabisa for crowdfunding
3	Bhumi	- Posted their stance to Palestine through Instagram Post - Donated IDR 5.000 on every product sold in Nov, 2023
4	Esqa	- Posted their stance to Palestine through Instagram Post - Donated IDR 600.000.000 through Baznas & PCRf
5	Facetology	- Posted their stance to Palestine through Instagram Post - Donated IDR 30.000 on every product sold in Nov, 2023
6	Kahf	- Posted their stance to Palestine through Instagram Post - Crowdfunded with Paragon Corp to donate fresh money and products for essential necessities
7	Labore	- Posted their stance to Palestine through Instagram Post - Crowdfunded with Paragon Corp to donate fresh money and products for essential necessities
8	Luxcrime	- Posted their stance to Palestine through Instagram Post - Donated IDR 50.000.000 through Baznas
9	Make Over	- Posted their stance to Palestine through Instagram Post - Crowdfunded with Paragon Corp to donate fresh money and products for essential necessities
10	Mother of Pearl	- Posted their stance to Palestine through Instagram Post - Crowdfunded through Mer-C Indonesia, up to IDR 2.000.000.000 in amount
11	Pratista	- Posted their stance to Palestine through Instagram Post - Donated more than IDR 10.000.000 through Yayasan Mahad Islam Rafiah Akhyar
12	Raecca	Posted their stance to Palestine through Instagram Post
13	Rei Skin	- Posted their stance to Palestine through Instagram Post - Donated 50% of their October profits through UNRWA
14	Rose All Day	- Posted their stance to Palestine through Instagram Post - Donated IDR 500.000.000 through Baznas
15	Runa Skin	- Posted their stance to Palestine through Instagram Post - Donated a portion of their product's sales
16	Skin Game	- Posted their stance to Palestine through Instagram Post - Donated IDR 10.000.000 through Embassy of the State of Palestine
17	Teratu Beauty	- Posted their stance to Palestine through Instagram Post - Donated a portion of their product's sales
18	Trueve	- Posted their stance to Palestine through Instagram Post - Donated IDR 30.000.000 through Dompot Dhuafa

19	Wardah	- Posted their stance to Palestine through Instagram Post - Crowdfunded with Paragon Corp to donate fresh money and products for essential necessities
20	Whitelab	- Posted their stance to Palestine through Instagram Post - Donated 2,5% of their November – December 2023 sales through Dompot Dhuafa

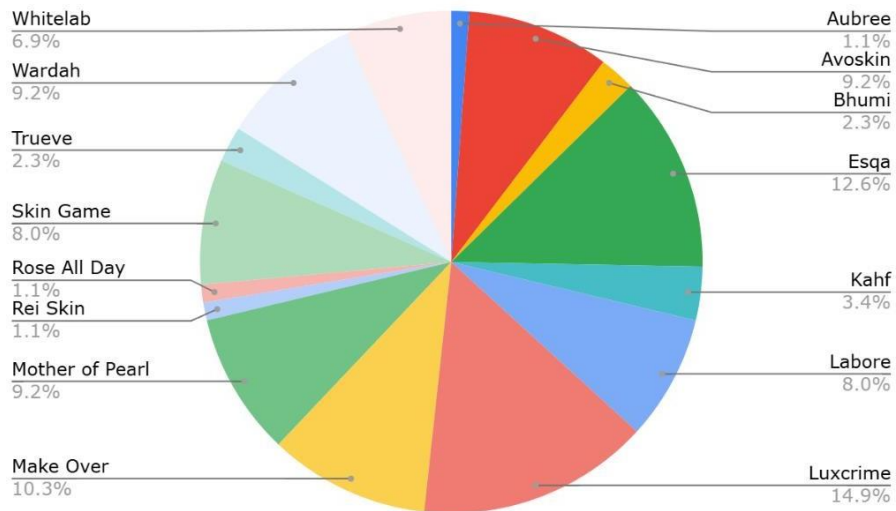


Figure 2. Most used local beauty brands

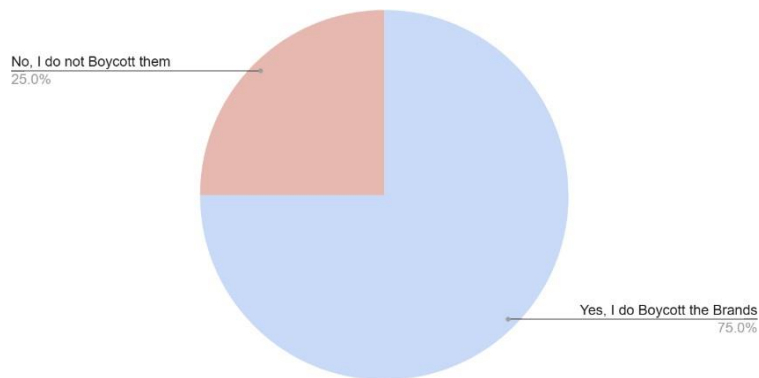


Figure 3. Boycott actions to brands with different perspective

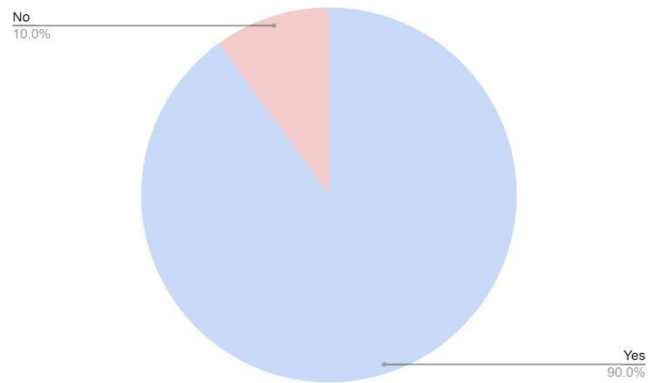


Figure 4. Switching to brands with different perspective

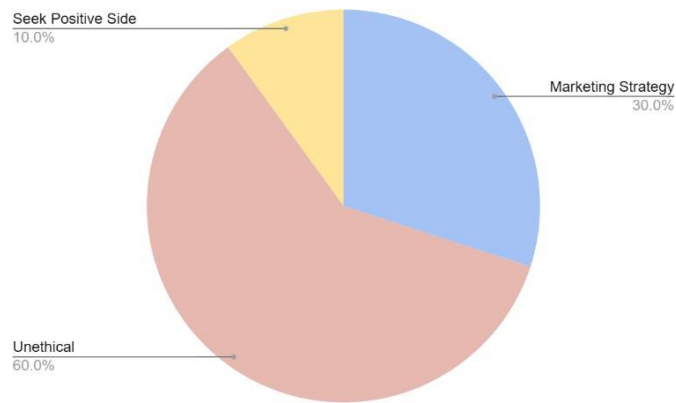


Figure 5. Consumers reaction to brands that uses phenomena to improve brand image

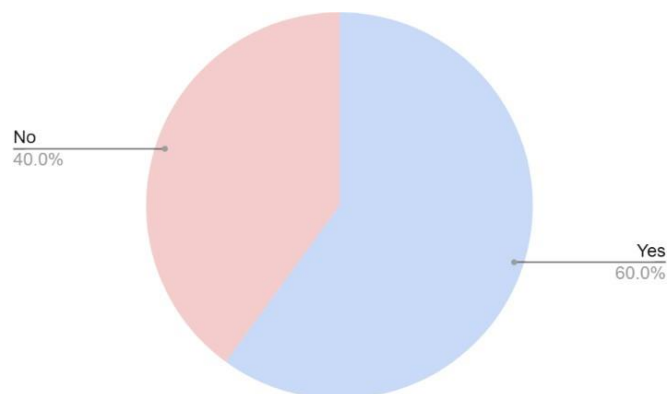


Figure 6. CSR initiatives and consumer loyalty

Discussion

From **Table 1.**, it is known that all 20 selected brands in this study shows their stance to Palestine by posting it through their social media account, Instagram. One brand, Aubree not only uses this opportunity to express their thoughts through the brand, but also personally through their owner's social media account. Brands can convey easily their social responsibility through posting their stance to a certain issue, fresh money donation, sales percentage donation, products donation, and also collaborating with crowdfunding institutions to submit their donations to Palestine. Brands who show their response in a form of donation and crowdfunding needs to show the proof of where the money and goods that they are donating goes, since it is also the brand's responsibility and fulfillment of their commitment to their consumers. If they are collaborating with institutions or non-governmental organization (NGO), it is important to collaborate with the trusted ones. Consumers can also easily see how serious those brands are as a response to this issue. A lot of the brand's consumer appreciate the act and initiatives that the brand has done. This is shown by the brands post Instagram comment which is filled with different words of appreciation, gratitude, and compliment as the brands have been actively vocal to this issue.

The survey was done to 40 respondents via online platform. All of the respondents are active user of local beauty brands in Indonesia. From **Figure 2.**, it is known that the three top used brands are Luxcrime which is used by 14.9% of the respondents, Esqa which is used by 12.6% of the respondents, and Make Over which is used by 10.3% of the respondents. From **Figure 3.**, it is known that 75% of the respondents' boycotts brand who have a different perspective regarding to the Palestine – Israel issue than them. All brands used in this study are brands that shows their stance with Palestine for this issue. While, 25% of the respondents do not boycott those brands. A few reasons cover on how crucial that brand's product is to their skincare and beauty regime, they are more price sensitive than issue sensitive, and it is hard for them to find other substitutes for the product that they are using. From **Figure 4.**, it is known that 90% of the respondents will switch to different brands, if the current brand that they are using has different perspective than them. Respondents finds it more heart warming to buy products from brand's that have the same perspective toward a geopolitical issue with theirs. While, 10% of the respondents feel that a brand that has a different perspective than them will not change their loyalty and purchasing decision towards the brand itself.

Figure 5., shows the consumers reaction to brands that only uses this phenomenon as a chance to improve brand image, hence creating a chain of higher consumer loyalty. 60% of the respondents thinks that it is unethical for brands to 'use' this issue as a way to leverage their sales, image, and retain their current consumer. One respondent mentioned that this is unethical for brands to do, since without pure intention, at the end, the only thing that matter is the quality of the product; if they can't keep up with the others, it will ruin their sales, image, and lose loyal consumer. Another respondent mentioned that, brand that only uses this phenomenon as a way to boost sales and image without truly caring will only hurt their own reputation and eventually losing their consumer's respect. 30% of the respondents understand that brands also leverage this phenomenon as an opportunity for their marketing strategy, they feel like there's nothing wrong on leveraging this phenomenon because every brand has their own strategy to retain consumers as long as it is done in a positive way like giving out donations to Palestine. While, the rest 10% of respondent sees that the initiatives the brands done are correct if seen from a positive side and harms no one. From **Figure 6.**, it is known that 60% of the respondents feels that the CSR initiatives done by brands as a way to complete their social responsibility to the community may increase their loyalty towards the brand. They support the initiatives that the brand does, because they also feel like they can be a part of that initiatives and also completing

their social responsibility as well. Respondents feel happy when knowing that the brands that they have been using are aware about this issue. While, 40% of the respondents feel that CSR initiatives done by brands won't increase their loyalty because they seek for other factors like quality and price, but these initiatives can make them want to support the brand even better than before.

CONCLUSION AND RECOMMENDATIONS

CSR initiatives done by brands to complete their social responsibilities to the community and to sustain their business model in the community by giving donation in a form of money, crowdfunding, and products for Palestine is found to be effective in increasing their loyalty to the brands. Consumers' loyalty to a certain brand is easily influenced if brands don't have the same perspective with them towards a certain social issue. Consumer also feels that brands who only uses this phenomenon as a way to fix their brand image and increase their sales with no pure intention is unethical. In this future, more surveys should be done with more samples and different age range so it each age range can give more insights base on their perception and knowledge.

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Chapter 5

Home Energy Storage System (HESS) Market in Indonesia

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ABSTRACT

Indonesia is a market in the energy transition as the country is moving from fossil fuels to clean energy resources. By 2025 and 2030, the Indonesia government aims to achieve the target of 23% and 30% of renewable energy contribution into the energy mix. Utility-scale and batteries play a major role in enabling the transition towards 100% renewables and zero GHG emissions by 2050. The need for storage increases from 2030 onwards with capex of electricity storage grows to around USD 82 billion in 2035 and further declines to USD 42 billion in 2050. The Indonesian govt's efforts in establishing the battery industry supply chain will become the opportunity of home energy storage system more affordable, due to increasing local content. Among the energy storage systems, the market for home energy storage in Indonesia is still in its early stages. However, it has the potential to grow significantly in the coming years. This growth is driven due to increasing of the electricity price and Government support for renewable energy. This includes incentives homeowners to install solar panels and battery storage systems. The rise of electric vehicles: The number of electric vehicles in Indonesia is increasing, and this is creating a demand for home charging solutions. There are also some challenges that could hinder the growth of the home energy storage market in Indonesia. These include high upfront costs and limited financing options. Despite these challenges, the home energy storage market in Indonesia is expected to grow significantly in the coming years. This growth will be driven by a combination of government support through the incentives program, increasing electricity prices, and the rise of electric vehicles, include the battery supply chains.

Keywords: Net Zero Emission, Home Energy Storage System, Electricity Price, Electric Vehicles, Government Support

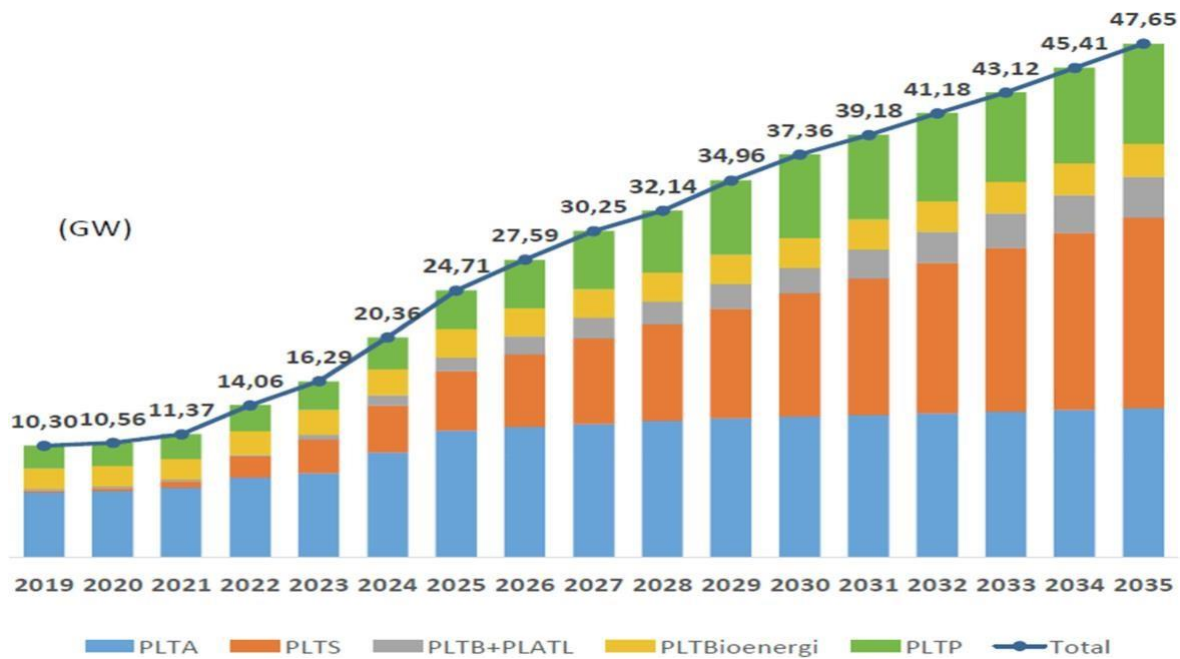
1. Introduction

The United Nations and the Paris Agreement have established ambitious goals to limit global warming to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C [1]. To achieve this objective, there is a commitment to transition towards the integration of renewable energy sources into energy systems, to significantly reduce greenhouse gas emissions, thereby ensuring energy security, fostering economic growth, and promoting environmental protection and stewardship [2–4].

Solar energy stands out as one of the most promising technologies for power generation, especially in the context of decentralization power generation through stand-alone PV systems [5,6]. This approach serves as a turnkey solution for electrifying isolated or remote areas where the electrical line supply is unavailable. Indeed, the nature of PV power is inherently intermittent due to its dependence on local weather and climate conditions, leading to a fluctuating power supply.

This variability can lead to challenges in maintaining a stable power supply. However, integrating energy storage systems with stand-alone PV systems can significantly enhance system efficiency by effectively managing power supply dynamics. This is achieved by storing excess energy generated during high PV power generation and utilizing it during low periods. Various energy storage system architectures have been proposed for stand-alone PV applications, including pumped hydro storage (PHS), hydrogen energy storage (HES), supercapacitor energy storage, and battery energy storage (BES). Among these options, a stand-alone PV system with BESS, particularly utilizing lithium-ion technology, offers advantages such as high energy density, long cycle life, and efficient charge/discharge capabilities. It proves suitable for a wide range of applications, ranging from residential to utility-scale projects. Moreover, the integration of a sophisticated power management algorithm can further enhance the overall performance of the system. By intelligently monitoring and controlling the energy flow

Indonesia, with its abundant solar resources, is actively developing solar power to meet its renewable energy targets. The country aims to achieve 6.5 GW of solar capacity by 2025 as part of its goal to have 23% renewable energy in the national energy mix [1].



Renewable energy [development plan](#) in Indonesia. Source: Grand Energy Strategy of Indonesia: 12 Strategic Priorities – Presentation slide National Energy Council [2].

Various solar panel options are available in the domestic market ranging from 5 to 500 Watts [3]. During the COVID-19 pandemic, increased household electricity demand has further highlighted the potential of solar home systems to reduce reliance on the public grid [4].

Solar Power Plants (PLTS) are mainly managed by the National Electricity Company (PLN). Several types of PLTS exist: grid-connected PLTS, off-grid PLTS, and hybrid PLTS. Meanwhile, there are two types of PLTS based on electric current: DC-based PLTS and AC-based PLTS (Sundah, Josephine). According to their installation place, PLTS is divided into Rooftop PLTS, Grounding PLTS, and Floating PLTS. Furthermore, due to its intermittent nature, the battery energy storage system (BESS) plays an important role in PLTS. BESS can effectively mitigate power fluctuations from solar photovoltaic (PV) systems, reducing the need for diesel generator compensation [5]. In isolated grids, particularly in eastern Indonesia, hybrid configurations of diesel, PV, and BESS can optimize economic benefits by lowering the cost of energy compared to diesel-only plants [6], [7].

Recent studies emphasize the increasing potential of rooftop solar power systems (PLTS) in Indonesia. These systems can be either grid-connected or off-grid, with applications from small-scale residential setups to large industrial facilities. For household rooftop PLTS, integrating BESS allows homeowners to store excess energy generated during the day for use at night or during cloudy weather.

This study focuses on examining the current development of rooftop PLTS and its BESS technology, specifically for household installations.

Literature Review

2.1. System description

The system being studied consists of a series combination of PV panels and a Buck converter connected to a stand-alone home with a battery energy storage system. The proposed system diagram is shown in Fig. 1. It includes a PV array, which consists of several PV modules connected in series and parallel to provide the required voltage and current levels. The Buck converter serves as the primary power conversion interface, enabling efficient power transfer between the PV panels, the

home load, and the battery pack. The main notations used along the paper are grouped in Table 1. This configuration allows the system to adapt and ensure continuous power supply to the home by intelligently switching between different power flow modes emphasized in Fig. 2. To effectively manage the power distribution between the PV system, battery, and home loads, the following operational modes are implemented to adapt to varying conditions:

Backup mode: *This mode ensures uninterrupted power supply to the home loads during night-time or when the PV power is depleted, relying on the battery as the primary power source.* **Hybrid mode:** *Both the battery and PV panels work together in this mode to supply power to the home loads, maximizing the utilization of both resources.*

Dual mode: *During periods of high PV power generation, excess power is used to charge the battery while simultaneously supplying energy to the home loads, optimizing the use of solar energy.* **Stand-alone mode:** *This mode enables the direct use of all PV power generated to meet the energy needs of the home, operating independently without external power sources.*

Off mode: *During this mode no power is demanded by the home loads, then the extracted power from the PV panels is used to charge the battery.* **Blackout mode:** *This mode represents a complete power shutdown with no supply to the home loads, occurring when both the PV panels and the battery are disconnected or turned off.*

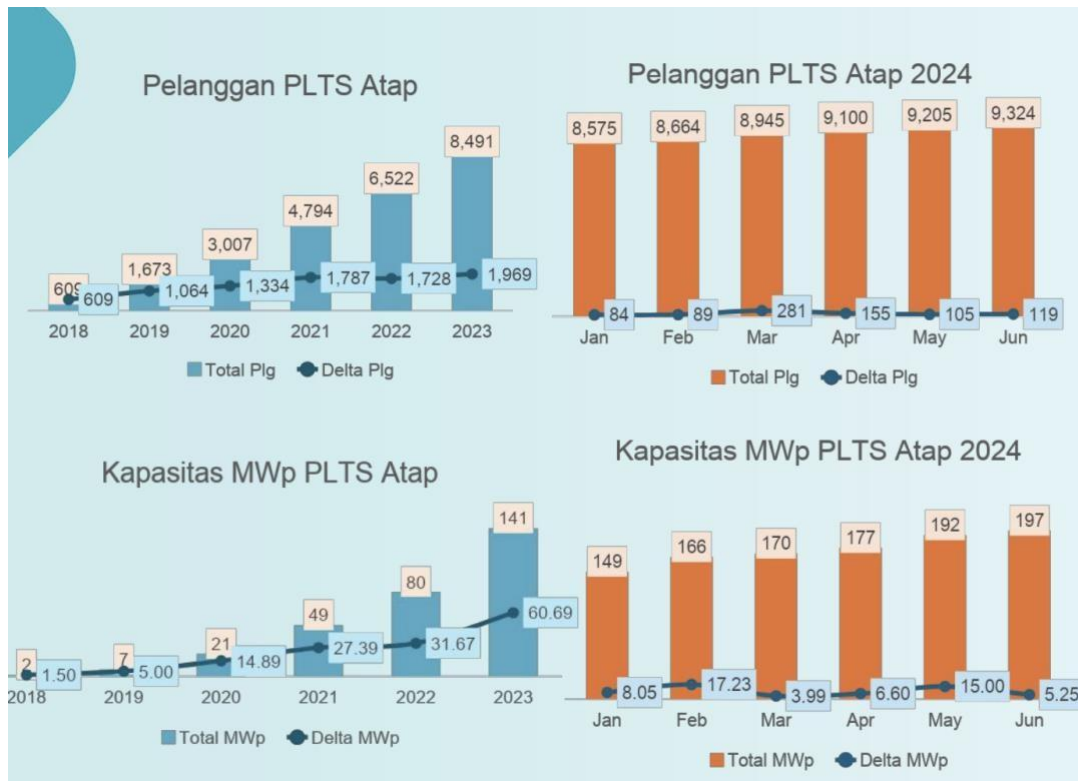
Methodology

This study uses the literature review method. Information was gathered from peer-reviewed journals, government energy policy documents, and market analysis reports. Keywords such as "rooftop PLTS," "solar energy in Indonesia," and "household solar installations" were used.

The problem of using solar energy in Indonesia cannot increase significantly due to the lack of supporting regulations from the government's support so that there are limitations in the use of solar power plants, and it is not economically attractive for the investment process. One way to increase the use of solar energy is by revising several regulations, especially in the use of solar power plants installed on the rooftop of a building. Apart from that, it requires support from banks and funding institutions with Green Interest Loans by changing the scheme to Build, Own, and Operate (BOO). To accelerate the increase in the use of solar energy, support from the government is needed. One of the supports provided by the government is the formation of a team among State-Owned Enterprises to accelerate the development of solar power plants from the developer side for their construction and manufacture of solar cells to reduce the price of the engineering, procurement and construction (EPC) process

Results and Discussion

Rooftop PLTS has seen massive growth in Indonesia over the past 6 years. PLN reported that the number of PLTS customers has grown by about 1000% from 2021 to 2024. Until June 2024, rooftop PLTS has a total of 9,324 customers with a total of 197 MWp capacity. This is an increase from last year's figure of 8,491 rooftop PLTS installed.



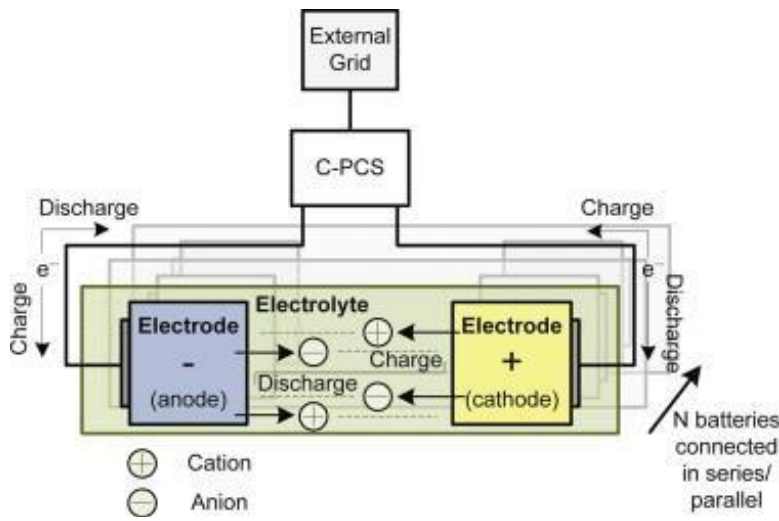
Source: <https://iesr.or.id/wp-content/uploads/2024/08/Upaya-PLN-Dalam-Mendukung-Transisi-Energi-dan-Pertumbuhan-PLTS-Atap-PLN-Indonesia.pdf>

As of June 2024, 6,262 rooftop PLTS installations were for household solar panels. This represents a notable increase compared to the 7,472 installations recorded by July 2023 [8].

Household PLTS typically support basic electricity needs such as lighting, TV, and power supply. A simulation study for a typical household in Surabaya with a 2.2 kVA grid connection found that a 3 kWp rooftop PV system could provide 90% of the household's electricity needs [9].

BESS

BESS mainly consists of 2 main devices, which is batteries and bi-directional inverters. It offers diverse functionalities, including providing auxiliary services, load shifting, backup power, and peak shaving. They support demand response, facilitate renewable energy integration, and contribute to frequency control, voltage management, and load leveling. Additionally, BESS enables long-term and seasonal energy storage, enhancing grid reliability and optimizing energy use.



Operation principle of Battery Energy Storage System [10]

The most commonly used battery types in Battery Energy Storage Systems (BESS) include lead-acid (LA), nickel-cadmium (Ni-Cd), Vanadium redox flow batteries (VRFB), and lithium-ion (Li-ion) [10]. Among them, Li-ion is one of the most popular types of BESS as it has good energy, power and efficiency. In addition, it has a fast response time. Still, there are a few types of Li-ion batteries and some may have safety issues depending on the type and in general has a high investment cost [11].

BESS Type	Specific Energy (Wh/kg)	Specific Power (W/kg)	Energy efficiency (%)	Total Cost (\$/kWh)	References
Lead-acid (LA)	35 -50	180	70-80	185	[10], [12], [13]
Ni-Cd	45-80	160	72	400 - 2400	[10], [14]
VRFB	25-35	166	78	600	[15], [16], [17]
Li-ion	120-140	400 - 500	88	900 - 1300	[18], [19], [20]

Dwipayana conducted a survey of 361 Battery Energy Storage Systems (BESS) available in Indonesia for use with Solar Power Systems (PLTS). The study found that five battery types dominate the market: Flooded Lead Acid (FLA), Valve-Regulated Lead Acid (VRLA), VRLA Absorbent Glass Mat (AGM), VRLA Gel, and Lithium-ion (Li-ion) batteries. Among these, VRLA Gel is the most commonly used, with 134 units, while Li-ion batteries are the least available. This is primarily because lead-acid batteries have a lower energy cost per unit compared to Li-ion batteries. Additionally, lead-acid is an established technology with widespread use across many electrical systems. The study also found that VRLA Gel batteries offer longer service life and better cycle capacity compared to VRLA AGM batteries [21].

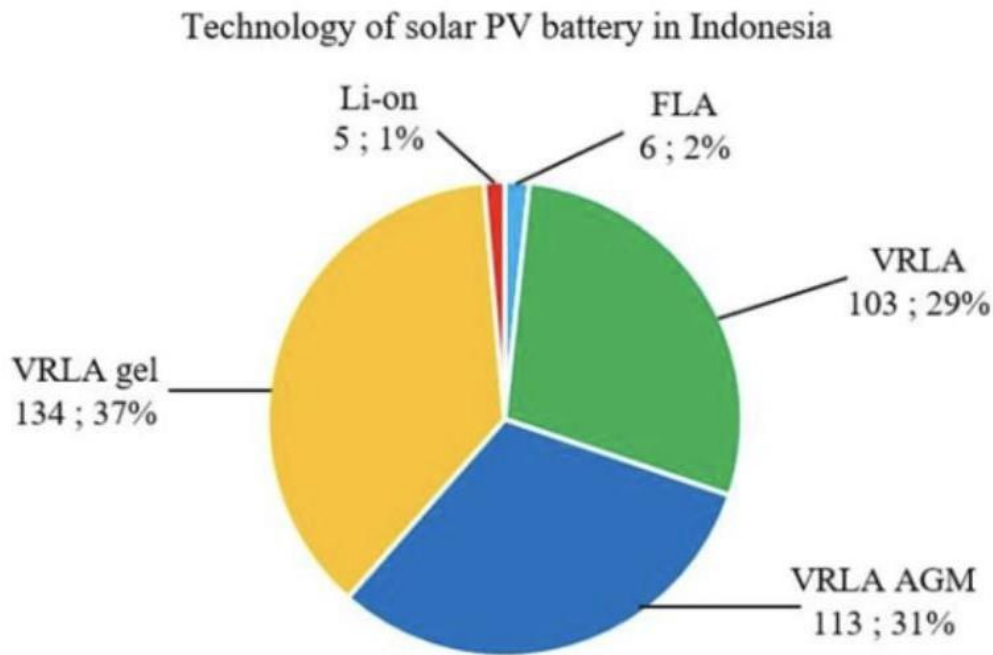


Fig. BESS types in the Indonesian market [21].

Agus et al. conducted a simulation and techno-economic analysis of grid-connected BESS in Indonesia using the HOMER (Hybrid Optimization of Multiple Energy Resources) software. The simulation aimed to determine the energy cost (\$/kWh) for various battery technologies and system sizes. It incorporated a 1 MWp solar PV system, an inverter, energy storage technologies under comparison, residential load profiles, and grid connectivity.

The study compared lithium-ion (Li-ion) and vanadium redox flow batteries (VRFB) as energy storage options. The results indicated that VRFB technology achieved the lowest Levelized Cost of Energy (LCOE), making it a highly competitive alternative to Li-ion batteries. VRFB systems were highlighted as promising for future on-grid BESS applications in Indonesia due to their cost-effectiveness, safety, ease of maintenance, and extended operational lifespan.

Currently, most renewable energy grids in Indonesia use lead-acid and Li-ion battery technologies. However, the study suggests that adopting VRFB systems could reduce investment costs over time in Indonesia's growing renewable energy sector [22].

A 4 MW/8 MWh BESS demonstration project by Erlina et al. in Buton Island showcases the potential of large-scale energy storage for load leveling and frequency regulation. The BESS uses eight (8) LiBs with an energy capacity of 1-MWh each. Two batteries are connected to one PCS (ES-PCS connection), each with a 1-MW power output capacity. The ES-PCS configuration being controlled by the PMS is connected to the grid through a step up transformer (380 V / 20 kV) [23].

While various battery technologies are available in Indonesia, further attention is needed in battery recycling and waste management to ensure sustainable growth in this sector [21].

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Chapter 6

Unveiling the Interactions of Digital Financial Literacy, Fintech Use, and Financial Behavior on Financial Wellbeing: Evidence from Accounting Students

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ABSTRACT

This study explores the relationship between digital financial literacy, the use of fintech, financial behavior, and financial well-being in students of the accounting study program. This study uses a quantitative method through a data survey by sending a questionnaire. The data obtained and can be used are 395 respondents. Data analysis uses Structural Equation Modeling-Partial Least Squares (SEM-PLS). The study results show that digital financial literacy significantly affects financial behavior and well-being. In addition, financial behavior was found to influence financial well-being positively. Using fintech also contributes significantly to students' financial behavior and financial well-being.

In contrast to previous studies that often separated the role of digital financial literacy and the use of fintech, this study highlights the complex interaction between the two as crucial determinants of financial behavior and financial well-being. This study differs from previous research, which focuses on integrating these variables in the context of accounting students in Indonesia, a significant population in the digital transformation era. These findings provide valuable insights to support the development of more inclusive technology-based financial education policies to improve the younger generation's financial well-being.

Keywords: Digital financial literacy, financial behavior, financial well-being

1. INTRODUCTION

Fintech has developed so fast in recent years, and this has essentially transformed the way people and enterprises handle their finances. In any respect, the evolution of fin-tech shapes financial well-being, both in the present and future, as Bruggen et al. stated in 2017. The development has repositioned how society accesses, manages, and interacts with financial services, leaving room for innovation in managing finances. Fintech has transformed access to financial services in a much more secure, swift, inclusive, and widespread manner. Its varied features have also changed people's mindsets towards personal finance management. Therefore, fintech makes budgeting, saving, investing, and asset protection practical and straightforward, thus enhancing financial well-being. Besides, fintech has become essential in financial inclusion, a significant factor in strengthening financial well-being. In developing countries, fintech has emerged as a leading facilitator of financial inclusion in delivering financial services to unbanked and underbanked populations. It also helps people achieve better financial wellbeing. The rapid growth of Fintech services has inspired research into its impact on financial stability, quality of life, and financial well-being in recent years, which several researchers have pointed out. (Elsinger et al., 2018; Kakinuma, 2022; Carlin, Olafsson & Pagen, 2019). Fintech has a powerful positive effect on improving the financial well-being within society through simplifying financial management, decreasing transaction costs, and providing a range of services with better accessibility. Such contributions allow them to manage their finances properly, reduce risks, and attain higher levels of stability in their financial position. In developing countries, the potential of fintech to improve financial wellbeing is even more apparent as it reaches populations not served traditionally by conventional financial services. According to Demirguc-Kunt et al. (2018) & 2021, Lusardi (2019) & 2020, and Frost (2020), by streamlining financial management and thus lowering transaction costs, FinTech minimizes waste due to overhead expenses and, thereby, enhances the efficiency of the delivery of financial services. This research focuses on how fintech can improve financial stability and promote financial well-being.

Therefore, the rapid growth in fintech can be viewed as an opportunity to enhance financial literacy among people on the effective use of new financial services and products. Morgan & Trinh (2019) argue that financial literacy plays a critical role in the public's awareness and improved understanding of fintech products. In the last couple of years, fintech adoption has developed alongside digital financial literacy among the general public. The major trends driving this adoption include the emergence of new technologies, making access to financial services easier. It has been observed that fintech and digital financial literacy bear a strong relationship with improvements in financial well-being. However, the mediating role of financial behavior—especially in expenditure management, investment decision-making, and credit usage—is not well explored (Frost, 2020). The interaction between FinTech, digital financial literacy, and financial behavior in facilitating better financial decisions to improve financial well-being implies that further research needs to be carried out. This will help maximize the positive impacts that FinTech and digital financial literacy could have on financial outcomes within society.

In the present era of rapid growth and accessibility of digital financial products and services, which include several advantages and risks, developing appropriate digital financial literacy is crucial for informed financial decision-making and reducing probable risks.

Individuals with sufficient digital financial literacy can make financial planning and informed decisions, enhancing their financial well-being (R. Rahayu et al., 2023). Digital financial literacy empowers them with the relevant knowledge and ability to access and utilize fintech for financial transactions, such as online investment and digital payment systems. Good financial behavior must also be cultivated to realize full fintech impacts on financial welfare. Examples of good practices include regular saving, making investments, and engaging in various other forms of managing finances.

The modern era, defined by rapid technological advancements, has seen the growth of fintech companies significantly enhance financial well-being. However, younger generations have not fully harnessed these technological advancements, especially in the financial sector, to improve their financial management. This is primarily due to shifting lifestyle patterns, limited understanding of digital financial literacy, and low financial confidence (Dwi K et al., 2023). Developing confidence in financial capabilities fosters positive habits such as saving and sound financial planning (Palameta, Nguyen, Hui, & Gyarmati, 2016). Additionally, high levels of consumerism among the younger generation, particularly on online platforms, often obstruct the effective implementation of short-term financial planning. This study explores how digital financial literacy and the use of fintech can enhance financial well-being through improved financial behavior. Essentially, individuals leverage fintech more effectively, and the deeper their understanding of digital financial literacy, the better equipped they are to manage their finances successfully.

The rapid advancement of technology has significantly influenced the expansion of the digital economy, particularly within the fintech sector. Fintech is applying information technology to deliver innovative, more efficient financial services than traditional methods (Thakor, 2020). As Dorfleitner et al. (2017) noted, the fintech industry is among the fastest-growing and most dynamic sectors. This rapid expansion has garnered substantial public and business interest, motivating widespread technology adoption. Fintech products have demonstrated remarkable effectiveness in streamlining financial transactions and enhancing access to financial services (Balatif et al., 2024). Consequently, the adoption of fintech products has become increasingly prevalent, as reflected in the rising volume of transactions conducted through fintech platforms. Over time, the consistent use of fintech has become deeply embedded in people's daily routines, serving as a practical tool for achieving financial well-being.

Given fintech's vital role in modern life, conducting in-depth research on its development and its relationship with financial well-being is highly pertinent. Such research can provide significant benefits across various sectors. First, for policymakers, it can serve as a solid foundation for creating effective regulations that safeguard the financial well-being of fintech users. Second, financial service providers can be a valuable guide for enhancing and tailoring their fintech products to meet consumer needs better. Third, this research can improve awareness and understanding of fintech's potential for the general public, especially the younger generation, who are among the most active users of fintech products.

This study explores the intricate relationships and impacts among digital financial literacy, the use of fintech, financial behavior, and financial well-being. The primary focus is to examine how digital financial literacy and the use of fintech interact to influence an individual's financial behavior. Furthermore, the study investigates how this resulting financial

behavior plays a pivotal role in achieving financial well-being. By understanding these dynamics, the research seeks to provide valuable insights that can inform strategies for optimizing the benefits of fintech and enhancing financial literacy to promote overall financial stability and well-being.

2. LITERATURE REVIEW

Digital Financial Literacy

Digital financial literacy is the essential knowledge, skills, and comprehensive understanding needed to efficiently manage and utilize FinTech products and services. It involves accessing, evaluating, and effectively applying digital tools for managing personal or organizational finances in a digital environment (Setiawan et al., 2022). This literacy extends beyond technical knowledge; it embodies a strong willingness to use fintech as a solution-oriented tool, fostering innovation, enhancing communication efficiency, and equipping individuals to face challenges in the digital era (Gallego-Losada et al., 2021). Moreover, digital financial literacy includes familiarity with electronic transactions, such as online shopping, digital payment methods, and online banking mechanisms (Prasad, Meghwal, and Dayama, 2018). It also encompasses an understanding of fundamental financial principles and the ability to apply this knowledge effectively to make informed and responsible financial decisions (Llewellyn, 2012).

Financial behavior refers to individuals' actions to manage their financial resources, including the decision-making processes surrounding finances. Bhargava et al. (2022) describe financial behavior as encompassing actions, decisions, and patterns that illustrate how people organize, manage, and utilize their financial resources. Standard financial behavior includes cash management, savings formation, and credit usage (Xiao, 2009). Healthy financial behavior involves prudent financial management practices and prioritizing savings or investments over excessive consumption. Conversely, unhealthy financial behavior includes less judicious practices that may adversely affect long-term financial well-being. Financial well-being reflects the adequacy of an individual's financial resources and satisfaction with their financial situation. Joo and Garman (1998) conceptualized financial well-being as the total assets owned and the extent to which individuals feel content with their financial standing. It is a benchmark for evaluating overall financial health (Sabri, Paim, Falahati, & Masud, 2013). Prendergast et al. (2021) define financial well-being as meeting current and future financial needs while maintaining resilience against unexpected challenges. It also includes subjective components, such as life satisfaction tied to financial circumstances, underscoring the holistic nature of financial well-being.

According to Arner et al. (2015), fintech is the product of an evolutionary process resulting from integrating the financial and technology sectors. This convergence has led to the creation of various innovative financial products, including Internet banking, peer-to-peer lending, and mobile payments. AFTECH (2021) describes fintech as the latest advancements in technology-driven financial services. Similarly, Balatif et al. (2024) highlight how fintech has streamlined public access to financial products, encompassing payments, loans, investments, and insurance. Moreover, fintech plays a pivotal role in broadening access to financial services for the general public, as emphasized by Gorham and Dorrance (2017). These advancements underscore fintech's transformative impact on financial inclusion and service

accessibility.

Digital Financial Literacy and Financial Behavior

Panos and Wilson (2020) argue that the ease of access to online shopping and credit, facilitated by advancements in digital technology, has the potential to trigger impulsive consumer behavior and increase consumer debt burdens. Morgan et al. (2019) suggest that enhancing digital financial literacy can effectively mitigate the risks of excessive debt accumulation. Findings by Lusardi and Mitchell (2011) indicate that even a slight improvement in digital financial literacy can significantly impact individuals' financial planning behavior. Digital financial literacy requires individuals to enhance their skills and understanding of the inherent risks in digital financial transactions, thereby supporting them in daily financial activities such as personal financial management, budgeting, and short-term financial planning (Koskelainen et al., 2023). By improving digital financial literacy, individuals can optimize the benefits of digital financial services and protect themselves from fraud by adopting prudent financial behavior.

H1: Digital Financial Literacy influences Financial Behavior.

Digital Financial Literacy and Financial Wellbeing

Wahyudi et al. (2017) highlight that financial knowledge is a crucial foundation for achieving financial well-being. Individuals with sufficient financial skills are better equipped to form realistic perceptions of their financial situations and make well-informed decisions. This underscores the idea that financial knowledge delivers valuable information and shapes financial behavior. Supporting this, studies by Arlinda (2022) and Chavali et al. (2021) reveal a strong correlation between financial behavior and financial well-being. This relationship encompasses various aspects of financial behavior, including long-term planning, financial discipline, and a deeper comprehension of financial matters. These elements collectively significantly enhance financial well-being, extending beyond traditional factors like loan approval.

Hypothesis (H2): Digital Financial Literacy influences Financial Well-being.

This hypothesis is grounded in the understanding that improved digital financial literacy equips individuals with the tools to effectively navigate financial systems, leading to better financial outcomes and enhanced well-being.

Financial Behavior and Financial Wellbeing

Financial well-being represents the state of financial security and the freedom to make choices, both now and in the future. Numerous studies (Chong et al., 2021; Johan et al., 2021; Radianto et al., 2021; Susan & Djajadikerta, 2017) identify financial behavior as a key determinant of an individual's capacity to manage finances effectively, thereby improving financial well-being. Kamakia (2017) emphasizes that individuals who achieve positive financial outcomes are better equipped to regulate their financial behavior. Such behaviors, including saving and spending habits, are pivotal in determining one's financial well-being. Additionally, achieving financial well-being requires a degree of self-control, enabling individuals to lead healthier lives, attain financial and emotional stability, and enhance longevity (Younas et al., 2019).

Hypothesis (H3): Financial Behavior influences Financial Well-being.

This hypothesis builds on the understanding that disciplined and informed financial behaviors, such as prudent saving and responsible spending, are fundamental to fostering and sustaining financial well-being.

Fintech Use and Financial Behavior

Gafoor & Amilan (2024) assert that fintech has the potential to exert both positive and negative effects on financial behavior. While the convenience of fintech-facilitated transactions may encourage impulsive consumption behaviors, fintech also promotes financial awareness through tools like budgeting apps and financial planning features (Carton et al., 2022). Supporting this, Bi et al. (2021) highlight that the impact of fintech on financial behavior can vary depending on the type of fintech products utilized. For instance, some tools may focus on enhancing saving habits, while others might cater to more efficient spending or investment strategies. This evidence underscores that fintech use significantly shapes financial behavior, influencing how individuals manage and utilize their financial resources.

Hypothesis (H4): Fintech use influences Financial Behavior.

This hypothesis is grounded in the observation that different fintech applications and services can positively or negatively affect individuals' financial decisions and behaviors, ultimately shaping their financial management practices.

Fintech Use and Financial Wellbeing

Balatif et al. (2024) highlight that fintech significantly benefits the general public by simplifying access to financial services and fostering widespread adoption. Bintarto (2021) further notes that fintech, alongside the rise of a non-cash society, enables individuals to conduct transactions with greater ease and convenience. Additionally, research by Lyons & Kass-Hanna (2021) and Chen et al. (2023) supports that fintech use positively influences financial well-being. By reducing barriers and complexities associated with accessing financial market services, fintech empowers individuals to manage their finances more effectively and achieve greater financial security.

Hypothesis (H5): Fintech use influences Financial Well-being.

This hypothesis is based on the understanding that adopting fintech enhances individuals' ability to interact with financial services efficiently, thereby contributing to improved financial well-being.

Following is the research model:

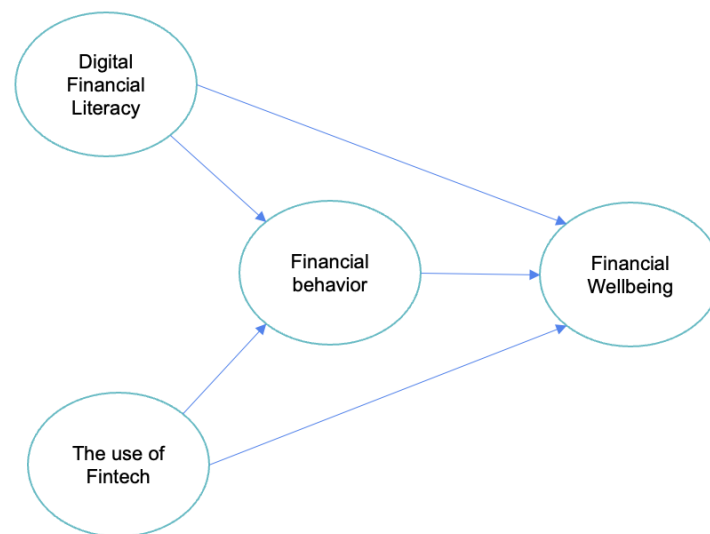


Figure 1. Research Model

3. RESEARCH METHOD

This study employs a quantitative research approach, using a survey method to collect data via questionnaires distributed to accounting students. The research sample was selected through a combination of purposive sampling to ensure the relevance of respondents to the research topic and convenience sampling to facilitate easy access to respondents. 395 students participated in this study, providing a substantial dataset for analysis. The collected data was analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) techniques, which are well-suited for exploring complex relationships among variables. The study investigates the relationships between several key variables. Digital financial literacy and fintech use are treated as independent variables, financial behavior is a mediating variable, and financial well-being is the dependent variable. These variables were measured using a Likert scale, ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"), to capture nuanced perceptions and behaviors. The evaluation of the model included tests for validity and reliability. These tests assessed outer loadings, composite reliability, and the average variance extracted (AVE). Additionally, discriminant validity was tested to confirm the distinctiveness of the variables within the model. This methodological approach provides a rigorous framework for analyzing the data and exploring the interplay among digital financial literacy, fintech use, financial behavior, and financial well-being.

The SEM-PLS analysis tool was selected for this study due to its ability to handle complex models and effectively manage relatively small sample sizes. This tool is particularly well-suited for exploring the relationships among multiple variables. The research examines the interplay among digital financial literacy, fintech use, financial behavior, and financial well-being. Reflective measurement models were employed to assess the latent variables. These models were evaluated using the Fornell-Larcker criterion and the HTMT (Heterotrait-Monotrait Ratio) to ensure the validity and reliability of the constructs. The results from the analysis offer detailed insights into the influence of digital financial literacy and fintech use on financial behavior and financial well-being, specifically within the context of accounting

students in Indonesia. These findings provide valuable implications for understanding how digital tools and literacy contribute to financial management and outcomes.

4. RESULT AND DISCUSSION

The respondents' data reveal a diverse demographic distribution, providing valuable insights into the study participants. By academic program, the majority of respondents are from undergraduate programs (70%), with the remaining 30% enrolled in diploma programs. Regarding geographical location, most respondents are from NTB (40%), followed by Manado (35%) and Yogyakarta (25%). Regarding gender, females dominate the respondent pool, comprising 75%, while males constitute 25%. Regarding age, the majority fall within the 20–22 years range (60%), followed by those under 20 years (30%), and a smaller group over 22 years (10%). By year of enrollment, most respondents are from the 2021 cohort (35%) and 2022 cohort (30%), with smaller proportions from the 2020 cohort (20%) and the 2023 cohort (15%). This profile highlights a predominance of undergraduate students, a female-majority demographic, and a broad geographical representation. Most respondents are within the productive age range, with recent enrollment years reflecting a younger generation that is likely to be adaptable to financial technology. These characteristics make the respondent group highly relevant for exploring behaviors and perspectives related to fintech and financial well-being.

Measurement Model Evaluation

The measurement model in this study consists of a reflective measurement model, where the variables Digital Financial Literacy (DFL), Fintech Use (FU), Financial Behavior (FB), and Financial Wellbeing (FW) are measured reflectively. According to Hair et al. (2021), the evaluation of a reflective measurement model includes several criteria:

- Factor Loading: Each indicator must have a loading value > 0.7 , indicating a strong relationship between the indicators and the latent construct.
- Composite Reliability: A composite reliability score > 0.7 indicates internal consistency among the indicators for each construct.
- Cronbach's Alpha: A value > 0.7 reflects the reliability of the construct.
- Average Variance Extracted (AVE): An AVE > 0.5 ensures that the construct explains more than half of the variance in its indicators

Additionally, discriminant validity is evaluated using:

- Fornell-Larcker Criterion: Ensures that the square root of the AVE for a construct is more significant than its correlation with other constructs.
- Heterotrait-Monotrait Ratio (HTMT): Values below 0.9 confirm discriminant validity.
- Cross-Loading: Ensures indicators load higher on their associated construct than on others. These criteria collectively validate the reliability and validity of the reflective measurement model employed in this study.

Table 1. Outer Loading, Cronbach's Alpha, Composite Reliability, AVE

Variable	measurements	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Digital financial literacy	DFL2	0.804	0.821	0.875	0.700
	DFL3	0.861			
	DFL4	0.845			
Financial Behavior	FB1	0.812	0.862	0.898	0.688
	FB2	0.854			
	FB3	0.832			
	FB4	0.818			
Fintech Use	FU1	0.769	0.895	0.903	0.700
	FU2	0.878			
	FU3	0.867			
	FU4	0.853			
Financial wellbeing	FW1	0.852	0.914	0.937	0.750
	FW2	0.888			
	FW3	0.898			
	FW4	0.824			
	FW5	0.866			

The evaluation of the research variables, as presented in Table 1, confirms the strong validity and reliability of the measurement model. All outer loading values for the measurement items exceed the required threshold of 0.7, indicating that each item effectively reflects its corresponding latent variable. For instance, within the Digital Financial Literacy variable, the outer loading values for DFL2, DFL3, and DFL4 are 0.804, 0.861, and 0.845, respectively, meeting the validity criteria. The Cronbach's Alpha values for all variables are above 0.7, signifying excellent internal reliability. The Financial Wellbeing variable stands out with a Cronbach's Alpha of 0.914, reflecting a very high level of internal consistency. Similarly, composite reliability values for all variables exceed 0.7, ensuring adequate internal consistency. Notably, Fintech Use and Financial Wellbeing exhibit high composite reliability values of 0.903 and 0.937, respectively. From the perspective of convergent validity, the Average Variance Extracted (AVE) values for all variables surpass the minimum threshold of 0.5, indicating that their respective latent variables explain more than 50% of the variance in the indicators. The Financial Wellbeing variable achieves the highest AVE value of 0.750, emphasizing its robustness.

Overall, these findings confirm that the study's constructs are valid and reliable, with intense internal consistency and adequate representation of the latent variables through their measurement items. The data further validate that the measurement model is high quality, as all indicators effectively reflect the latent variables they are designed to measure. This strong validation ensures the model's suitability for further analysis, including testing the relationships between latent variables and assessing their impact on the research outcomes. Such robustness in the measurement model provides a solid foundation for deriving meaningful insights and conclusions from the subsequent analytical processes.

Table 2. Discriminant Validity (Fornell-Larcker Criterion)

	Digital Financial Literacy	Financial Behavior	Financial Wellbeing	Fintech Use
Digital Financial Literacy	0.837			
Financial Behavior	0.498	0.829		
Financial Wellbeing	0.497	0.683	0.866	
Fintech Use	0.434	0.401	0.231	0.837

Table 3. Discriminant Validity HTMT

	Digital Financial Literacy	Financial Behavior	Financial Wellbeing	Fintech Use
Digital Financial Literacy				
Financial Behavior	0.611			
Financial Wellbeing	0.580	0.770		
Fintech Use	0.533	0.471	0.275	

The results presented in Table 2 confirm that the measurement model demonstrates strong discriminant validity. The diagonal values (square root of AVE) for each variable are more significant than their correlations with other variables, as required by the Fornell-Larcker Criterion. For example, the Digital Financial Literacy variable has a square root AVE value of 0.837, which exceeds its correlations with Financial Behavior (0.498), Financial Wellbeing (0.497), and Fintech Use (0.434). Similarly, the Financial Wellbeing variable has a square root AVE value of 0.866, greater than its correlations with Digital Financial Literacy (0.497), Financial Behavior (0.683), and Fintech Use (0.231). These findings confirm that each latent variable correlates more strongly with its indicators than others, satisfying the Fornell-Larcker Criterion. From Table 3, the HTMT (Heterotrait-Monotrait Ratio) values are below the threshold of 0.85, providing additional support for discriminant validity. For instance, the HTMT value for the relationship between Digital Financial Literacy and Financial Behavior is 0.611, while Financial Wellbeing and Financial Behavior have an HTMT value of 0.770. Additionally, the relationship between Financial Wellbeing and Fintech Use has an HTMT value of 0.275. These values indicate no significant issues with discriminant validity, ensuring clear distinctions among the latent variables. Based on the Fornell-Larcker Criterion and HTMT, the model meets the criteria for discriminant validity. The variables are conceptually distinct, and their relationships show no significant overlap. This robust discriminant validity ensures that the measurement model provides a reliable foundation for further analysis. Consequently, the research findings are supported by a valid and reliable model, enabling accurate exploration of the relationships among the latent constructs.

Structural Model Evaluation

Table 4. Multicollinearity tests VIF < 5

	VIF
Digital Financial Literacy → Financial Behavior	1.233
Digital Financial Literacy → Financial Wellbeing	1.458
Financial Behavior → Financial Wellbeing	1.409
Fintech use → Financial Behavior	1.233
Fintech use → Financial Wellbeing	1.305

Table 5. Hypothesis Test

Hipotesis	Path coefficient	p-value	95% Confidence interval		F square
			Lower Limit	Upper Limit	
H1: DFL→ FB	0.245	0.000	0.298	0.500	0.183
H2: DFL→ FW	0.400	0.000	0.141	0.343	0.084
H3: FB → FW	0.227	0.000	0.523	0.694	0.538
H4: FU→ FB	-0.120	0.012	0.120	0.330	0.059
H5: FU→ FW	0.609	0.000	-0.213	-0.213	0.023

Based on the Variance Inflation Factor (VIF) values, all paths in the model are below the threshold of 5, indicating no significant multicollinearity among the independent variables. For instance, the relationship between Digital Financial Literacy (DFL) and Financial Behavior (FB) has a VIF value 1.233. In contrast, the relationship between Financial Behavior (FB) and Financial Wellbeing (FW) has a VIF value of 1.409. This confirms that the model is stable and reliable for estimating the relationships among variables.

Hypothesis Testing Results:

H1 (DFL → FB): The path coefficient of 0.245 with a p-value of 0.000 indicates a positive and significant relationship. The F-square = 0.183 suggests a moderate effect.

H2 (DFL → FW): The path coefficient of 0.400 with a p-value of 0.000 indicates a positive and significant relationship. The effect is small to moderate with F-square = 0.084.

H3 (FB → FW): The path coefficient of 0.227 with a p-value of 0.000 indicates a positive and significant relationship. The F-square = 0.538 indicates a large effect, highlighting the crucial role of FB in enhancing FW.

H4 (FU → FB): The path coefficient of -0.120 with a p-value of 0.012 indicates a negative and significant relationship, though the effect size is small, with F-square = 0.059.

H5 (FU → FW): The path coefficient of 0.609 with a p-value of 0.000 indicates a positive and significant relationship, albeit with a small effect size of F-square = 0.023.

All hypotheses in the model are accepted, demonstrating significant relationships among the variables. Digital Financial Literacy (DFL) has a direct and important influence on Financial Behavior (FB) and Financial Wellbeing (FW), with a moderate effect on FB. Financial Behavior (FB) plays a pivotal role, significantly impacting Financial Wellbeing (FW) and reinforcing its importance in improving financial well-being. However, while significant, the

relationships involving Fintech Use (FU) exhibit small effects, particularly on FW. This suggests the need for further exploration, such as incorporating mediating or moderating variables, to strengthen these relationships. Overall, the model is stable and effectively explains the relationships among variables, providing a solid foundation for understanding the impact of digital financial literacy, financial behavior, and fintech use on financial well-being.

Table 6. R-Square

	R-Square
Financial Wellbeing	0.287
Financial Behavior	0.506

Table 7. SRMR

	Estimated model
SRMR	0.083

The structural model evaluation reveals important insights into the predictive ability of the independent variables on the dependent variables, as well as the overall model fit. The R-Square value for Financial Wellbeing (FW) is 0.287, indicating that the independent variables explain 28.7% of the variance in FW. This reflects a weak to moderate predictive ability, suggesting that while the model provides some explanatory power for FW, additional variables could enhance its predictive capacity. For Financial Behavior (FB), the R-Square value is 0.506, indicating that the independent variables explain 50.6% of the variance in FB. This represents a moderate to strong predictive ability, demonstrating that the model effectively captures the factors influencing FB.

Regarding the overall model fit, the SRMR (Standardized Root Mean Square Residual) value is 0.083, below the acceptable threshold of 0.10. This indicates a good fit between the observed and predicted covariance matrices, confirming the model's adequacy for analyzing the relationships among the variables. While the model is sufficiently valid and reliable for further analysis, the relatively weak to moderate R-Square value for FW highlights the potential for improvement. Future research could explore additional variables or constructs to enhance the model's predictive strength. Overall, the structural model is robust enough to examine the influences of the independent variables on FW and FB, providing a solid foundation for interpreting the relationships within the dataset. This study demonstrates a positive and significant correlation between digital financial literacy and financial behavior. The findings suggest that higher levels of digital financial literacy lead to better financial management skills, including saving and spending. The rapid growth of fintech demands that individuals, especially students, develop a deep understanding of digital financial literacy to effectively and responsibly utilize digital financial services. These results align with previous studies, including those by Morgan et al. (2019), Lusardi and Mitchell (2011), and Koskelainen et al. (2023). Therefore, the findings support and confirm Hypothesis 1.

Hypothesis two finds that *digital financial literacy* influences *financial wellbeing*. The results of this study indicate that the two variables have a positive and significant influence, with a p-value < 0.05, confirming that the second hypothesis is accepted. These findings

demonstrate that improving digital financial literacy is a strategic step toward achieving better financial well-being and preparing individuals to face future financial challenges. This result aligns with the studies conducted by Haque & Zulfiqar (2016), Kamakia et al. (2017), and Phetkam et al. (2019). However, these studies also highlight other contributing factors, such as financial behavior and attitudes, while emphasizing the critical role of digital financial literacy in achieving financial well-being.

The analysis results demonstrate a positive and significant relationship between financial behavior and financial well-being, with a p-value less than 0.05. Furthermore, the substantial impact of financial behavior on financial well-being is confirmed by an F-square value of 0.538, indicating a strong effect size. These findings underscore the importance of cultivating good financial behaviors to achieve financial well-being. Examples of such behaviors include saving regularly and controlling expenditures, enhancing an individual's ability to attain financial stability and satisfaction. This study's findings align with previous research conducted by Aulia et al. (2023), Respati et al. (2023), and Faturohman et al. (2024), which similarly highlight the critical role of financial behavior in influencing financial well-being. The results reinforce that fostering positive financial habits is essential for improving financial outcomes and achieving long-term financial security. These insights contribute to the growing body of literature emphasizing the practical implications of financial behavior in personal financial management.

The study's findings reveal a negative and significant relationship between fintech use and financial behavior, with a path coefficient of -0.120 and a p-value < 0.05. Additionally, fintech use exhibits a negligible effect on financial behavior, as indicated by an F-square value of 0.059. These results suggest that fintech use does not promote good financial behavior among students, indicating potential challenges in aligning fintech services with positive financial management practices for this demographic. This outcome contrasts with prior research. For instance, Widiastuti & Wahyudi (2021) found no significant relationship between fintech use and financial behavior, while Prasetyo & Mustaqim (2024) and Gafoor & Amilan (2024) reported a positive influence of fintech use on financial behavior. These discrepancies highlight the complexity of the relationship between fintech use and financial behavior, suggesting that contextual factors, such as user demographics, the nature of fintech services, or cultural attitudes, may significantly shape this relationship. Given these mixed results, further research is warranted to explore the nuances of how fintech use impacts financial behavior. This could involve examining specific fintech features, user education levels, or behavioral patterns within different populations, particularly younger groups like students. Such exploration would provide deeper insights into how fintech services could be better designed or adapted to encourage responsible financial behavior.

The analysis demonstrates a positive and significant relationship between fintech use and financial well-being, with a path coefficient of 0.609 and a p-value < 0.05. Despite this strong relationship, fintech use exhibits a small effect on financial well-being, as indicated by an F-square value of 0.023. These findings suggest that fintech use positively influences consumer mindsets, particularly among students, who increasingly prefer personalized and accessible financial services that simplify fulfilling financial needs. The availability of fintech among students indirectly enhances their financial well-being by providing tools and services that support financial management and planning. These results confirm that fintech's rapid

development has transformative potential, particularly for younger demographics. The convenience, accessibility, and tailored nature of fintech services resonate with students, making fintech a significant factor in shaping their financial behaviors and outcomes. Furthermore, the rapid evolution of fintech services presents an exciting avenue for future research into its relationship with financial well-being, as highlighted by Elsinger et al. (2018), Kakinuma (2022), and Carlin, Olafsson & Pagen (2019). These findings reinforce the potential of fintech to drive innovation in financial well-being studies, emphasizing its role in influencing financial outcomes and fostering improved financial practices in younger populations.

5. CONCLUSION

This study underscores the critical roles of digital financial literacy, fintech use, and financial behavior in enhancing the financial well-being of accounting students. The analysis reveals that digital financial literacy significantly influences financial behavior and well-being, highlighting that a deeper understanding of digital financial tools empowers individuals to make more informed and responsible financial decisions. Additionally, the study demonstrates that financial behavior is a strong mediating factor in the relationship between digital financial literacy and financial well-being. This emphasizes the importance of cultivating good financial habits, such as saving and controlling expenditures, in achieving financial stability and long-term well-being. While fintech use is shown to contribute to financial well-being directly, its impact on financial behavior is relatively small. This indicates that although fintech provides easier access to financial services, its ability to drive meaningful behavioral changes requires further exploration. These findings suggest a need to enhance fintech's potential to promote positive financial habits among its users. The study offers valuable insights into the interplay between digital financial literacy, financial technology, and financial well-being, particularly among younger generations navigating an increasingly digital financial landscape. These findings provide a foundation for policymakers to design more inclusive, technology-driven financial literacy programs and for fintech providers to create products that actively support and encourage healthy financial behaviors. Such initiatives could be pivotal in fostering financial stability and well-being among young populations.

This study focuses exclusively on accounting students, which limits the generalizability of its findings to broader populations. To enhance the applicability of future research, it is recommended to include more diverse populations, such as the general public or individuals working in the informal sector. This broader scope would provide a more comprehensive understanding of the dynamics between digital financial literacy, fintech use, and financial well-being. Future research could include additional mediating or moderating variables, such as self-control or trust in technology, to enrich the theoretical model and uncover deeper insights. These variables might explain further nuances in how fintech and digital financial literacy interact with financial behavior and well-being. Additionally, conducting longitudinal studies would be valuable for capturing how the relationships among digital financial literacy, fintech use, and financial well-being evolve. This approach would provide insights into the long-term effects and trends, offering a more robust understanding of these relationships in an ever-changing technological and financial landscape.

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Chapter 7
**The Fintech-Mental Accounting Nexus: Bridging Financial Inequality
Across Indonesia**

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ABSTRACT

There are concerns that the convenience offered by FinTech will promote excessive spending behavior and encourage irresponsible digital lending practices. Economic inequality among regions in Indonesia may lead to disparities in the use of FinTech, which could potentially be misused. This study aims to explore the differences in how FinTech usage affects financial well-being in Java compared to non-Java islands while considering the importance of growth-oriented financial planning, specifically pro-growth mental accounting. The novelty of this study lies in the effort to understand behavioral changes in financial decision-making due to the ease of transactions offered by FinTech, especially in areas with different levels of economic development. The sample used is active college students from Java and non-Java islands with a total of 492 respondents. The variables in this study were obtained from questionnaire primary data and the method is regression with mediator variables. The results of this study indicate that the use of FinTech, both in Java and non-Java, can improve financial well-being, mediated by pro-growth mental accounting. There is no significant difference in FinTech use even though the economic condition is different. This research implies that FinTech can be an effective tool in managing personal finances, both for daily transactions and investments.

Keywords: Pro-growth mental accounting, Fintech, Financial well-being, Personal finance, Financial inequality

1. INTRODUCTION

Access to finance is a key factor in building an inclusive and sustainable economy (Fontin & Lin, 2019; Shen et al., 2021). In underdeveloped areas, accessing financial services like banking, credit, and insurance remains relatively difficult. This leads to individuals being trapped in a cycle of poverty, hindering their ability to improve their financial situation (Wanof, 2023). With the advancement of digital technology, numerous online platforms and services have emerged. These innovations not only enhance access to underdeveloped regions but also replace traditional financial services that were previously hard to obtain. This phenomenon is referred to as financial technology, or FinTech. The use of FinTech is generally less costly than traditional financial services because it operates entirely online (Yakubi et al., 2022; Young & Young, 2022).

FinTech offers easier access to banking and credit without the need for physical presence. This digital transformation through FinTech enhances financial inclusion (Jali et al., 2023; Wanof, 2023), helps end the cycle of poverty (Abad-Segura et al., 2020; Suryono et al., 2020; Wanof, 2023), overcomes financial limitations (Iman, 2020; Muralidhar et al., 2019), and promotes sustainable prosperity (Bara & LeRoux, 2018). However, with the ease of access to banking, such as e-money and digital wallets and access to credit offered from FinTech, it has the potential to increase consumptive behavior for its users (Bara & LeRoux, 2018; Fontin & Lin, 2019; Shen et al., 2021). The convenience and ease of transactions provided by these technologies leads to more implicit and frequent purchases. Research by Kulshrestha (2023) and Chopra et al. (2013), shows that in India, while FinTech can strengthen financial inclusion and wellbeing, there is also an increase in bad debts and unnecessary purchases among low-income households using FinTech. Similarly, in low-income households in Malaysia, there are mixed effects, while it reduces financial stress, but it also weakens the positive impact of good financial behavior (Mahdzan et al., 2023). The application of FinTech that is not accompanied by financial literacy about the use of digital financial services and technology will lead to waste, bad debt credit, and fraud.

The inappropriate use of digital financial services like FinTech poses greater risks in underdeveloped regions due to uneven financial literacy regarding technology (Bara & LeRoux, 2018; Correa et al., 2022; Mahdzan et al., 2023; Mandasari & Nur Fietroh, 2022). Provinces on the island of Java are known for their faster development than provinces on non-Java islands. This evidence in the gross regional domestic product indicator, which shows that Java's GDP is higher than that of non-Java islands. Thus, Java is more developed than the non-Java islands. In terms of total loan disbursement, Java island is certainly larger than non-Java island due to the need for funds to sustain economic activity as shown in Figure 1. However, as seen in Figure 2, looking at the growth in 2023, non-Java is faster than Java. The average growth in Java island is 1.19% while in non-Java island reaches 2.39%. This growth difference is even doubled, showing that FinTech usage is growing more rapidly on non-Java islands. This is because previously, in non-Java islands, financial access was more difficult due to limited conventional financial access points and also required large costs in its development, so that with the existence of FinTech it provides convenience to be accessible. However, this rapid growth may lead to behavioral changes and unwise usage. This could result in a misuse of FinTech, producing negative outcomes instead of the intended benefits.

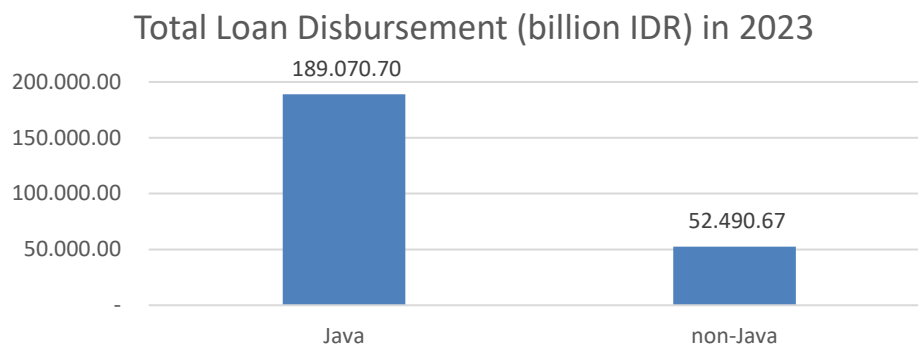


Figure 1. Total Loan Disbursement in 2023
Source. Otoritas Jasa Keuangan (2023)

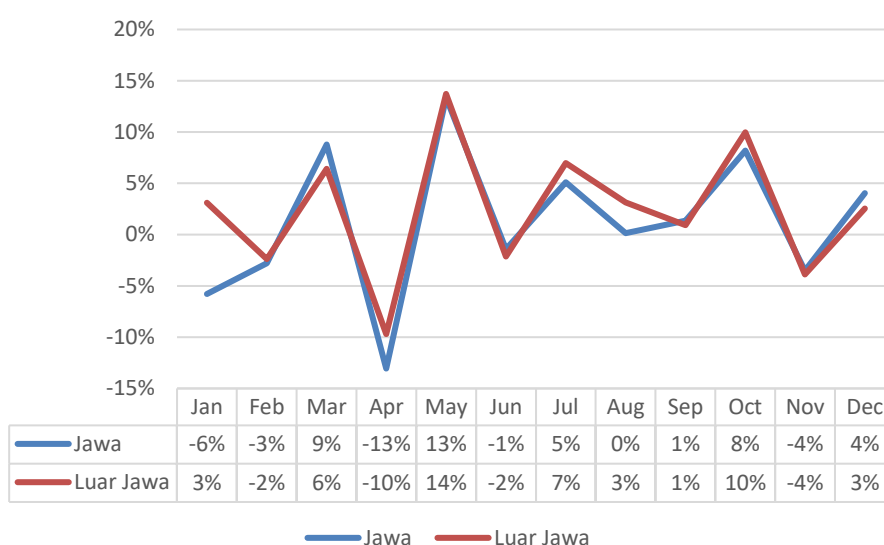


Figure 2. Loan Disbursement Growth Trendline in 2023
Source. Otoritas Jasa Keuangan (2023)

The FinTech solutions that have been implemented so far have the potential for misuse, which can lead to individuals becoming less adept at planning and prioritizing their financial needs (Abad-Segura et al., 2020; Jali et al., 2023; Suryono et al., 2020). This, in turn, may hinder personal growth and negatively impact financial well-being in the future. So that the use of FinTech needs to be studied further. This study aims to determine the effect of FinTech growth on financial wellbeing mediated by pro-growth mental accounting on the island of Java and non-Java. The implications of the results of this study can be used as a consideration for using FinTech more wisely so that it can continue to grow and be consistent.

2. LITERATURE REVIEW

Pro-Growth Mental Accounting

Mental accounting theory is based on idea about how human behavior manage their finances based on the psychological and economic aspects of micro-economics (Mandasari & Nur Fietroh, 2022). It is a set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities (Thaler, 2008). There are several framing used

by Thaler (2011) which include the value function, decision frames, and hedonic framing. Individuals use those framing to balance between the gains and losses to conclude which decision is beneficial for them. If someone has good financial knowledge and awareness, he/she could guide and carry out good planning and prioritizing orders to maintain consistency management (Efrata et al., 2023). Based on these, the pro-growth mental accounting is developed. Pro-growth mental accounting describes how a person can plan their finances, spending, investment, and credit management. If all of them can be done wisely and conservatively, it can be said that a person has a good and growing mental accounting.

Technology Acceptance Model (TAM)

The technology acceptance model (TAM), introduced by Davis (1985), is a social science theoretical framework that explains how and why users accept and use technological services. Since the TAM can help describe new technology and is useful for predicting technology acceptance, it has been applied to many research fields (An et al., 2023). One of the research fields where the TAM is widely used is in the field of financial technology, commonly known as FinTech which helps in accessing the advanced development of the financial system and institutions such that it has developed as an outcome of transformation in people's lives (Rahadian & Thamrin, 2023; Singh et al., 2020).

The TAM contains several key components such as use motivation, which include perceived ease of use, perceived usefulness, and outcomes, which include people's behavioural intention as a result of perceived usefulness and perceived ease of use (Hong et al., 2021). Perceived ease of use (PEOU), as defined by Davis (1989), is the extent to which an individual believes that using a particular technology would be free of effort, whereas perceived usefulness (PU) is defined as the extent to which an individual believes that using a particular technology would enhance his/her job performance (Davis, 1989; Usman et al., 2022). Research by Rosli et al. (2023) on determining the acceptance of e-wallets among Gen-Z showed that external regulation, self-efficacy, and digital media self-efficacy are the main factors of this technological acceptance. Furthermore, their research results revealed that e-wallet providers and FinTech-related stakeholders should ensure that Gen-Z perceives e-wallet as a useful and necessary necessity to achieve a high level of acceptance from this group of people where e-wallets should be designed as user-friendly and simple to use. In a related work of literature, Sukendro et al. (2020) found that when e-learning is perceived to be user-friendly, the students will improve their attitude toward the benefits of the technological tools given to them during the pandemic. Furthermore, when students think that e-learning is easy to use (perceived ease to use) and the better their attitude is towards the use of e-learning, they have higher chances to learn using this technological tool. Moreover, Firmansyah et al. (2022) mentioned that trust is an important constituent of FinTech adoption because users deal with FinTech services virtually such that they must be guaranteed a high level of trust from these FinTech platforms. Likewise, Balaskas et al. (2024) found that trust and user acceptance which include effort expectancy and performance expectancy showed a significant positive relationship with the adoption of FinTech services.

FinTech Use and Pro-Growth Mental Accounting

FinTech refers to computer programs, innovative business models, and cutting-edge

technological applications to provide automated and improved financial services such that it is regarded to possess the abilities and capabilities to trigger financial inclusion through lower costs, deeper and wider penetration of financial services to remote or underdeveloped areas in which financial institutions are still at the bare minimum (Bommer et al., 2023; Odei-Appiah et al., 2022; Shahzad et al., 2022). On the other hand, mental accounting is a psychological concept in which individuals tend to perceive and categorize a certain amount of money subjectively rather than objectively evaluating it as a single and interchangeable source (Shah et al., 2024). This creates a psychological connection between the costs and benefits of each transaction (Hou et al., 2021). Thaler (1999) mentioned that being aware of mental accounting helps us comprehend the psychology of choice because the rules of mental accounting are not neutral. This is because a mental accounting process incites individuals to violate simple and traditional economic principles (Thaler, 1985).

Results from research by Allahham & Ahmad (2024) revealed that perceived utility, perceived simplicity of use, trust in security, and top management support positively impacted the adoption of mobile payment systems. Similarly, Le (2021) mentioned that trust, data security and privacy, and staff services enhance the intention to use (perceived usefulness) of FinTech. Furthermore, Naysary et al. (2021) stated that individuals using multiple borrowing and savings platforms tend to perform mental accounting more than others. Borah (2023) argued that artificial intelligence (AI) technologies offer some benefits in mental accounting such as improved accuracy and efficiency in financial data analysis and enhanced forecasting and predictive capabilities. Based on related previous research and concepts, the first hypothesis formed is as follows:

H1: FinTech use has a significant positive effect on pro-growth mental accounting.

Pro-Growth Mental Accounting and Financial Well-being

Financial well-being is a critical concern for individuals and countries because it is not simply related to micro-level factors (e.g. individuals and organizations), but also a macro-level concern (e.g. national and universal) (Rahman et al., 2021). Financial well-being is a feeling of being free from worry, financially strong and pleased, and is commonly based on an emotional examination of an individual's budgetary condition to comprehend whether or not one has enough money to meet one's needs (Rahman et al., 2021; Sabri et al., 2020). Research results from Bai (2023); Wahla & Rasheed (2020) revealed that individuals who practiced mental budgeting showed higher levels of financial well-being. This is because mental budgeting allows them to have a better understanding of their financial condition and make rational decisions about expenditure habits and financial goals (Bai, 2023). To the best of the researchers' knowledge, one of the state-of-the-art concepts of mental accounting is pro-growth mental accounting, which focuses on developing businesses from the human and growth approach (Radianto et al., 2024). Radianto et al. (2024) found that a pro-growth mental accounting mindset encourages micro businesses to control and manage their finances more meticulously. From an individual's perspective, those who have pro-growth mental accounting are more likely to act more prudently financially, therefore the second hypothesis formed is as follows:

H2: Pro-growth mental accounting has a significant positive effect on financial well-being.

3. RESEARCH METHOD

This research study uses a quantitative approach, utilizing primary data from surveys and questionnaires sent to active college students all over Indonesia. The sample is chosen based on purposive and convenience sampling to ensure the respondents' relevance to the research topic and to ease their access. The final research sample comprises 492 respondents and is analyzed using multiple linear regression with mediation. The mediation analysis used in this research study is Baron and Kenny's approach in which the model consists of 3 variables in which there are two paths leading to the dependent variable. The first path is the direct effect of the independent variable on the dependent variable (Path *c*), whereas the second path is the effect of the independent variable on the mediating variable (Path *a*) and then the effect of this mediating variable on the dependent variable (Path *b*) (Baron & Kenny, 1986).

Table 1. Variable Indicators

Variable	Key	Indicator
FinTech Use	FU1	I often use FinTech to make payments and transfer funds.
	FU2	I utilize FinTech investment platforms to manage my investment portfolio.
	FU3	I use FinTech services when I need financial assistance.
	FU4	I actively use FinTech insurance services to purchase and manage insurance policies.
Pro-Growth Mental Accounting	PGMA1	I can easily stop doing bad habits in managing my money.
	PGMA2	I am not easily distracted by unimportant things when managing my finances.
	PGMA3	I can refrain from buying things that I don't need.
	PGMA4	I always shop according to the budget I have made.
	PGMA5	I always think about how much it will cost before I buy something.
	PGMA6	I try to spend money as efficiently as possible on every purchase.
	PGMA7	I always think of various options before deciding to buy something.
	PGMA8	I always think about risks before making financial decisions.
	PGMA9	I consider what I have to give up when making financial decisions.
	PGMA10	I always set aside money for various needs.
	PGMA11	I have separate bank accounts for different financial purposes.
Financial Well-being	FW1	I can enjoy life because of the way I manage my money.
	FW2	I can handle large unexpected expenses.
	FW3	I feel in control of my daily finances.
	FW4	I feel comfortable with my current expenses compared to the income I have.
	FW5	I am on track to have enough money to meet my future financial needs.

The independent variable is FinTech use; the dependent variable is financial well-being; the mediating variable is pro-growth mental accounting. These variables are measured using a Likert scale of 1 to 7, where 1 means "Strongly Disagree" and 7 means "Strongly Agree." Furthermore, the research model of this study is divided into 2 main parts: Java and non-Java

islands. The main reason for this separation is that cities on Java island are more developed than those outside of Java island (Kohardinata et al., 2024). Because of this development inequality, it is also important to deduce whether or not FinTech use is affected by the economic development of an area. The evaluation of the research model also involves validity tests using item-test correlation and reliability tests using Cronbach’s Alpha. The measurement indicators of each variable are shown in Table 1.

Classical Assumptions Test

Since Baron and Kenny’s approach for mediation analysis uses a regression approach, the classical assumptions test is required for each path, including the normality test, multicollinearity test, and heteroscedasticity test. The normality test can be done using the Skewness/Kurtosis test; the multicollinearity test can be done using the variance inflation factor; the heteroscedasticity test can be done using the Breusch-Pagan/Cook-Weisberg test.

4. RESULT AND DISCUSSION

Reliability and Validity Tests

Table 2 shows the reliability and validity test results for Java Island using Cronbach’s Alpha and item-test correlation respectively. Since the r-count values of the item-test correlation are greater than the r-table value (0.1927), the indicators used to measure each variable are considered valid. Furthermore, because the Cronbach’s Alpha value of each variable is greater than 0.60, it can be said that the internal reliability between the indicators on each variable is reliable and consistent.

Table 3 shows the reliability and validity test results for the non-Java Island using Cronbach’s Alpha and item-test correlation respectively. Since the r-count values of the item-test correlation are greater than the r-table value (0.0846), the indicators used to measure each variable are considered valid. Furthermore, because the Cronbach’s Alpha value of each variable is greater than 0.60, it can be said that the internal reliability between the indicators on each variable is reliable and consistent.

Table 2. Reliability and Validity Test Results for Java Island

Variable	Indicators	Item-test Correlation	r-table	Cronbach’s Alpha
FinTech Use	FU1	0.7297	0.1927	0.8087
	FU2	0.8288		
	FU3	0.8787		
	FU4	0.7513		
Pro-Growth Mental Accounting	PGMA1	0.6401		
	PGMA2	0.5897		
	PGMA3	0.7062		
	PGMA4	0.8003		
	PGMA5	0.7838		
	PGMA6	0.8130		
	PGMA7	0.8587		
	PGMA8	0.7719		

	PGMA9	0.8329	
	PGMA10	0.7909	
	PGMA11	0.3670	
Financial Well-being	FW1	0.8064	0.8370
	FW2	0.7762	
	FW3	0.8184	
	FW4	0.6779	
	FW5	0.8118	

Table 3. Reliability and Validity Test Results for Non-Java Island

Variable	Indicators	Item-test Correlation	r-table	Cronbach's Alpha
FinTech Use	FU1	0.7763	0.0846	0.8754
	FU2	0.8827		
	FU3	0.9005		
	FU4	0.8548		
Pro-Growth Mental Accounting	PGMA1	0.8216	0.0846	0.9561
	PGMA2	0.8283		
	PGMA3	0.8583		
	PGMA4	0.8460		
	PGMA5	0.8728		
	PGMA6	0.9059		
	PGMA7	0.8809		
	PGMA8	0.8808		
	PGMA9	0.8808		
	PGMA10	0.8801		
	PGMA11	0.5176		
Financial Well-being	FW1	0.8749	0.0846	0.9292
	FW2	0.8899		
	FW3	0.9194		
	FW4	0.8477		
	FW5	0.8826		

Descriptive Statistics

Table 4 shows the descriptive statistics for each variable for the Java Island model with a total of 104 observations. FinTech use has a standard deviation of 6.08 and a mean value of 13.92, pro-growth mental accounting has a standard deviation of 5.41 and a mean value of 21.13, and financial well-being has a standard deviation of 11.80 and a mean value of 51.42.

Table 4. Descriptive Statistics Results for Java Island

Variable	Obs	Mean	Std. Dev.	Min	Max
FinTech Use	104	13.92308	6.083069	4	28
Pro-Growth Mental Accounting	104	21.125	5.408888	5	35
Financial Well-being	104	51.42308	11.79575	11	77

Table 5 shows the descriptive statistics for each variable for the non-Java Island model with a total of 388 observations. FinTech use has a standard deviation of 6.65 and a mean value of 12.65, pro-growth mental accounting has a standard deviation of 7.09 and a mean value of 19.41, and financial well-being has a standard deviation of 15.40 and a mean value of 45.07.

Table 5. Descriptive Statistics Results for Non-Java Island

Variable	Obs	Mean	Std. Dev.	Min	Max
FinTech Use	388	12.64948	6.654704	4	28
Pro-Growth Mental Accounting	388	19.40722	7.086702	5	35
Financial Well-being	388	45.06959	15.39599	11	77

Classical Assumptions Test

Table 6 shows the results of the classical assumptions test for the Java Island model. Based on the results of the classical assumptions test for each path in the mediation analysis, the data used in this research study is normally distributed since the values are greater than 0.05. Furthermore, there are no symptoms of multicollinearity since the mean VIF (variance inflation factor) is below 10. Likewise, there are no symptoms of heteroscedasticity since the values are greater than 0.05 for each path.

Table 7 shows the results of the classical assumptions test for the non-Java Island model. Based on the results of the classical assumptions test for each path in the mediation analysis, the data used in this research study is normally distributed since the values are greater than 0.05. Furthermore, there are no symptoms of multicollinearity since the mean VIF (variance inflation factor) is below 10. Likewise, there are no symptoms of heteroscedasticity since the values are greater than 0.05 for each path.

Table 6. Classical Assumptions Test for Java Island

Description	FinTech Use → Financial Well-being (a)	FinTech Use → Pro-Growth Mental Accounting (b)	FinTech Use → Pro-Growth Mental Accounting → Financial Well-being (c)
Normality Test (Skewness/Kurtosis Test)	0.7490	0.1449	0.8191
Multicollinearity Test (Mean VIF)	-	-	1.04
Heteroscedasticity Test (Breusch-Pagan/Cook-Weisberg test)	0.5405	0.9148	0.4163

Table 7. Classical Assumptions Test for Non-Java Island

Description	FinTech Use →	FinTech Use →	FinTech Use →
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	Financial Well-being (a)	Pro-Growth Mental Accounting (b)	Pro-Growth Mental Accounting → Financial Well-being (c)
Normality Test (Skewness/Kurtosis Test)	0.7387	0.0555	0.6419
Multicollinearity Test (Mean VIF)	-	-	1.03
Heteroscedasticity Test (Breusch-Pagan/Cook-Weisberg test)	0.5844	0.3768	0.3375

Hypothesis Test

Table 8 shows the hypothesis test results for the Java Island model. The direct path of FinTech use to financial well-being shows a significant p-value of 0.000 and a positive coefficient of 0.3611044. This shows that FinTech use has a significant positive effect on financial well-being. The direct path of the independent variable to the dependent variable has a Prob > F value of 0.0000 and an adjusted R-squared value of 0.1866 which means that FinTech use can explain financial well-being by 18.66%. The path of FinTech use to pro-growth mental accounting (mediator) shows a significant p-value of 0.040 and a positive coefficient of 0.3871159 which indicates that FinTech use can have a significant positive effect on pro-growth mental accounting. The path of the independent variable to the mediating variable shows a Prob > F value of 0.0401 and an adjusted R-squared value of 0.0319 which means that FinTech use can explain pro-growth mental accounting by 3.19%. The path of pro-growth mental accounting to financial well-being shows a significant p-value of 0.000 and a positive coefficient of 0.2389507 which indicates that pro-growth mental accounting has a significant positive effect on financial well-being. This path has a Prob > F value of 0.0000 and an adjusted R-squared value of 0.4797 which means that pro-growth mental accounting can explain financial well-being by 47.97%. In the presence of the mediating variable, pro-growth mental accounting, the direct path of FinTech use (independent variable) to financial well-being (dependent variable) still shows a significant and positive value, therefore it can be said that the mediation is partial. Since the mediation is partial, another test the Sobel test is required to determine whether the indirect effect of FinTech use (X) on financial well-being (Y) through pro-growth mental accounting (M) is statistically significant. Since the z-score value (2.01) is greater than 1.96, it can be concluded that pro-growth mental accounting can mediate FinTech use and financial well-being for the Java Island model.

Table 8. Hypothesis Test Results for Java Island

Variable	P > t 	Coefficient	Prob > F	R-squared	z-score
FinTech Use → Financial Well-being	0.000	0.3611044	0.0000	0.1866	2.00551812
FinTech Use → Pro-Growth Mental Accounting	0.040	0.3871159	0.0401	0.0319	

Pro-Growth Mental Accounting → Financial Well-being	0.000	0.2389507	0.0000	0.4797
FinTech Use → Pro-Growth Mental Accounting → Financial Well-being	0.000	0.2686027	0.0000	0.4797

Table 9 shows the hypothesis test results for the non-Java Island model. The direct path of FinTech use to financial well-being shows a significant p-value of 0.000 and a positive coefficient of 0.335936. This shows that FinTech use has a significant positive effect on financial well-being. The direct path of the independent variable to the dependent variable has a Prob > F value of 0.0000 and an adjusted R-squared value of 0.0972 which means that FinTech use can explain financial well-being by 9.72%. The path of FinTech use to pro-growth mental accounting (mediator) shows a significant p-value of 0.001 and a positive coefficient of 0.3784187 which indicates that FinTech use can have a significant positive effect on pro-growth mental accounting. The path of the independent variable to the mediating variable shows a Prob > F value of 0.0012 and an adjusted R-squared value of 0.0242 which means that FinTech use can explain pro-growth mental accounting by 2.42%. The path of pro-growth mental accounting to financial well-being shows a significant p-value of 0.000 and a positive coefficient of 0.3617686 which indicates that pro-growth mental accounting has a significant positive effect on financial well-being. This path has a Prob > F value of 0.0000 and an adjusted R-squared value of 0.6991 which means that pro-growth mental accounting can explain financial well-being by 69.91%. In the presence of the mediating variable, pro-growth mental accounting, the direct path of FinTech use (independent variable) to financial well-being (dependent variable) still shows a significant and positive value, therefore it can be said that the mediation is partial. Since the mediation is partial, another test the Sobel test is required to determine whether the indirect effect of FinTech use (X) on financial well-being (Y) through pro-growth mental accounting (M) is statistically significant. Since the z-score value (3.24) is greater than 1.96, it can be concluded that pro-growth mental accounting can mediate FinTech use and financial well-being.

Table 9. Hypothesis Test Results for Non-Java Island

Variable	P > t	Coefficient	Prob > F	R-squared	z-score
FinTech Use → Financial Well-being	0.000	0.335936	0.0000	0.0972	
FinTech Use → Pro-Growth Mental Accounting	0.001	0.3784187	0.0012	0.0242	
Pro-Growth Mental Accounting → Financial Well-being	0.000	0.3617686	0.0000	0.6991	3.23533006
FinTech Use → Pro-Growth Mental Accounting → Financial Well-being	0.000	0.199036	0.0000	0.6991	

Discussion

Based on the results of descriptive statistics, the use of FinTech is more on the island of Java than non-Java. This is due to the development of information technology that has developed in the Java area so that it makes online access easier. Most of the use of FinTech on the island of Java is used as a payment to make it easier and more efficient to avoid using cash. Also, in terms of the use of credit funds, Javanese islanders are greater than non-Javanese due to more complex needs in carrying out their daily and business activities. However, people in non-Java are also active in using FinTech media to access finance, especially in credit services. In terms of digital financial literacy, Javanese and non-Javanese people do not differ much in using technology. People in Java are also more conservative in managing their finances, where they can do better financial planning and can also prioritize their spending needs. Therefore, financial wellbeing is also higher in Java than non-Java.

The results of this study, both in Java and non-Java, show that FinTech use will increase pro-growth mental accounting which will then increase financial wellbeing. FinTech use can help a person to be more conservative with their finances or pro-growth mental accounting, whether for planning, investing, or avoiding credit problems. The technology developed by FinTech offers services that help users plan their spending according to their priorities, distinguishing between primary and secondary needs (Shen et al., 2021; Yakubi et al., 2022). Additionally, it provides warnings when someone is overspending. This functionality helps users stay informed about their available funds and expenses, ultimately enhancing their financial awareness (Jali et al., 2023). The accessible investment opportunities offered by FinTech also encourage community investment. In addition to the FinTech credit scoring system, it will provide psychological insights for individuals considering taking credit in the future (Iman, 2020; Muralidhar et al., 2019). This can help reduce the risk of bad credit and excessive debt. These results indicate that people in Java and non-Java share similar characteristics, and that the use of FinTech can enhance financial management practices. Unlike the previous research by Putri & Octavatiya (2023), Senobua et al. (2023), and Sulistiyani et al. (2023) which shows that FinTech will cause behavioral changes, especially in low-income households due to a sense of addiction due to easy access to finance from FinTech. Instead, from this FinTech a person will be helped to be wiser with all the information services that have been designed to help and facilitate its users.

With pro-growth mental accounting it will improve financial wellbeing. Utilizing all resources effectively and planning wisely for the future will benefit FinTech users (Abad-Segura et al., 2020; Correa et al., 2022). Pro-growth mental accounting can be seen from how a person manages credit, investment, financial planning, and spending (Efrata et al., 2023). With the credit obtained, it can be used wisely to meet all daily needs or as funding for business activities so that they can operate to generate income, not for things that are beyond their needs. From investments that are easier to access, it also adds benefits for users in the future. Good financial and expenditure planning can prevent a person from overspending on one thing so that they can prioritize based on the scale of their needs. If a person uses this wisely, it can secure their finances and help avoid bankruptcy or other financial risks while also meeting daily needs.

Based on these results, it can be said that Javanese and non-Javanese already have sufficient financial literacy to accept FinTech technology so that it can be used as intended to increase financial inclusion. It can also be seen in Figure 3 that financial literacy in Java and non-Java

does not differ much along with financial inclusion. This indicates that development in Indonesia has begun to be evenly distributed. With this, FinTech is safe to implement to equalize access to finance and financial inequality in all regional provinces. The whole community has been able to accept FinTech technology well and use its facilities wisely to avoid things that are not as they should be. The quality of information provided about FinTech has also spread to all provinces both in Java and non-Java. So here FinTech is used to help and serve the community to improve financial insight not just make it easier. The role of FinTech is very crucial because the impact on socio-economics is very impactful and the cost of implementation is not large. So the position of FinTech is needed especially for low-income households.

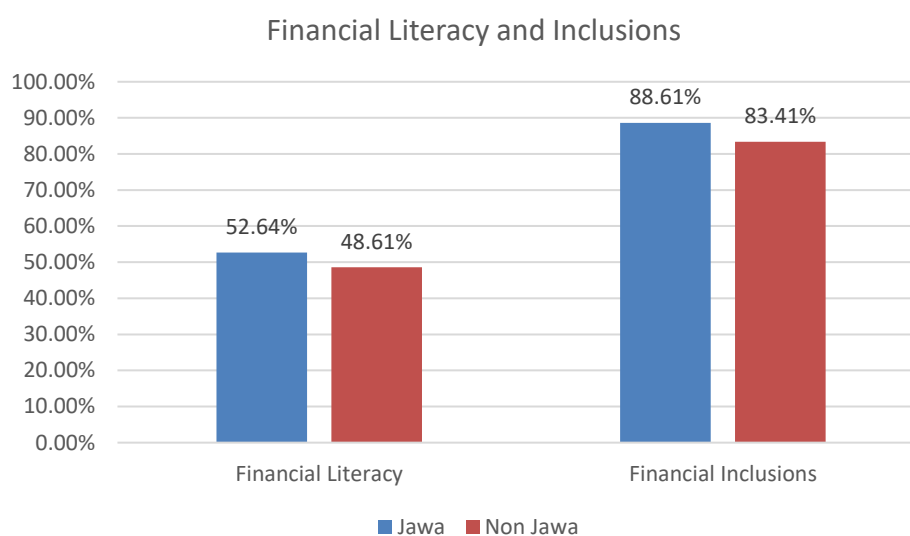


Figure 3. Financial Literacy and Inclusions in 2022
Source. Otoritas Jasa Keuangan (2022)

Although it has a good impact, the implementation of FinTech also requires caution before it is implemented in the community. Its implementation requires government support to enhance financial literacy across the community (Mandasari & Nur Fietroh, 2022; Silva et al., 2023), thereby reducing the risks of default, fraud, and cybercrime. It is intended so that people do not experience culture shock when using a new technology to prevent unauthorized use. The credit scoring system needs to be tightened to avoid the risk of loss for its lenders and also strengthen the platform that must be monitored by the government. As well as the overall security of the personal data of both lenders and borrowers.

The results of this study empirically verify the technology acceptance model. Where with FinTech technology can facilitate and develop financial access that has a major impact on socio-economics. So FinTech is beneficial for all good people in Indonesia and plays an important role to meet the needs of its people.

5. CONCLUSION AND RECOMMENDATIONS

FinTech will have a huge socio-economic impact with its services and easy access to finance. The use of FinTech will increase insight and help people to be more conservative in the use of their finances for better financial management and planning. As a result, with good

financial management, it can improve financial wellbeing. All financial needs can be fulfilled through FinTech especially for credit, investment, transactions, and financial planning purposes. The results of research on both people in Java and non-Java islands are not much different, where FinTech can increase pro-growth mental accounting to improve financial wellbeing. So that with this FinTech can be used to equalize financial access and financial inequality in all provinces of Indonesia. The implications of this research can be used as insight into the application and use of FinTech so that it can be wiser so that it can maximize all services to obtain benefits.

Suggestions for future research can separate high, middle, and low household income to find out the differences in usage characteristics and their impact. This research is also limited regarding the number of samples per province in Java and non-Java islands so that it can be increased for further research. Financial literacy and inclusion variables can also be used to enrich the results.

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Chapter 8

Peer-to-Peer (P2P) Lending: Disruptive and Complementary Dynamics in Banking

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ABSTRACT

Financial Technology (FinTech) introduces innovative solutions such as Peer-to-Peer (P2P) lending, which effectively overcomes barriers to financial inclusion by bypassing traditional banks. This study examines the dynamic impact of P2P platforms on banking, exploring their role as complements or substitutes. Using a systematic literature review (SLR), the findings reveal that the impact of P2P lending on bank credit—for both MSMEs and non-MSMEs—evolves dynamically depending on the stage of development and prevailing conditions. Furthermore, the dynamic nature of the impact of P2P lending on bank credit is significantly influenced by the level of bank liquidity.

Keywords: P2P Lending, Bank, FinTech, Substitution, Complementary

1. INTRODUCTION

The progress of a region depends on the extent to which funding is equitably available and accessible to its people, enabling them to grow their businesses and improve their quality of life. However, various challenges—such as stringent financial regulations, limited infrastructure, constraints of space and time, and insufficient funding sources—often hinder the equitable distribution of financial resources within communities. In this context, the emergence of Financial Technology (FinTech) provides a strategic solution to overcome these barriers. By offering online access to funding and leveraging advanced technologies like machine learning, artificial intelligence, big data, and more, FinTech opens new avenues for empowering communities and driving regional development.

Financial technology (FinTech) has paved the way for the growth of startups offering peer-to-peer (P2P) platforms powered by FinTech. These P2P platforms enable individuals to seek and provide funding directly through online channels, eliminating the need for intermediaries such as traditional banking institutions (Stern et al., 2017). As a result, P2P platforms contribute to financial inclusion and foster overall economic growth.

No matter how thinly something is sliced, there are always two sides. P2P platforms undoubtedly expand access to financial inclusion for the public, yet they also pose potential challenges for traditional players in the financial sector, such as banks. The impact of P2P platforms is twofold: on one hand, they may serve as complementary tools, while on the other, they could emerge as competitors or substitutes for traditional banking. This section delves into the disruptive and complementary dynamics of P2P platforms in relation to the banking industry.

The disruptive or complementary effects are dynamic and depend on various factors, including banking conditions, market dynamics, and other circumstances. This section focuses on the dynamism in several areas, namely: (1) The dynamics over time, from the early stages of P2P lending to its more advanced phases; (2) The effects of P2P lending on bank loans for MSMEs and non-MSMEs; (3) The Effects of P2P lending on bank loans for MSMEs and non-MSMEs, considering banking liquidity.

2. LITERATURE REVIEW

This chapter presents reviews essential literature and theoretical frameworks pertinent to the research topic.

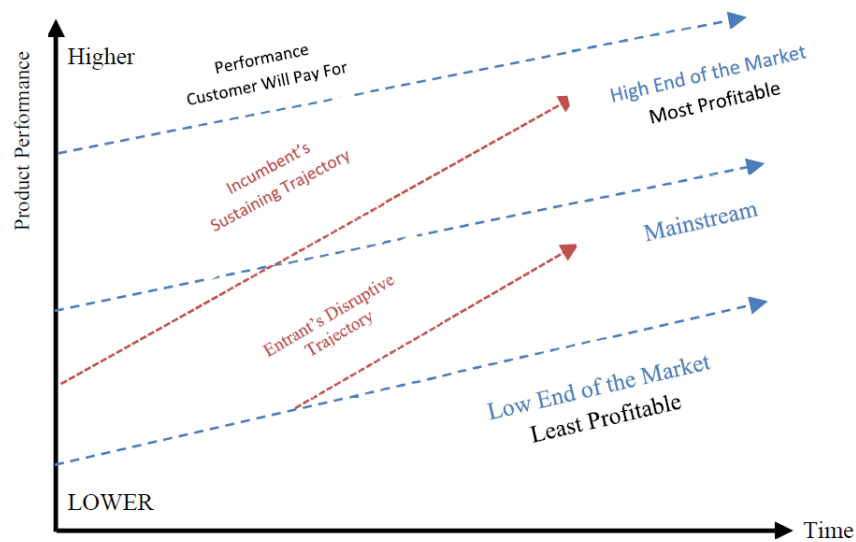
Disruptive Innovation

Innovative products, such as those provided by P2P platforms, are often seen to exhibit certain patterns when entering an industry/market or competing within it. Figure 1 represents the disruptive innovation model, which is frequently used to discuss the strategies employed by startup companies to penetrate competitive markets within an industry.

Figure 1 illustrates that the concept of disruptive innovation comprises three main components, as follows: (1) **The rate of technological progress exceeds customer demand**, leading incumbent companies to be perceived as over-serving the market by producing sophisticated products or services with excessive features that surpass the needs of their core customers. This creates an opportunity for startups or new entrants to target the lower end of the market; (2) **Incumbent companies' innovations are typically sustaining innovations**,

which improve products and services in terms of performance metrics valued by their core customers. Consequently, these companies can deliver higher margins and achieve greater profitability. By contrast, new disruptive innovations often underperform the products of established companies in certain key aspects but introduce new attributes that appeal to customers in lower-end market segments;(3) **Incumbent companies are generally not incentivized to develop disruptive innovations**, as these promise lower margins, target smaller markets, and introduce inferior products and services that are not utilized by their primary customers (Christensen et al., 2018).

Figure 1. The Disruptive Innovation Model



Source: Christensen et al., (2015); Kohardinata et al., (2024)

This pattern indicates that startups, such as P2P platforms, tend to enter the market through the lower-end segment by providing services that cater to this segment. Over time, they improve their performance to penetrate higher market (mainstream market and/or high-end market), thereby challenging the dominance of incumbent companies.

The reflections and insights derived from the pattern of disruptive innovation are as follows: New entrants, such as P2P platforms, can enter the competition by targeting the lower-end market. Consequently, P2P platforms do not initially pose a competitive threat to the mainstream market and/or high-end market but have the potential to become competitors to other banking market operating within the lower-end segment. However, they can also serve as complements by collaborating with low-end companies or by catering to entirely new markets that have previously been untapped. Therefore, it is essential to view this phenomenon from multiple perspectives.

Consumer Theory

Consumer theory explains how the introduction of new products can lead to changes in consumer behaviour. Products offered by new entrants can act as complements or substitutes for existing products. Aaker & Keller (1990) argue that when products are used together, they act as complements; when they replace each other, they act as substitutes. In the context of P2P

platforms and traditional banks, this perspective highlights their potential to coexist as complements, where P2P platforms address niche or underserved segments while banks continue serving mainstream customers. Alternatively, P2P platforms could act as substitutes by offering innovative financial solutions that attract customers away from traditional banking services. Understanding these dynamics is crucial for assessing the evolving relationship between P2P platforms and banks, and for developing strategies that optimize their roles in the financial ecosystem.

3. RESEARCH METHOD

The research employ a systematic literature review (SLR) approach to synthesize and critically analyze relevant studies pertaining to the topic. The primary goal of SLR is to systematically collect and evaluate existing research relevant to a particular topic, thereby producing objective, reproducible results. An SLR is a thorough, methodologically rigorous review that goes beyond simply compiling existing studies; its purpose is also to provide evidence-based recommendations for practitioners within the field.

4. RESULT AND DISCUSSION

Shifting Dynamics: From Substitution to complementary (or vice versa) between P2P and Banks

The presence of P2P lending can be considered a new product or newcomer in the financial industry. Consequently, the impact of P2P lending platforms may experience dynamic shifts over time. The effect of these platforms can transition from being complementary to becoming a substitute for traditional banking services, or vice versa, at later stages. The findings and discussion of this research begin with an exploration of the shifting dynamics effect between P2P lending and the banking sector.

The research by Zhang et al., (2019) reveals a nonlinear dynamic relationship between P2P lending balances and domestic bank loan balances, in first regime (regime 1 and regime 2), where P2P lending balances are relatively small, both P2P lending balance act as complement to domestic bank loan balances. Conversely, in regime 3, where P2P lending balance are larger, P2P lending balances act as substitute for domestic bank loan balances. This shift aligns with the theory of disruptive innovation, where P2P lending-initially serving niche markets- evolves to challenge traditional banking by offering more accessible or cost-effective alternatives, thereby reshaping the competitive landscape.

P2P lending balance have grown significantly and now serve as substitute for domestic bank loan balances (Zhang et al., 2019). Another perspective is provided by research from Kohardinata, Suhardianto, et al., (2024), which examines the impact of COVID-19. The study reveals that P2P lending initially replaced bank loans before the pandemic but shifted to a complementary role during the pandemic. This change is due the flexibility of P2P lending, which complemented the relaxation of bank credit policies during this period. As COVID-19 limited physical interactions, P2P platforms were able to reach underserved areas or situations where physical access was restricted.

Another perspective from the research by Kohardinata et al., (2020) explores the evolving relationship between P2P lending and rural bank loans in Indonesia, emphasizing a

transition from a substitutive to a complementary dynamic. A key insight from this study is the collaborative efforts initiated through the partnership between the Rural Bank Association and The FinTech Association, which marked a significant shift toward fostering a complementary relationship. P2P platforms can enter the market not only as disruptive innovators but also as collaborative partners with small banks (such as rural banks) serving low markets. By doing so, P2P platforms can avoid positioning themselves as competitors and instead contribute to a synergistic financial ecosystem.

Is P2P Lending a Substitute or complement to Bank Credit for non-MSMEs and MSMEs?

Starting from Bank credit for non-MSMEs, the growth in P2P lending has not had a significant impact on the growth of bank loans for Non-MSME lending (Kohardinata, Soewarno, et al., 2020; Kohardinata, Widianingsih, et al., 2024b). Despite the rapid expansion of P2P lending platforms, their scale and capacity are still relatively small compared to traditional banks. As a result, P2P lending has not yet been able to fully serve or replace the financing needs of larger non-MSMEs, which typically require more substantial credit lines and a greater level of financial services. P2P lending acts more as a complement to bank credit for non-MSMEs, rather than a substitute.

We also offers another perspective by examining the influence of P2P lending on non-MSME banking credit, with focus on bank liquidity levels from the research by Kohardinata, Widianingsih, et al., (2024a). From this viewpoint, the research shows that in areas with lower liquidity, P2P lending plays a positive role as a complement to non-MSMEs bank credit. However, in regions where liquidity is stricter, the effect of P2P platforms is diminished, as banks rely more on their own resources. Its mean that banks engage with P2P platforms as a strategic response to manage idle funds, utilizing these platforms as an additional for credit distribution for non-MSMEs.

Furthermore, regarding MSME bank credit, the impact of P2P lending on MSME credit is till evolving dynamically. In the early stages of the growth of P2P lending, P2P platforms became competitors or substitutes for bank credit for MSMEs (Kohardinata, Soewarno, et al., 2020). This aligns with the pattern of disruptive innovation, entering the competition through the low-end market or the MSME market, but not with a spirit of collaboration, rather as competitors. Over time, after the COVID-19 pandemic, P2P platforms became complementary to bank credit for MSMEs (Kohardinata, Widianingsih, et al., 2024b). This shift occurred due to the collaboration between banks and P2P platforms and was driven by a change in the behaviour of MSME communities, who became more adept with technology, including financial technology. As a result, the post-pandemic period encouraged MSME communities to take advantage of the facilities and flexibility of P2P platforms to obtain funding.

We also offer another perspective by examining the influence of P2P lending MSME banking credit, with focus on bank liquidity. The result is opposite from the result the influence of P2P lending non MSME banking credit, with focus on bank liquidity. From this viewpoint, the research shows that in areas with loose liquidity, P2P loans do not affect MSMEs bank credit. In contrast, P2P lending as complement to MSME banking credit on normal and tight banking liquidity. The main reason is normal and tight banking liquidity means that banking distribute credit to the main market or non MSME, therefore there are not enough fund to serve

MSME. Therefore, MSME need another access from nonbanking to receive fund from nonbanking, in this situation, P2P role as complement to serve MSME.

5. CONCLUSION AND RECOMMENDATIONS

The dynamic relationship between P2P lending platforms and traditional banking credit evolves over time, transitioning between complementary and substitutive roles depending on various factors such as market conditions, liquidity levels, and economic contexts. The findings highlight the following key points:

1. **Shifting Dynamics:** P2P lending, as a relatively new financial innovation, exhibits nonlinear dynamic in its relationship with bank credit. Initially serving niche markets, it may complement or substitute traditional banking services based on its growth stage and market penetration.
2. **Impact on Non-MSME Bank Credit:** For non-MSME loans, P2P lending predominantly plays a complementary role. Its capacity remains limited compared to traditional banks, making it an auxiliary channel, especially in regions with loose bank liquidity. In such cases, banks strategically engage with P2P platforms to optimize iddle funds.
3. **Impact on MSME Bank Credit:** The role of P2P lending in MSME credit has shifted over time. Initially a competitor, it has increasingly become a complement, especially post COVID-19. Thhis shift was facilitated by the enhanced technological adaptability of MSME communities and strategic collaborations between banks and P2P platforms.
4. **Liquidity influence:** Bank liquidity levels significantly influence the relationship between P2P lending and bank credit. In area of loose liquidity, P2P lending has no impact on MSME credit. Conversely, in normal or tight liquidity conditions, P2P lending complements MSME credit by filling funding gaps created when banks prioritize non-MSMSE markets.

Based on these research finding, the following recommendation are proposed:

1. Foster collaboration between Banks and P2P platforms
2. Policymakers should establish clear framewors to encourage healthy collaboration between P2P platforms and banks, while ensuring fair competition and safeguarding consumer interests.
3. P2P platforms should focus on innovative financial products tailored to meet the needs of MSMEs, especially in regions where traditional banks are unable to fully serve these markets.
4. Banks and P2P platforms shoudl invest in technology to streamline processes and educate MSME communities on leveraging financial technology for their benefit.
5. Continuous research and monitoring are essential to understanding how P2P lending evolves in relation to traditional banking, enabling stakeholders to adapt strategies accordingly.

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Chapter 9

Acceptance of Technology in Furniture Company the Role of Perceived Risk in Emerging Country

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ABSTRACT

Despite that Furniz, a furniture company has launched an online shopping application, and sales climbed insignificantly by only 3%. According to the Technology Acceptance Model (TAM), how beneficial something appears and how simple it is to use influences people's willingness to utilize technology. Additionally, people are more likely to be concerned about the risk if something is pricey, complex, challenging to grasp, and has an unfamiliar brand. There has been little research into perceived risk in the furniture industry. The study intends to investigate how perceived risk influences how users assess the utility and usability of the company's mobile app. A questionnaire was distributed to 4,100 consumers in Jakarta. The sample size was 115. It was gathered from June to September 2023. The data were analyzed using the statistical software packages SPSS v25 and SmartPLS 4. The results demonstrated that PR had a beneficial effect on PU and PEU. The theoretical result indicates that the external variable, perceived risk, exerts a significant influence on the technology acceptance model (TAM) within the context of furniture retail. All positive effects are statistically significant when $\alpha = 0.05$. The practical significance of this finding is that management should consider perceived risk, as measured by dimensions such as financial risk, psychological danger, social risk, and time delay risk, while using applications to enhance the desire to use mobile apps and, consequently, increase sales.

Keywords: Technology Acceptance Model; Perceived Risk; Furniture industry; Intention to Use Technology

1 Introduction

The advancement of technology and the widespread usage of the Internet open up new potential for businesses in a range of industries, including but not limited to retail, furniture, medicines, and more. It is well known that the rapid advancement of information technology facilitates and expedites the sharing of information. This provides an opportunity for entrepreneurs to engage in a variety of commercial operations, such as marketing, purchasing, selling, and online marketing. The Furniz Company is a pioneering force in the home furniture retail market, and it is one of the furniture companies that is using social media to promote growth. Furniz takes a contemporary and minimalist approach to lifestyle, sharing information about its products and services over a range of social media channels such as Facebook, Instagram, Twitter, and YouTube. Online applications are expected to make it easier, safer, and more enjoyable for consumers to shop for furniture. As a result, the web application is expected to make purchasing furniture more convenient for buyers while also increasing sales turnover. However, the anticipated level of turnover has not been reached, due to the implementation of online applications. Even though the business employs a variety of sales tactics, it still faces obstacles, such as merchandise that isn't readily available at the store, making it difficult for consumers to quickly assess the state of the products they plan to buy. As a result, consumers are now apprehensive about making purchases online, raising questions regarding product details, prompt delivery, item quality, and other issues. Furthermore, a significant segment of the user base has conveyed concerns regarding the application's usability, security, and general safety. Because offline sales and purchases are seen as more secure than their online business, people tend to avoid Internet transactions in favor of them. The data indicates a drop in the company's performance within the internet business area.

2 Theoretical Framework

2.1 Technology Acceptance Model

Information technology is the key or main factor enabling an organization to carry out its business processes better than previously (Baiyere et al., 2020). One of the factors influencing interest in utilizing online applications is perceived utility, which is the user's subjective perception of the system aimed to improve job performance while carrying out tasks and influences system adoption (Hasan et al., 2021). The Technology Acceptance Model (TAM), is a behavioral paradigm that clarifies how information technology is used. (Davis, 1989) established a mindset around the interest in information technology use based on perceived ease of use and utility, which led to the introduction of TAM. The Technology Acceptance Model (TAM) has been significant in explaining how users behave with technology by emphasizing that a person's reaction to and perception of a given technology influences what they do next (Fig.1).

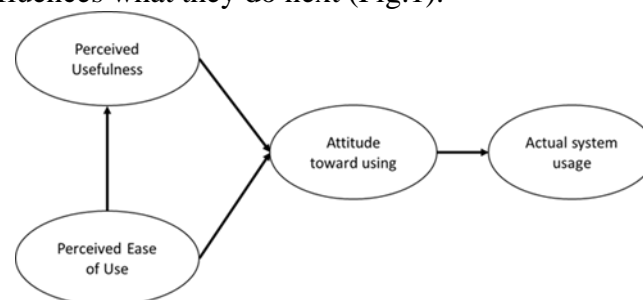


Figure 1. Technology Acceptance Model

Source: (Davis, 1989)

Most studies on users' adoption of technology have included the Technology Adoption Model (TAM), which has gained much reputation. Several studies have previously supported this theory (Butt et al., 2016; Shukla & Sharma, 2018; Vahdat et al., 2021) which found that TAM can elucidate online customer shopping behavior. TAM consisted of four variables: perceived ease of use, perceived usefulness, behavioral intention, and

actual system usage. It is explained in more detail in the paragraph that follows. Companies need to concentrate on the effective and efficient use of new information technology systems to improve performance (Bessen, 2020). Perceived ease of technology use is a fundamental element of the Technology Acceptance Model (TAM) (Davis, 1989). According to Davis (1989), numerous factors impact the prosperous assimilation of technology. The perception of "perceived usefulness" is indicated by quick work performance, increased productivity, and overall ease of use. In addition, "perceived ease of use" is indicated by qualities such as ease of learning, controllability, clarity, flexibility, and a user-friendly design. Further (Davis, 1989) stated that people prefer to use technology or not to the degree they think it would allow them to do their jobs better.

2.2 Research Framework and Hypothesis Development

Many external variables can be used in TAM in e-learning and business application studies (Castiblanco Jimenez et al., 2020) since the first external variable that was added by (Davis, 1989) is the quality of the output. Until now, more than 70 external variables have been proposed in the Technology Acceptance Model. Perception of risk is another element that influences motivation in utilizing technology, in addition to perceived usefulness and simplicity of use. One of the risk factors that need to be taken into account is the perception of risk, particularly when the product's condition is pricey, complex, difficult to understand, and the brand is unknown (Aldammagh et al., 2021). Although technology provides many benefits and ease of use for its users, there are still several users who refuse to use technology because of uncertainty and security issues (Ha, 2020). In this study, perceived risk is used as an external variable because in the online purchasing process, consumers cannot directly feel the condition of the product to be purchased, security in the delivery process is also a factor that can cause risk. According to the findings of prior research, there are only a few studies that place the perceived risk variable as an external variable, additionally, no prior research has been conducted on the furniture retail industry.

Past studies on customer acceptance of online services showed that PEU was a significant precedent for the adoption of modern web technologies by consumers in a variety of studies (Moslehpour et al., 2018; Rahmi et al., 2018). Scholars have proposed that intention to use technology is a form of technology acceptance behaviour relevant to Perceived Ease of Use (F. Abdullah, Ward, & Ahmed, 2016; (Lee & Lehto, 2013). Scholars have proposed that intention to use technology is a form of technology acceptance behavior relevant to Perceived Usefulness (Chow et al., 2012; Joo et al., 2018; Lee & Lehto, 2013). Li and Huang (2019) in their research explain that perceived risk also plays an important role in increasing instability in the online shopping environment. The study implies that online sellers do not rely solely on the operational characteristics the perceived benefits and ease of use, but also on the greater level of risk consumers feel towards applications. For this reason, the higher the level of risk perceived by consumers, the lower the level of perception regarding the usefulness of the application. The lower the risk that is felt by consumers, will decreased consumer confidence in using information technology systems it affects the perception of the usefulness of the information system. Based on the literature review, this study will examine the interaction effect of perceived risk (PR), perceived usefulness (PU), and perceived ease of use (PEU), on intention to use digital applications, as shown in Fig.1 below.

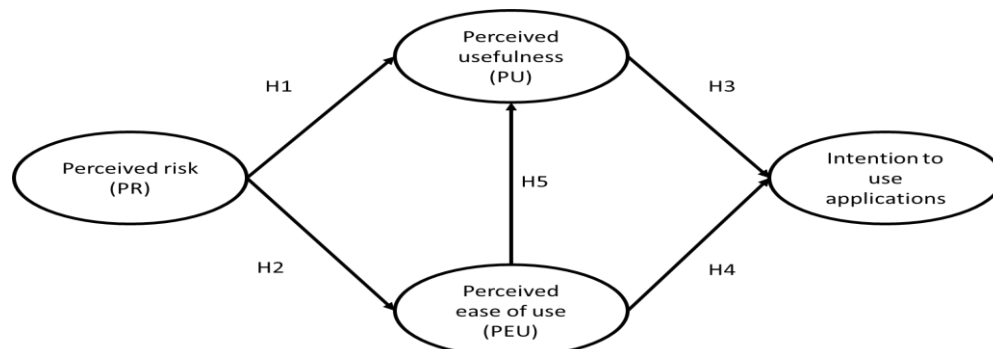


Figure 1 Research Framework

Based on the explanation above, it is hypothesized that

H1: Perceived Risk has a positive effect on Perceived Usefulness

H2: Perceived Risk has a positive effect on Perceived Ease of Use

H3: Perceived Usefulness has a positive impact on the intention to use applications

H4: Perceived Ease of Use has a positive effect on the Intention to use applications

H5: Perceived Ease of Use has a positive impact on Perceived Usefulness

3 Methods

This study investigates the link between concept, perceived risk, perceived utility, perceived ease of use, and intent to utilize the program. A cross-sectional strategy was used to gather information at one time from a large number of people. Respondent data will be gathered using a questionnaire. To guarantee effectiveness and timely completion, this will be delivered to them using an online form. Purposive sampling was used to choose the respondents based on the following standards: 1) A Furniz Company client; 2) A Bandung or Jakarta residence. Choosing a suitable sample size is crucial for this study, which will be carried out with SmartPLS4. The sample size gathered in the area will have an impact on the appropriateness and statistical power of the multiple regression model used (F. Hair Jr et al., 2014; Sarstedt et al., 2014).

The sample size required was obtained by using the G Power. The sample size required was 121 to be determined as adequate. The survey feedback was gathered from existing customer's samples through Google Forms and delivered over WhatsApp to those who had agreed to participate. Respondents are invited to indicate their level of agreement with a given statement on a five-point scale. This study employs a scale ranging from 1 to 5, with each meaningful scale comprising the following items: The scale is as follows: 1 indicates strongly disagree, 2 indicates disagree, 3 indicates neutral, 4 indicates agree, and 5 indicates strongly agree. A multi-dimensional measurement variable was measured on a multi-dimensional. The majority of the questionnaire was adapted from the following sources (Bonnin, 2020; Seo & Lee, 2021; Venkatesh & Davis, 2000)

Table 1 Questionnaires

Variable	Dimension	Item	Measurement Item
<i>Perceived Risk</i> (PR)	Financial Risk	FR	I feel that the quality of Furniz’s products matches the price
			I have a great experience when making transactions
	Social Risks	SR	My friends and family recommend Furniz products online, even though the products cannot be seen in person
	Performance Risk	PR	I'm sure of Furniz’s products are good upon receipt
	Time Risk	TR	I think the response at the time of ordering is good Furniz product delivery process is always on time
<i>Perceived Usefulness</i> (PU)	Job Performance	PU1	I feel that purchasing online applications is faster
	Effectiveness	PU2	The transactions through the Furniz apps were very effective
	Increase Productivity	PU3	Ordering Furniz products through the application feels easier
	Time	PU4	The time spent ordering on the Furniz online app is less
	Usage	PU5	I find it easy to get information in the Furniz app
<i>Perceived Ease of Use</i> (PEU)	Easy to use	PEU 1	In my opinion, Furniz online apps is easy to use
		PEU 2	I find it easy to operate the Furniz online application
	It's not bothersome	PEU 3	Furniz online application is clear and easy to understand
		PEU 4	I think it takes a small effort to interact with the Furniz apps
<i>Intention to use</i> (ITU)	Loyalty	ITU1	I will continue to use the Furniz online application
		ITU2	I will use the Furniz online application in a sustainable
	Recommendation	ITU3	I would encourage everyone to use the Furniz online apps on
	Pay a premium price	ITU4	I am willing to buy furniture that is high in price

4 Result and Data Analysis

4.1 Responden Profile

Two criteria were applied in selecting the respondent: a) y, the individual must have their primary residence in Jakarta or in Bandung b) an existing customer status.

5 Table 2 Respondent Profile

Variable	Category	Count	Percentage
Gender	Female	45	43
	Male	60	57
Age group	21-30	51	49
	31-40	40	38
	>40	14	13
Education	High School	60	57
	Diploma	1	1
	Bachelor degree	40	38
	Master degree	4	4
Profession	Housewife	3	3

Variable	Category	Count	Percentage
Income	Govt employee	1	3
	Privat employee	97	92
	Entrepreneur	4	4
	<6	71	67
Income	6-20	22	21
	21-50	8	8
	>50	4	4

As demonstrated in Table 2, the male represented the majority of the overall sample at 57 percent. The largest age group among respondents was 31-40, representing 40% of the total. The majority of respondents (60 percent) had obtained a high school diploma, with 40 percent holding a bachelor's degree. The majority of the respondents are private employees (92%) with a mean income of less than 6 IDR million.

4.2 Common Method Variance

Because this study employed a single source of respondents to gather data on both dependent and independent components, common method variance must be checked (Tehseen, Ramayah, & Sajilan, 2017). To test for common method variance, we assessed the collinearity among constructs. The variance inflation factors are assessed (Kock & Lynn, 2012). These variance inflation factors may be employed to evaluate common method variance, resulting in a more conservative test than the usual exploratory factor analysis (Kock, 2014; Kock & Lynn, 2012). All of the constructs in the model have a complete collinearity variance inflation factor of less than 5 (Hair et al., 2014). As a result of testing for common method variance using VIF, we can safely infer that common method bias did not pose a significant risk (Table 3).

4.3 Evaluation of Measurement Model

The research model can be evaluated in two ways: The evaluation process comprises two distinct stages: measurement model evaluation and structural model evaluation. To evaluate the measurement model, it is necessary to meet certain criteria to establish construct validity and reliability. Firstly, construct reliability and validity can be achieved by carrying out composite reliability and/or Cronbach's alpha coefficient tests. Composite reliability is a more suitable measure for PLS as it does not assume equal indicator loadings. (F. Hair Jr et al., 2014). The second criterion is Convergent Validity occurs when a positive correlation of a measure happens with another measurement of the same variable. The average variance extracted (AVE) was used to examine convergent validity. To establish convergent validity, AVE should be higher than .50 (Hair Jr et al., 2014a)

Table 3 Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Intention to Use	0,932	0,932	0,957	0,881
Perceived Ease of Use	0,944	0,948	0,960	0,857
Perceived Risk	0,867	0,867	0,919	0,790
Perceived Usefulness	0,898	0,902	0,925	0,712

As can be seen in Table 3, the Cronbach's alpha value in all five variables namely, PR, PU, PEU, BI, and ASU exceeded 0.70, indicating that the model has internal consistency.

The Composite reliability (CR), is above 0.7 for all five constructs, meaning that the measurement model provided excellent reliability.

The third criterion is the outer loading of the construct should exceed 0.7. for validity to be deemed satisfactory (Hair et al., 2011). A loading lower than 0.4 indicates that an item should be considered for removal, and items with a loading of 0.4–0.7 should be considered for removal if their removal increases the CRs and AVEs above the threshold (Chin et al., 2020).

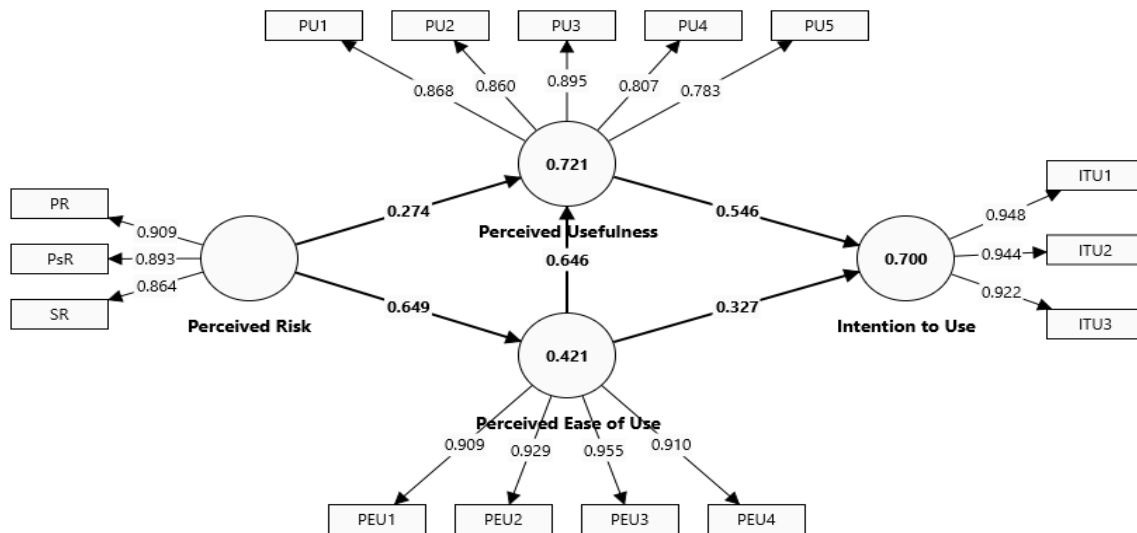


Figure 2 Research Model

As can be seen in Figure 3, all the outer loading value is greater than 0.7 indicating construct validity is established. The fourth criterion to evaluate the measurement model is discriminant validity to show that a construct is established empirically to be distinct from other constructs (Hair Jr et al., 2014b). The method to establish discriminant validity was examining the Fornell-Larcker criterion (Table 4).

Table 4 Fornell-Larcker criterion

	Intention to Use	Perceived Ease of Use	Perceived Risk	Perceived Usefulness
Intention to Use	0,938			
Perceived Ease of Use	0,777	0,926		
Perceived Risk	0,702	0,705	0,826	
Perceived Usefulness	0,816	0,823	0,718	0,844

4.4 Structural Model

Evaluating the structural model in Table 5 consists of assessing for path coefficient (β), collinearity issues (VIF), effect sizes (f^2), and coefficient of determination (R^2) (Hair et al., 2014). Path coefficient, which shows the correlation between two variables, ranging from -1.00 to 1.00. A correlation of 0 shows no relationship at all, a correlation of 1.0 indicates a perfect positive correlation and a value of -1 shows a perfect negative correlation. As shown in Table 5, the effect of Perceived risk on perceived usefulness shown by path coefficient (β) (0.274), indicates a medium effect. A large effect was shown on the effect of perceived risk on perceived ease of use (0.649).

Table 5 Path coefficient, VIF, and f²

Relationship	Path coefficient	VIF	f ²
Perceived Risk → Perceived Usefulness	0,274	1,727	0,155
Perceived Risk → Perceived Ease of Use	0,649	1,000	0,727
Perceived Usefulness → Intention to Use	0,546	3,102	0,321
Perceived Ease of Use → Intention to Use	0,327	3,102	0,115
Perceived Ease of Use → Perceived Usefulness	0,646	1,727	0,866

The result in Table 5 indicates no collinearity issues because all of the VIF values are below 5 (Hair Jr et al., 2014b). The next criterion in structural model evaluation is the f² values, which assess a predictor variable’s comparative influence on an independent variable (Hair Jr et al., 2014b), ranging from .02, .15, and .35, correspondingly, indicating small, medium, and large effect sizes (Cohen, 1988; Cohen, 2016). The results show the current study that the model has a medium and large effect size (0.866) and (0.727). The coefficient of determination - R Squared (R²) measures the dependent variable’s variance about the independent variable’s change. The R² value ranges from 0 to 1 (Table 6), with a higher score showing higher precision levels. R² values of 0.25, 0.5, or 0.75 for an endogenous variable can be portrayed as weak, moderate, or substantial (Hair et al., 2011).

Table 6. R²

Construct	R-square
Intention to Use	0,700
Perceived Ease of Use	0,421
Perceived Usefulness	0,721

As can be seen in Table 6 the R² of Perceive Usefulness, has a large precision’s level (0.721), and for Intention to use apps is large (0.700).

4.5 Hypothesis Testing

The last step in data analysis used SmartPLS3 to test the hypothesized relationships by assessing the path coefficients’ significance using bootstrapping computations. The bootstrapping process obtains the importance of path coefficients by calculating empirical t values considered significant at a particular probability of error if larger than the critical value (t distribution values). This study employed critical values for one-tailed tests: 1.65 (significance level= 5%), The hypothesis was tested using the bootstrapping test at 5000 bootstrap samples (Hair et al., 2014). Using a one-tail examination, the result shows a t-value is >1.65, and a p-value < of 0.05 (at α = 5%), the result is reported in Table 7.

Table 7 Hypothesis testing

	Path coefficient	T statistics	P values	Remarks
Perceived Risk → Perceived Usefulness	0,274	2,793	0,003	H1 supported
Perceived Risk → Perceived Ease of Use	0,649	9,406	0,000	H2 supported
Perceived Usefulness → Intention to Use	0,546	5,440	0,000	H3 supported
Perceived Ease of Use → Intention to Use	0,327	3,249	0,001	H4 supported
Perceived Ease of Use → Perceived Usefulness	0,646	5,409	0,000	H5 supported

As can be seen in Table 7, the effect of perceived risk on the perceived usefulness represented by the path coefficient is small (0.274), with a t-value (2.793) which is >1.65 , and a p-value (0.003) smaller than 0.05 (at $\alpha = 5\%$). According to Hair Jr et al. (2016), the effect is significant; therefore, H1 is supported, which means that perceived risk positively affects the perceived usefulness, and the effect is substantial. This finding supports the findings of (Liu et al., 2019), who explain that perceived risk is essential in creating stability in online retail. According to the survey, online merchants rely not only on the operational qualities of the website, perceived benefits, and convenience of use but also on the higher risk customers have with websites and online commodities.

The effect of perceived risk on perceived ease of use shows that the relationship is strong with path coefficient (0.649), t-value, and p-value (9.406) and (0.000), indicating that there is a positive and significant effect, therefore, H2 is supported. This observation backs up previous studies of (Chen & Aklikokou, 2020)). Which stated that risk perception is highly dependent on the characteristics and psychological condition of the person. The lower the risk that is felt by consumers, the greater consumer confidence in using information technology systems, influencing the perception of the usefulness of the information system.

The effect of perceived usefulness on intention to use, shown by the path coefficient (0.546) means that the effect is strong with the t-value, and the p-value showed (5.440) and (0.000). Thus, the result indicates that H3 is supported: there is a positive and significant effect of PU on Intention to Use. The findings of the study are confirmed by a previous study conducted by (Romero-Rodríguez et al., 2023), which found that Perceived Usefulness had a strong positive effect on Intention to Use.

The effect of perceived ease of use on intention to use shows that the relationship is strong with path coefficient (0.327) the t-value, and the p-value (3.249) and (0.001), indicating that there is enough evidence to support H4. The findings confirm (Saoula et al., 2023) study, which indicate that perceived ease of use has a favorable and substantial effect on intention to use. Numerous prior studies (An et al., 2023; Park & Kim, 2023; Sudirjo et al., 2023; Wilson et al., 2021) demonstrate that the perceived usefulness variable has a positive effect on and a considerable interest in online transactions.

Lastly, the effect of perceived ease of use on perceived usefulness has a strong effect (0.646) and a significant effect with t value (5.409) and p-value (0.000). The finding is consistent with the findings of (Liu & Ma, 2024), who found that users will benefit more if the information system is simple to use. According to the findings of (Arpaci et al., 2023; Liu & Ma, 2024) study, perceived ease of use has a positive and substantial effect on perceived usefulness.

5 Conclusion and Recommendation

The study's purpose is to examine the relationship between perceived risk (PR) and perceived usefulness (PU). The findings indicate that PR has a beneficial influence on PU. The indicator that best depicts the variable is that respondents believe in Furniz products as recommended by friends and family online, even though the products cannot be physically seen. The second purpose of this study is to determine the effect of perceived risk (PR) on perceived ease of use (PEU). The test result established that PR had a positive and significant effect on PEU. The third research objective was to examine the relationship between the perceived Usefulness (PU) on Furniz application Intention to Use application. The findings indicate that PU has a significant effect on the intention to use the apps. Similarly, on the fourth objective, while investigating the influence of perceived

ease of use (PEU) on intention to use. The result indicated that PEU has a moderate effect on the intention to use the apps. The fifth objective is to evaluate the relationship between perceived ease of use (PEU) and perceived usefulness (PU) of Furniz mobile applications. The findings indicate that PEU has a significant impact on the PU of Furniz mobile applications.

Several studies have been conducted to assess the intention to use technology, utilizing the Technology Acceptance Model (TAM) as a framework. The study makes an important contribution by looking at perceived risk (PR) as a predictor of perceived usefulness (PU) and perceived ease of use (PEU). The concept of risk is not completely understood. The current study adds to the body of knowledge on this topic by empirically analyzing the role of this external variable in the model. The inclusion of Perceived Risk's effect on PU and PEU into the existing body of knowledge reveals that perceived Risk has a medium effect on PU and a large effect on PEU for clients utilizing mobile apps.

Perceived risk has been found to have a considerable impact on PEU and PU. This means that with higher levels of perceived risk, PEU and PU will rise. This effort has set the stage for all managers to begin working on risk management. All marketing communications and promotional actions should be aimed at improving risk perception. As a result, to improve actual mobile application usage, the management should pursue ways to increase promoting the use of mobile applications among customers.

6 Implications and limitations of the study

There are several restrictions on the study. The data set is the subject of the first restriction. The responder who resides in Jakarta and Bandung provided the sample. As a result, the study's findings are limited to the Jakarta and Bandung regions. The majority of responders are men, in the range age of 21 – 30 years old. Additional older generations may be included in future research. Because these age groups have a history of exhibiting distinct purchasing habits and being non-tech-savvy when it comes to utilizing e-wallets and secure payment methods.

7 References

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Chapter 10

Business Strategy Formulation: A Case in PT Waspada Karsa

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ABSTRACT

The volume of production and sales of heavy equipment indicates the intense competition in the heavy equipment rental industry. The level of investment made by management is not aligned with the company's ability to compete in the heavy equipment rental industry, which has resulted in a significant decrease in company revenue of up to 35% over the past three years. The objectives of this research are as follows: a) analyze the current strategy of the company, b) formulate a new business strategy based on external and internal analysis and competitive advantage. This research used descriptive qualitative methods, using a case study PT Waspada Karsa. The research was conducted from July to October. Data was collected through an in-depth analysis in a real context to answer the research questions. interviews and analyzing financial statements. The types and sources of data used in this study are primary and secondary data. The alternative business strategy proposed is differentiation, product development, and diversification strategy to be able to compete in heavy equipment rental industry.

Keywords: External Analysis, Internal Analysis, Core Competency, Competitive Advantage, Heavy equipment rental company

1 Introduction

The Indonesian government, in its national development goals outlined in the 2020 – 2024 RPJMN, has set targets for connectivity infrastructure development, including the construction of 2,500 km of toll roads, 3,000 km of new roads, 38 km of bridges, and 31 km of flyovers/underpasses. In this development process, the government, represented by the Ministry of PUPR, appoints state-owned enterprises (BUMN) and private companies to undertake government projects through tenders or direct appointments. Companies that have contracts with the government then appoint smaller companies to participate in the project, either as subcontractors or through rentals.

Rental or leasing is an agreement between one person and another to use someone else's goods or property for a certain period of time by paying a certain amount of money during that period. Heavy equipment rental is one of the common types of businesses conducted in the construction and mining industries. Heavy equipment rental is one of the methods used by construction companies to save capital and manage risks by eliminating the costs and complexities typically faced in maintaining and repairing heavy equipment, as these burdens are now borne by the company renting out the equipment. In this rental business, the company provides heavy equipment along with operators who are contracted for a certain period according to the agreed contract. The lessee will prepare fuel, mobilization costs, operator meal allowances, operator accommodations, and the work area where the equipment will perform activities during the contract period.

The exact number of heavy equipment rental companies in Indonesia is unknown because the permits are spread across several ministries and there is no requirement for companies to be members of an association. The heavy equipment rental industry is influenced by the heavy equipment industry itself. 40 companies are operating in the heavy equipment industry, including spare parts, reconditioning, and repair of heavy equipment. Out of this number, only four companies manufacture heavy equipment, namely PT Komatsu Indonesia, PT Caterpillar Indonesia, PT Hitachi Construction Machinery Indonesia, and PT Sumitomo SHI Construction Machinery Indonesia. Based on data from the Indonesian Association of Heavy Equipment Sole Agents (PAABI), the realization of heavy equipment sales in 2023 reached 18,123 units. The high number creates intense competition in the heavy equipment industry sector.

PT Waspada Karsa is a company whose main business is heavy equipment rental services operating in the toll road construction industry. The company currently has a total of 43 heavy equipment assets of various types and employs around 60 people. Obtaining profits from heavy equipment rental services is the main goal of this company. Customer satisfaction orientation is the main target of top management, so the operational team is always encouraged to provide maximum service to customers. To achieve that target, the company's business strategy is to invest in two major heavy equipment brands, namely Komatsu and Caterpillar. The reputation and quality of these two brands become the company's strategy to compete with other rental companies. The completeness of heavy equipment administrative requirements such as the Operation Worthiness Permit (SILO) and the Operation Permit (SIO) is also possessed by the company, along with capital support from shareholders to achieve the best unit maintenance and repair quality. With an absorption of heavy equipment of 26% in the construction sector or 4,712 units, PT Waspada Karsa's market share in this sector is below 1%.

PT Waspada Karsa, in the heavy equipment rental business, focuses on land clearing work for construction projects by participating in every tender held by companies with toll road concessions. Currently, 80% of the company's assets are working with PT Waskita Karya, 10% with PTPP, and 10% with PT Astra Infra. The significant investment and support from shareholders to enable the company to compete in the heavy equipment industry are not aligned

with the company's ability to generate revenue and attract customers. The company is struggling to compete with other companies in securing road construction projects and is also experiencing a decrease in working hours because the majority of its assets are currently with PT Waskita Karya, which is facing financial problems. As a result of the decrease in working hours, the company faces an additional burden because it is obligated to pay routine leasing fees every month and continue to maintain the heavy equipment units to ensure they are always in operational condition and meet the necessary administrative requirements. The company's profit and loss statement for 2023 shows a decline in the company's profit from 12 billion rupiah in 2021 to 9 billion rupiah in 2022, and in 2023, it continues to trend downward to 8 billion rupiah.

2 Theoretical Framework

The large production and sales of heavy equipment indicate the intense competition in the heavy equipment rental industry. The significant investments made by management are not in line with the company's ability to compete in the heavy equipment rental industry. The lack of competitive advantage held by the company has led to a significant decline in the company's revenue by 35% over the past three years (Noviyana & Sitorus, 2023). According to Porter (1981), competitive advantage is a position that allows a company to perform better than its competitors in delivering value to customers. Porter (2011) also stated that the two main factors determining a company's performance are the company's internal competitive advantage and the external structure of the industry in which the company operates.

Whereas according to Barney et al. (2001), the success of a company is greatly influenced by its internal resources and capabilities. According to Hitt et al. (2020), companies can formulate strategies through the strategic management process, which involves strategies tailored to the internal and external conditions of the company to achieve sustainable competitive advantage. Referring to the research conducted by Farida and Setiawan (2022) competitive advantage strategies can be used by any company as one of the means to achieve competitive superiority over their competitors. Porter's generic strategies are widely accepted for any organization to follow to achieve success and sustainability (Akan et al., 2006; Nguyen & Adomako, 2021). Farida and Setiawan (2022) state in their research that competitive advantage has a positive relationship with financial performance. Based on this, the research will reformulate a new strategy by analyzing the company's current strategy and the internal and external environment using the Value Chain and VRIN analysis tools. The PESTEL and Porter's Five Forces, Key Success Factor (KSF), and Strategic Group analysis tools will be used to determine the company's position in the heavy equipment rental industry, as well as the TOWS Matrix, IE Matrix, QSPM, and Porter Generic Strategy to provide recommendations for PT Waspada Karsa's business strategy for the 2025 – 2027 period to achieve a competitive advantage in the heavy equipment rental industry.

3 Method

In this research, the researcher adopts the philosophy of pragmatism, which means the research begins with a problem and aims to provide a solution that can be applied in the future. The researchers' values encourage reflective inquiry. This reflective process begins with doubt and the belief that something is wrong or inappropriate (Saunders, 2009). In this research, the researcher aims to propose a business strategy so that PT Waspada Karsa has a competitive advantage. This research uses a deductive approach because the researcher starts with existing theories and models and then tests them with data obtained from PT Waspada Karsa. This research uses a mono-method qualitative approach, where data is collected through interviews and the analysis of financial reports.

The research strategy used is a case study, as it focuses on an in-depth analysis of a single company, PT Waspada Karsa, in a real-world context. In this research, the types and

sources of data used include primary data and secondary data. The research period is determined using the cross-sectional method, where data is collected at a specific point in time and is not repeated. Data processing to conduct PESTEL and Porter’s Five Forces analysis, Value Chain, V.R.I.N, External Factor Evaluation (EFE), Internal Factor Evaluation (IFE), Key Success Factor (KSF), Strategic Group, TOWS Matrix, Internal-External Matrix, and QSPM. Focus group discussions were used with weighting and rating assessments.

4 Result and Discussion

4.1 Internal Factor Evaluation Matrix (IFE)

From the discussion results of Porter’s Value Chain and V.R.I.N analysis, the IFE Matrix was obtained to identify the strengths and weaknesses of the company.

Table.1 IFE Matrix

Internal Factor Evaluation		Weight	Rating	Weighted Score
Strength				
1	90% equipment availability	0,09	4	0,36
2	Preventive maintenance	0,07	4	0,28
3	100% of operators hold SIO	0,06	4	0,24
4	100% of assets meet SILO	0,06	4	0,24
5	80% of equipment produced in 2022	0,05	3	0,15
6	4 leasing partners	0,05	4	0,2
7	10 genuine / OEM suppliers	0,04	4	0,16
8	100 on-time deliveries	0,03	3	0,09
9	Use of supply chain tech	0,03	3	0,09
10	Latest GPS tech for real-time tracking	0,02	3	0,06
Total		0,5		1,87
Weakness				
1	Only 2 equipment suppliers	0,08	1	0,08
2	Dependence on 2 customers	0,08	1	0,08
3	Limited-service coverage	0,07	1	0,07
4	80% focus on 20T excavators	0,07	1	0,07
5	80% asset in West Java	0,04	1	0,04
6	High minimum rental duration	0,04	2	0,08
7	Uneven payment terms	0,04	1	0,04
8	No equipment with special specs	0,03	2	0,06
9	No additional rental services	0,03	2	0,06
10	Rental sales at 70% YTD	0,02	2	0,04
Total		0,5		0,62
Total Weighted Score		1		2,49

4.2 External Factor Evaluation Matrix (EFE)

From the discussion results of the PESTEL analysis and Porter’s Five Forces, the EFE Matrix was obtained to identify the opportunities and threats faced by the company.

Table 2 EFE Matrix - Opportunity

External Factor Evaluation		Weight	Rating	Weighted Score
Opportunity				
1	Stable interest rate at 8,9%	0,12	4	0,48
2	Low inflation at 2,75%	0,08	4	0,32
3	Urbanization increases to 68%	0,08	2	0,16
4	New fabricators from China	0,06	1	0,06
5	Safety regulations	0,05	4	0,2
6	Heavy equipment certification	0,04	4	0,16
7	Capital intensive sector	0,02	3	0,06
8	Production year regulation	0,02	3	0,06
9	Stable coal price at \$140	0,02	1	0,02
10	Reclamation regulations	0,01	1	0,01
Total		0,5		1,53

Table 2 EFE Matrix - Threat

External Factor Evaluation		Weight	Rating	Weighted Score
Threat				
1	VAT increase to 12%	0,1	3	0,3
2	Additional 2% tax on heavy equipment	0,08	4	0,32
3	Budget focus shift in the 2025	0,06	3	0,18
4	Decline Corruption Perception Index	0,05	3	0,15
5	Hazardous waste (B3) management regulations	0,05	3	0,15
6	Toll road concession monopolies	0,05	3	0,15
7	Development of alternative financing	0,04	2	0,08
8	Competition in the heavy equipment industry	0,03	2	0,06
9	Price wars for short-term profits	0,02	2	0,04
10	Investment in equipment with new technology	0,02	1	0,02
Total		0,5		1,45
Total Weighted Score		1	-	2,98

4.3 Internal and Eksternal Matrix (IE)

From the external factor analysis, PT Waspada Karsa obtained a score of 2.98, and from the internal factor analysis, PT Waspada Karsa obtained a score of 2.49. Below is the matrix that illustrates the position of PT Waspada Karsa based on external and internal factor analysis.

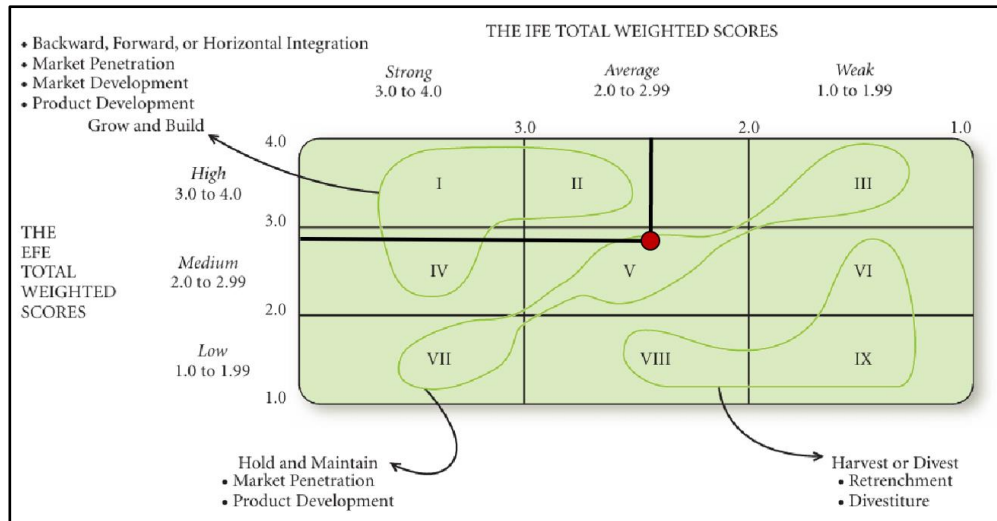


Figure 1. Internal and External Matrix

Based on the results of the Internal and External Matrix (IE Matrix), PT Waspada Karsa is in the Hold and Maintain position. According to David (2017), companies in this position can implement Market Penetration or Product Development strategies.

4.4 TOWS Matrix

Based on the results of internal and external analysis, the strengths and weaknesses of PT Waspada Karsa were identified, and by understanding the opportunities and threats, strategies that can be implemented were obtained using the TOWS matrix analysis.

Table 4.3 Tows Matrix

TOWS	OPPORTUNITY	THREAT
STRENGTH	S-O Strategy: <ol style="list-style-type: none"> Invest in heavy equipment with specific types tailored to customer needs. Enter projects with high competency and safety standards. Maintain service with high standards and quality. 	S-T Strategy : <ol style="list-style-type: none"> Invest in heavy equipment that complies with environmentally friendly regulations. Improve heavy equipment maintenance standards by implementing hazardous waste (B3) management practices.
WEAKNESS	W-O Strategy : <ol style="list-style-type: none"> Study the quality of new suppliers to offer more competitive rental prices. Expand the target customer base with high-quality heavy equipment standards. Provide heavy equipment with high quality. 	W-T Strategy : <ol style="list-style-type: none"> Conduct an evaluation to expand service types according to customer needs. Evaluate heavy equipment suppliers who can offer the best prices/packages for equipment purchases.

TOWS Matrix to develop specific strategy options by directly linking external opportunities and threats with internal strengths and weaknesses. Based on the results of the TOWS analysis, alternative strategies that can be implemented are: 1) S-O Strategy: The company enters projects that require high standards of workforce competence and occupational safety. The company maintains heavy equipment rental services with high standards and quality. 2) S-T Strategy: Improving the maintenance standards of heavy equipment by implementing B3 waste management aspects 3) W-O Strategy: Studying the quality of the latest suppliers to offer more competitive rental prices. 4) W-T Strategy: Conduct an evaluation of heavy equipment suppliers who can provide the best prices/packages for the purchase of heavy equipment.

4.5 QSPM Matrix

Based on the TOWS analysis above, two strategies included in the market penetration strategy are seeking projects that prioritize high standards of competence and safety supported by high-quality heavy equipment. Included in the product development strategy is evaluating heavy equipment suppliers with different brands to provide more competitive rental prices without compromising quality. Next, a QSPM analysis will be conducted to obtain the recommended priority strategies for the company.

Table 4. QSPM Matrix

Strategic Alternatives			Looking for a high standards Project		Expanding supplier Selection	
Key Factors			AS	TAS	AS	TAS
Strength	Weight		AS	TAS	AS	TAS
1	90% equipment availability	0,07	4	0,28	4	0,28
2	Preventive maintenance	0,05	3	0,15	3	0,15
3	100% of operators hold SIO	0,10	4	0,4	4	0,4
4	100% assets meet SILO	0,15	4	0,6	4	0,6
5	80% of equipment produced in 2022	0,05	3	0,15	3	0,15
6	4 leasing partners	0,05	3	0,15	3	0,15
7	10 genuine / OEM suppliers	0,03	3	0,09	3	0,09
8	Use of supply chain tech	0,02	2	0,04	2	0,04
9	Latest GPS tech for real-time tracking	0,02	2	0,04	2	0,04
Total		0,5		1,9		1,9
Weaknesses	Weight		AS	TAS	AS	TAS
1	Only 2 equipment suppliers	0,15	2	0,3	4	0,6
2	Dependence on 2 customers	0,10	4	0,4	4	0,4
3	80% focus on 20T excavators	0,05	2	0,1	3	0,15
4	80% asset in West Java	0,05	3	0,15	3	0,15
5	High minimum rental duration	0,02	0	0	0	0
6	Uneven payment terms	0,04	2	0,08	2	0,08
7	No equipment with special specs	0,03	0	0	0	0
8	No additional rental services	0,02	0	0	0	0
Total		0,5		1,03		1,38
Opportunity	Weight		AS	TAS	AS	TAS
1	Stable interest rate at 8,9%	0,10	4	0,4	4	0,4
2	Low inflation at 2,75%	0,04	4	0,16	4	0,16
3	Urbanization increases to 68%	0,05	3	0,15	3	0,15
4	New fabricators from China	0,10	0	0	3	0,3
5	Safety regulations	0,08	3	0,24	3	0,24

6	Heavy equipment certification	0,05	0	0	0	0
7	Capital intensive sector	0,05	1	0,05	2	0,1
8	Production year regulation	0,03	0	0	0	0
Total		0,5		1		1,35
Threats		Weight	AS	TAS	AS	TAS
1	VAT increase to 12%	0,12	3	0,36	3	0,36
2	Additional 2% tax on heavy equipment	0,08	3	0,24	3	0,24
3	Budget focus shift in the 2	0,15	3	0,45	4	0,6
4	Decline Corruption Perception Index	0,03	0	0	0	0
5	Hazardous waste (B3) management regulations	0,04	3	0,12	1	0,04
6	Development of alternative heavy equipment financing	0,08	1	0,08	1	0,08
		0,5		1,25		1,32
TOTAL				5,18		5,95

Based on Table 4, the highest total attractiveness score, which is the main priority in strategy selection, is to expand heavy equipment suppliers' selection with different brands to provide more competitive rental prices without compromising quality, with a TAS value of 5.95. Next, the strategy with the second highest total attractiveness score is to seek projects that prioritize high standards of competence and safety supported by high-quality heavy equipment, with a TAS value of 5.18.

5 Conclusion and Recommendation

Based on the internal and external analyses, PT Waspada Karsa operates in a competitive and capital-intensive heavy equipment rental industry with declining profitability. Key strengths include high equipment availability, compliance with safety and certification standards, and quality suppliers. However, significant weaknesses, such as over-reliance on a few customers and limited-service coverage, hinder competitive positioning. External opportunities, like stable macroeconomic factors and increasing urbanization, contrast with threats such as rising taxes and intense industry competition.

From the TOWS analysis, PT Waspada Karsa should focus on the following strategies: 1) Market Penetration: Prioritize projects requiring high safety and competency standards supported by superior equipment. 2) Product Development: Evaluate new equipment suppliers to secure competitive pricing without sacrificing quality. From the **QSPM Matrix** results, two main strategic alternatives were analyzed, with the following outcomes: 1) Evaluate heavy equipment suppliers with different brands to secure more competitive rental prices without compromising quality: Total Attractiveness Score (TAS): 5.95. 2) Seek projects that prioritize high competency and safety standards supported by high-quality heavy equipment: Total Attractiveness Score (TAS): 5.18.

Based on the QSPM results, the recommended strategy is to **evaluate heavy equipment suppliers with different brands to secure more competitive rental prices without compromising quality**. With this strategy, the advantages that PT Waspada Karsa can gain include: a) **Cost Efficiency**: Evaluating suppliers can directly reduce operational costs by optimizing the procurement structure for equipment and spare parts. This aligns with the company's need to improve profit margins in a highly price-sensitive industry. b) **Reduced**

Dependency: This strategy reduces reliance on the current two main suppliers, which is a key weakness for the company, thereby increasing bargaining power in negotiations c) **Market Flexibility:** Offering more competitive rental prices allows the company to attract more customers and tap into price-sensitive market segments without sacrificing service quality d) **Long-term Sustainability:** Diversifying suppliers also mitigate supply risks, such as price increases or availability issues with the current suppliers.

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Chapter 11

Identifying Gen Z Customer Loyalty in Buying Coffee in Jakarta

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ABSTRACT

The research aims to identify the loyalty of Gen Z consumers when choosing coffee amidst the numerous coffee shop options available in Jakarta. Gen Z is characterized by impulsive consumption behavior and a lack of loyalty; they tend to switch from one brand to another easily rather than consistently buying from the same brand. The constant flow of information at their fingertips contributes to Gen Z's dynamism and impatience. Accustomed to quick interactions, Gen Z prioritizes getting what they want quickly, or they will lose interest. According to Dick & Basu's loyalty matrix, Gen Z can be associated with spurious loyalty, where customers exhibit high repeat patronage but low relative attitude. The research design employs phenomenology to understand the essence of Gen Z consumers' experiences regarding their loyalty to coffee shops. Purposive sampling was used to select Gen Z coffee lovers with a certain frequency of purchase. The results show that an effective marketing mix—including product, price, promotion, place, service quality, and social influence—leads to purchases that increase Gen Z's satisfaction through positive consumer experiences, ultimately enhancing their loyalty and encouraging repeat purchases at the same coffee shop.

Keywords: Loyalty, Generation Z, Coffee, Coffee Shop, Marketing Mix, Customer Satisfaction

INTRODUCTION

The modern coffee market in Indonesia has a significant dominance in Southeast Asia, with the market size reaching US\$ 947 million in 2023. This value is equivalent to 27.7% of the total value of the modern coffee market in Southeast Asia, which reached US\$ 3.4 billion in 2023 (Databoks, 2023). However, this market growth is accompanied by intensifying competition through an increase in the number of coffee shops in Indonesia from 1,000 outlets in 2016 to more than 2,950 outlets in 2019 (Toffin, 2020). Toffin's head of marketing estimates that coffee shops will grow 10 percent to 15 percent and it is projected that the coffee industry will continue to grow in the country.

The growing phenomenon of coffee has become part of the lifestyle of Indonesians. This growth is followed by an increase in coffee lovers and coffee shop businesses in Indonesia (Ulumuddin & Sharif, 2020). Seeing the increasingly fierce competition in the coffee shop industry, it is important for companies to maintain customer satisfaction in order to maintain their loyalty. The increasing number of coffee shops and changes in people's lifestyles that are more fond of socializing outside the home also contribute to consumer decisions in choosing these places. Lifestyle, which is part of psychographic segmentation, reflects consumer behavior patterns in interacting with their environment. This can be seen from how often consumers visit coffee shops and the type of coffee shop they choose.

Nowadays, coffee shops are not only a place to have coffee, but also a place to hang out, work, and even hold meetings (Nabila & Riorini, 2023). According to (Bernarto et al., 2020), a coffee shop is a place that provides various types of coffee and other non-alcoholic drinks wrapped in a relaxed atmosphere, comfortable space, equipped with music, distinctive interior design, Wi-Fi facilities, and friendly service. The coffee shop concept is widely accepted as a component of urban social life, a place of gathering, social interaction, and community (Şahin & Artuğer, 2023). According to (Lukito & Xenia, 2017), coffee shops are a third place, separate from home and work, where people spend time relaxing, socializing, and visiting for enjoyment.

The habit of drinking coffee is even more popular among the younger generation. Based on a survey report conducted by (Jakpat, 2023) on Indonesia Consumer on Coffee, 66% of Gen Z admitted to drinking coffee every day and has become part of their lifestyle. As many as 37% of Gen Z drink coffee two to three times a day and choose iced coffee milk as a favorite menu, with 47% dine in at coffee shops and 44% take away from minimarkets. The survey states that Gen Z is the generation that spends the most on coffee consumption compared to other generations. However, they also choose promotions to get economical prices so it is not a problem to switch the brand of coffee consumed.

As a generation that keeps up with the latest trends, Gen Z has a strong preference for contemporary coffee. This is due to the global openness and changing relationship with technology that contribute to defining the behaviors, identities, and value systems that characterize Gen Z and differentiate them from previous generations. Gen Z has grown up in a world where the boundary between the real world and the digital world no longer exists, thus having a profound influence on their education, approach to life, and how they set priorities. Similarly, the constant flow of information at their fingertips has contributed to Gen Z's dynamism and impatience. Accustomed to quick interactions, Gen Z makes it a priority to get what they want very quickly or they will lose interest (Sica, 2021).

In a survey of industry leaders, nearly 40% said that their number one concern regarding Gen Z was a lack of loyalty. They are identified as resilient, caring, open-minded, tech-savvy and responsible individuals (Koulopoulos & Keldsen, 2014). Gen Z has great access to information and is more rational in their decisions than other generations when they were their age (Thangavel et al., 2021). As a result, Gen Z is said to be the most difficult consumer group to target, given their tendency to search and compare extensively before making a final

purchase decision. Therefore, getting their loyalty will be a challenge (Gutfreund, 2016).

Regarding loyalty and Gen Z, research clearly shows that it is a big challenge for companies because they behave differently from previous generations (Ismail et al., 2020). Also referred to as Generation C, referring to the “connected to the internet” generation, C meaning “changing”, the only group that likes to switch between brands easily (Dolot, 2018). In fact, Gen Z has impulsive consumption behavior and lacks loyalty, they tend to easily switch from one brand to another rather than continuing to buy the same brand (Fernandes & Radebe, 2018). They can be attributed to the last tier of the pyramid (Aaker, 1991), the switchers, who are price sensitive and constantly purchase different products or services. This largely derives from their independent nature and perceptions on existing marketing strategies. Enforcing loyalty through a brand or program can be even worse at increasing brand loyalty. Thus, it can be clearly seen that the issue of loyalty for Gen Z is deep (Cagnin & Nicolas, 2022).

Although loyalty is a common aspect, the definition of this term is not always clear or universal. In a business point of view, loyalty is the quality of being loyal to a particular company or brand, loyal refers to customers who will come again to buy the same product or service (Cambridge Dictionary, 2024). However, most research goes further. According to (Rubio & Yagüe, 2019), customers who are loyal to a brand are customers who come back again to buy the brand because they are emotionally attached and committed to the brand. This definition highlights the importance of purchase frequency, which is common to all definitions of the concept (Ishak & Abd Ghani, 2013). It also shows the feelings that customers must have towards a brand in order to be said to be loyal.

Loyalty has many definitions, depending on the customer's behavior towards their loyal purchases. The two main ones are customer loyalty and brand loyalty (Ishak & Abd Ghani, 2013). Customer loyalty refers to a deeply held commitment to repurchase or repurchase a preferred product or service consistently in the future despite situational influences and marketing efforts. This usually results from high customer satisfaction, both in terms of price and quality (Dam & Dam, 2021). More rational prices and benefits globally are key factors for creating customer loyalty. Brand loyalty, on the other hand, defines a consistent pattern of repurchase towards a brand as a result of positive affection towards the brand (Mellens et al., 1996). A more complete definition considers brand loyalty as a biased behavioral response, expressed over time, by some decision-making unit, with respect to one or more alternative brands from a set of such brands, and is a function of psychological decision-making, evaluative processes” (Ishak & Abd Ghani, 2013). This relates to customers' attraction to brands where price is less important and is a more favorable attitude.

While both types of loyalty are beneficial to companies, the nature of the competitive advantage they provide is different. Customer loyalty is easier to build as it relies on more rational aspects (Cagnin & Nicolas, 2022). For example, offering discounts or reward programs can build customer loyalty more quickly (Hofman-Kohlmeyer, 2016). However, there is no strong bond with the company. This then becomes more difficult to maintain as relational switching costs are the most effective for retaining customers without frustrating them (Gee et al., 2008). When customers are no longer satisfied or will find more attractive prices, they will not hesitate to switch (Fedotova et al., 2019). Brand loyalty is not very fragile (Aaker, 1991). It takes time and marketing efforts to create it, but the resulting preference is deeply rooted in the minds of customers (Cagnin & Nicolas, 2022). Because they truly trust, like and connect with the brand, they are not interested in looking at competitors' offerings (Aaker, 1991). As another effect of their relationship with the brand, they are less price sensitive (Knox & Walker, 2001). They are willing to pay high prices, thereby increasing the company's profit margin (Mellens et al., 1996). However, brand loyalty and customer loyalty are not contradictory. The distinction made shows the complexity of loyalty and to clearly define which type is considered in this report. However, the line between customer and brand loyalty is often blurred, especially

in research. The two concepts are actually not so different in practice that they tend to blend into each other (Ishak & Abd Ghani, 2013).

According to (Day, 1976) who was one of the first to consider brand loyalty as a two-dimensional concept, thinks that there is more to brand loyalty than just consistent purchase of the same brand, attitude for example. Brand loyalty emerges as a combination of behavioral and attitudinal factors. According to (TaghiPourian & Bakhsh, 2015), both are necessary to characterize brand loyalty and determine its level, but some researchers go further by detailing the different components of brand loyalty through a three-factor analysis. (Sheth & Park, 1974) believe that the type of brand loyalty depends on variations of three dimensions: evaluative, emotive and behavioral. These three are not always implied to correspond to the level of brand loyalty, but they are three potential determinants. Later, (Worthington et al., 2010) developed a tri-dimensional approach to loyalty based on the types of responses that are at the root of human behavior. Following two-dimensional brand loyalty, they split attitudinal loyalty into a cognitive part and an emotional part while maintaining behavioral loyalty as the third dimension (Worthington et al., 2010). This makes for a more refined approach that can be applied to more situations and provides a better understanding of brand loyalty. The matrix (Dick & Basu, 1994) shows the types of loyalty according to the level of relative attitude and repeated patronage (protection/support) (Figure 1).

		REPEAT PATRONAGE	
		High	Low
RELATIVE ATTITUDE	High	Loyalty	Latent Loyalty
	Low	Spurious Loyalty	No Loyalty

Figure 1. Loyalty Matrix
Source: (Dick & Basu, 1994)

A low relative attitude combined with low repeat patronage is a sign of no loyalty. A customer cannot be considered loyal if he does not buy the brand and is neutral or has a negative opinion of the brand.

In cases where a customer shows high repeat patronage, but low relative attitude, his loyalty is considered spurious. One of the main factors explaining this type of loyalty is inertia (Wu, 2011). A customer who is used to buying a brand may continue to do so out of habit, even if he or she does not feel attached to or completely satisfied with the brand. Special offers, discounts, or lack of awareness of other brands can also be the cause of the purchase (Fedotova et al., 2019). Due to this lack of attitudinal loyalty, false loyalty is fragile. Customers of this category will switch as soon as competitors are more likely to satisfy them (Fedotova et al., 2019).

Latent loyalty is the opposite of false loyalty in the matrix. It occurs when repeat endorsement is low, but attitude is relatively high. A customer may have a preference for a

brand, but not purchase it frequently for reasons that do not depend on the intrinsic performance of the brand such as high price, unavailability, and low income (Fedotova et al., 2019). Some may even value a brand, but not purchase it at all. This type of loyalty is problematic for companies as it does not allow for increased sales (Dick & Basu, 1994), so direct benefits on a financial level are limited.

Finally, loyalty, also referred to as true loyalty, is achieved when both attitudinal and behavioral loyalty are high. This is the type of loyalty that companies seek to benefit from (Fedotova et al., 2019). Truly loyal customers show consistency between their attitudes and behaviors towards the brand. They value the brand and buy it more often than others. So they have a positive influence on company performance both directly and indirectly (TaghiPourian & Bakhsh, 2015). Another advantage is that true loyalty is less of a risk. Customers are attached to the brand so they are less sensitive to competitors' offers (Fedotova et al., 2019).

Through this matrix, (Dick & Basu, 1994) shows the complementarity between attitudinal and behavioral loyalty. The matrix implies that both are essential for building true brand loyalty. The absence or lack of either will result in loyalty that is limited, more vulnerable, and less beneficial to the company.

The gaps in previous research require further attention for this study. No research has specifically explored the loyalty characteristics of Gen Z in Jakarta in the context of coffee shops (Gumilang et al., 2021). While some studies have tried to understand what creates consumer loyalty in the food and beverage industry, there is limited focus on this generation in Jakarta. While being a younger generation, Gen Z has different preferences and values (Dimock, 2019) that might influence how they build loyalty to brands or places. Some claim that the senior generation is more loyal in their attitudes and behaviors, but only prove it in green businesses (Abdelkader & Attallah, 2021). Others found that 76% of Gen Z customers are loyal and even difficult to switch to another brand if they have established a relationship with the brand based on a survey conducted in 2019 by DeVries Global (Yunita, 2020). So there are inconsistencies in studies regarding Gen Z and loyalty. In scientific studies, Gen Z's disloyalty is always affirmed without further research, while they focus directly on how to improve it through digital environments, interactions, or experiences (Fernandes & Radebe, 2018).

In addition, not many studies have explored the role of local culture in shaping consumer loyalty in Jakarta coffee shops. The presence of coffee shops in urban environments coupled with their significance in daily life and activities, proves that zoning on a smaller scale facilitates the development of a strong urban sociocultural character. Coffee shops are found in the most fashionable urban elements of each period (Chadios, 2005) or arguably the most happening places today. The role that technology and social media play in creating and maintaining consumer loyalty in Jakarta's coffee shops has also not been adequately addressed in the literature. Gen Z is known to be an active user of technology, their engagement in social media has a significant impact on consumer behavior in places like coffee shops. Consumer trends including digitally together, everyone is an expert, I want it now, back to basics for status, conscious consumers, finding my JOMO (Joy of Missing Out), I want a plastic free world, we are ageless, I can look after myself, and loner living (Maciejewski & Mokrysz, 2019) influence long-term consumer behaviors such as digital future, entrepreneurship rising, global marketplace, urban world, and health reimaged.

Currently, there are not many studies that specifically explore the role of physical environment and customer experience in Jakarta coffee shops in creating loyalty. Physical environments such as interior design, comfort, and ambiance can be important in creating a pleasant experience and building long-term loyalty. For many people, coffee shops are not just a place to eat and drink, but also a place to relax, work, and network. While many coffee shop chains may seem like a clone of an existing brand, there are important social and community

dynamics happening within coffee shops, which have the potential to play a significant social role in the community as spaces where people can gather, interact, and act as “spaces of community” for Gen Z. (Ferreira et al., 2021).

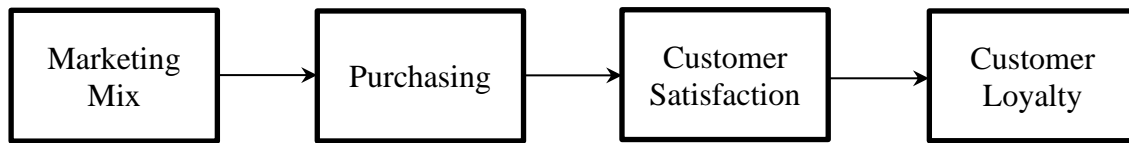


Figure 2. Conjecture Concept

The research question underlying this study is **why** Gen Z consumers remain loyal to buying coffee at Jakarta coffee shops, despite the increasing competition and variety of options available. The answer to this question will not only identify consumer loyalty, but also strategies that businesses can implement to maintain and increase their customer base in a competitive business environment. This study aims to identify Gen Z consumers' loyalty in buying coffee in Jakarta amidst the diverse choices of coffee shops available.

The benefits of this research provide understanding and insight in terms of consumer preferences, needs, expectations, which in the future can provide benefits to coffee shop owners to develop product innovations, marketing strategies that are more targeted, and provide more satisfying customer service and experience. So that in the end it can create young generation consumers who are loyal to coffee shops. Not only that, coffee shop owners can also identify new opportunities to increase consumer retention, maintain and increase the customer base, and build a strong brand image and position in the increasingly competitive coffee business environment. The information gained from this research can provide valuable insights for industry players to anticipate future trends and adapt their strategies to suit the evolving trends and preferences of Gen Z consumers. Thus, research on loyalty among Gen Z consumers in Jakarta coffee shops is not only relevant for short-term success, but also a valuable investment to ensure business continuity and long-term growth.

METHOD

Research Design

The research design uses phenomenology because the researcher wants to understand the essence of the experience from the point of view of Gen Z consumers who experience their loyalty to coffee shops. Some previous journals show that there are significant changes in characteristics between this generation and the previous generation. Collecting data through in-depth interviews with coffee shop consumers and putting aside personal assumptions to understand the results objectively. The interview results will be thematically analyzed to identify the essentials of Gen Z's loyalty behavior to coffee shops and develop a description of the essence of their loyalty experience.

Unit Analysis

a. Research Subjects

The research subjects are Gen Z individuals who buy coffee at Jakarta coffee shops, the research subjects were selected using a purposive sampling technique to ensure variety and depth of data. We selected three Gen Z individuals to get a different understanding of their loyalty behavior to coffee shops.

b. Research Informants

The research informants are Gen Z individuals born in 1997-2012, coffee connoisseurs, and frequency of coffee purchases at least three times a week in Jakarta coffee shops. We chose Gen Z because it is said to be the most difficult consumer group to target, given their tendency to search and compare extensively before making a final purchase decision (Gutfreund, 2016).

c. Research Location

The location of this research site is in Jakarta. The reason why the researcher chose this city is because there are many subjects who fit the criteria as above. In addition, there are also many coffee shops in this city.

Data Collection Technique

Table. 1 Data Collection Technique

Required Data	Method	Data Resouce	Output
Loyalty Indicators	Literature study of previous research	Published journal	Effective indicators to increase Gen Z consumers' loyalty in buying coffee at Jakarta coffee shops
	In-depth interview	Three Gen Z consumers of Jakarta coffee shops	
Brand Perception	In-depth interview	Three Gen Z consumers of Jakarta coffee shops	In-depth understanding of brand perception and how it relates to loyalty
Purchasing Behavior	Analyze respondent purchase transaction data	Data on coffee purchase in one week	Repeat purchase patterns and product preferences

Table. 2 Characteristics of Respondent

No.	Name Code	Gender	Age	Frequency of Coffee Purchase in a Week
1	AA	Female	22 years	3 times
2	MF	Male	27 years	3 times
3	WY	Male	27 years	5 times

Data Analysis Technique

Data analysis is the process of systematically searching and compiling data obtained from in-depth interviews, previous research literature studies, and analyzing informant purchase transaction data. After the data is collected, it will be examined to determine the parts, the relationship between parts, and their relationship to the whole so that a pattern is found, and then interpreted into information. The important role of data analysis in conducting research aims to answer questions on problem formulation and match the gap between theory (das sollen) and practice (das sein). In this study, researchers used a qualitative research design in the form of phenomenology in examining how the formation of Gen Z coffee consumer loyalty. As quoted from Miles & Huberman in (Baba, 2017) The analysis of qualitative analysis is carried out interactively and continues continuously until it is complete, so that the data is saturated. There are three stages of procedure with Flow Analysis Models, which are:

a. Data reduction

The data obtained from the field will be quite large and complex, so it needs to be recorded carefully and in detail. In this process, the data is simplified through a summary where the

researcher selects data that is considered important according to the focus of the research, and then finds themes and patterns. Data reduction will be assisted by computerization by coding certain aspects and afterward arranged systematically, so that the raw data can become conclusions that are easy to understand.

b. Data displays

The next step is the presentation of data which consists of a set of information that has previously been arranged in the form of tables or graphs and explained in the form of descriptions to explain the relationship between each aspect. This is useful for research purposes before being written in a report.

c. Conclusion drawing/verification

Constitutes the final stage in data analysis. Conclusions in this study are in the form of a description or description of the results of new findings in the research. Thus, the conclusion stage is able to answer the problem formulation that has been listed in the research report.

By using this method of analysis, researchers try to process the data that has been collected so that it becomes useful descriptive information about social phenomena related to how coffee consumer loyalty is formed among Gen Z.

Data Validity Checking

In this research, each data is tested through validity strategies and reliability strategies in order to account for the truth and prove its validity.

a. Validity Strategies (Creswell & Creswell, 2023)

Triangulate data sources by exploring the truth of information on various sources of data acquisition. Researchers compare and recheck the degree of trust in information obtained by collecting various perspectives from the results of respondent interviews, with investigator triangulation in the form of checks carried out by using more than one researcher in data collection and analysis, so that the degree of trust in the data can be ensured.

b. Reliability Strategies (Creswell & Creswell, 2023)

1) Document the case study procedure carefully

Record every step in the data collection process, such as developing an interview guide, noting how respondents were selected/sampling frame (sample characteristics /informants/research participants), and analysis methods used.

2) Document as many steps in the procedure as possible

The more and more detailed the steps documented, the better. From data collection to analysis is well documented, such as the collection of interview transcripts and research reference journals.

3) Creating a detailed case study protocol and data base

This facilitates others to replicate the procedure. Case study protocol such as a description of the methodology, research instruments used, and data analysis techniques. Data base such as interview transcripts and other relevant documents.

4) Checking the transcript

Ensuring that the interview transcripts do not contain any errors made during transcription.

- 5) Ensuring that there is no change in the code definition
There is no shift in the meaning of the codes during the coding process. This can be achieved by continuously comparing the data with the codes and by writing memos about the codes and their definitions.
- 6) Coordination and communication among research team members
As a team researcher, we coordinated communication among the coders through regular documented meetings and with various analyses.
- 7) Double-checking the codes developed
Double-check the codes developed by different researchers by comparing the results obtained independently.

FINDINGS AND DISCUSSION

As illustrated in Figure 3, three main themes emerged from respondents' statements and experiences in their loyalty to coffee shops. The three themes are marketing mix, customer satisfaction, and customer loyalty. These themes are then divided into subthemes consisting of product, price, promotion, place, service quality, social influence, consumer experience, and loyalty behavior. These themes identify Gen Z consumers' loyalty in buying coffee at Jakarta coffee shops. Respondents' statements were extracted from relevant interview transcripts and compared with previous research literature studies in the context of Gen Z consumers' loyalty in buying coffee in Jakarta amidst the diverse coffee shop options available. The results showed that an effective marketing mix in the form of product, price, promotion, place, service quality, and social influence leads to purchases that will increase Gen Z's satisfaction in the form of consumer experience to ultimately increase their loyalty through repeated coffee purchasing behavior at the same coffee shop.

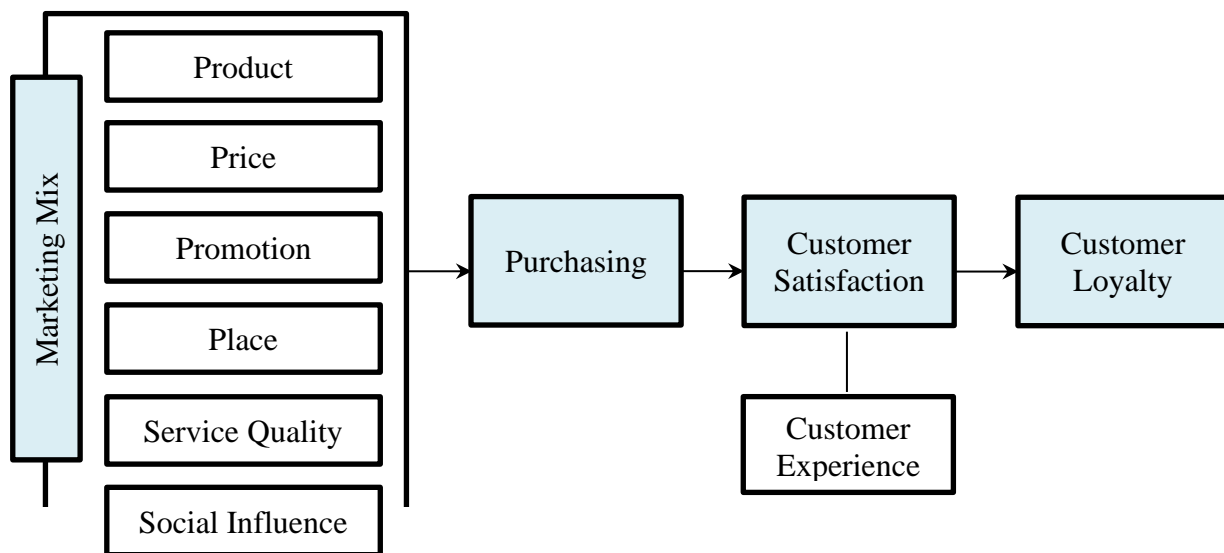


Figure 3. Theme and Subtheme Development Model

Marketing Mix

One of the indicators that drive Gen Z consumers' loyalty in buying coffee in Jakarta is from the products sold. The results of this study reveal that the marketing mix, specifically the product aspect, is the most crucial indicator for Gen Z respondents in choosing coffee in Jakarta coffee shops. Further details show that coffee flavor is the most important element that influences their purchasing decisions.

“In terms of the taste of the coffee, I have no problem buying it again.” (AA/05/20-24)

“... in terms of products, number one is the taste. The taste, if you want to be very specific, matches the taste of the coffee beans from this coffee shop. For me, I feel that Tuku and Tomoro are suitable, so that's why I most often repeat orders. In other shops, I tried it once or twice, but the taste didn't match.” (MF/07/23-24)

“One thing, taste is the most important for me...” (WF/06/15)

Gen Z consumers confirmed that the taste of coffee products is a very important aspect in their decision to remain loyal to a coffee brand. This loyal behavior is in line with (Rubio & Yagüe, 2019), customers who are loyal to a brand being customers who come back to buy the brand because they are emotionally attached and committed to the brand. Respondents revealed different product flavor preferences. Some prefer coffee with a sour taste, while others have no problem with products that have a bitter taste. Coffee shops that provide a variety of coffee beans from different regions and flavors are also a favorite for respondents because they are able to cater to their various taste preferences. This shows how important flavor variety is to attract and retain customers.

In addition, the price indicator also has an influence on Gen Z's loyalty in buying coffee. As long as the price given is a “reasonable price.” This fair price depends on what products are offered. Consumers who have more detailed preferences say that this fair price depends on the type of coffee being made. While other respondents generally conveyed the fair price range in question without conveying specific product preferences.

“That's for sure, reasonable, yes. You could say it's standard. I would say the standard between the range of 20 and 30 thousand rupiah is my standard coffee in Jakarta and Bandung.” (AA/10/46-52)

“This really depends on the product offered. But I have my own guideline. If the coffee shop sells robusta, I don't want to spend more than 25 thousand rupiah. It must be 25 thousand rupiah and below. But if he sells arabica, which is still ordinary, it's okay for 25 thousand to 30 thousand rupiah. But if, for example, you have entered a more specialty coffee shop, which offers coffee from various regions, then 30 thousand rupiah and above is still okay.” (MF/09/27-30)

“Between 15 and 30 thousand rupiah is still okay. It's still very, very reasonable to pay for a cup of coffee.” (WF/16/53-54)

Price is also a major consideration for consumers. Consumers generally have a price range that is considered reasonable for each type of coffee. This is due to the quality of the coffee, the type of coffee beans, and also the reputation of the coffee shop. Nonetheless, most consumers agree that the price range of 20 thousand to 30 thousand rupiah per cup is a reasonable price for coffee in Jakarta.

A different view of the promotion indicator from some respondents is that promos are great and do not require too many requirements. This means that the promo does not make it difficult for buyers, but only by taking a few steps to get the promo. A suitable promo is one that uses storytelling or tells why we should buy the product while there are many similar products and promos that make it easy for them to turn away.

“I'm not the type of person who chases promotions because I feel that the discount will not be that big, but if by chance there is a discount with a note, for example, adding one more order gets this.... The important thing is that the order can still be eaten, or with payment using method A or using bank C, there is a discount, and then I have it, so I

do it, but if, for example, you have to order so much first and then get a discount, it's a shame too..." (AA/34/167-173)

"Number one is price discounts. It can't be denied. For example, like Tomoro, if we buy online or use the app, we consistently get a cheaper price. Sometimes, you can purchase a bundle of two coffees for this price. But if you just buy one coffee, it's really more expensive. If it's a promotion, the most important thing is the price." (MF/12/39-41)

"Promotion, in my opinion, is a good promotion from a coffee shop or this brand in particular. It might have a story in the sense that it is not directly to the point like buy one get one or a discount but has a story about why exactly I or other customers should buy coffee from them with the existing promos. Well, there is a story; I like promotions that have a story the most." (WF/21/72-75)

Therefore, Gen Z consumers have promotional preferences in terms of easy-to-do requirements, types of promotions with larger amounts, promotional delivery regarding the story behind the making of the product, the advantages of the product, and the reasons the product should be purchased by consumers.

From the results of interviews with local coffee shop consumers, a comfortable coffee shop is more of an indicator of place or ambiance, comfort, and dislike of noise or crowds. For them, location is not a big deal if the coffee shop provides satisfying coffee, has a comfortable place, and adequate facilities. Comfort is prioritized if they have a goal to stay in the coffee shop for a long time; the taste of coffee is not a big deal because they are aiming for comfort. The distant location of the coffee shop is also not a problem for traveling two to three times a month, but for daily consumption, still choose a coffee shop that is close to home or work.

"I don't care if they want old school, modern, or Japanese; the important thing is that they are comfortable. That means comfortable when we sit, comfortable chairs to sit on; it doesn't have to be thick; it could be the joints, or it could be the surrounding atmosphere; the people who are there are not that noisy. As comfortable as I am with a place, I want it to provide a good place, but if it's full, crowded, I wouldn't want to go there; I'd rather find another place than go there." (AA/30/124-133)

"Maybe this is one of them, where the noise comes from outside, not from inside. Noise from outside means that there are many vehicles that can't be sealed in the coffee shop. It's useless; if we want to chat, we can't. We can't do WFC (work from cafe) either." (WF/33/113-115)

"... maybe Wi-Fi if I want WFC. If there is no Wi-Fi, I'd rather go home." (WF/37/122)

"I don't really mind the location. In fact, I often look for coffee shops that are a bit strange, a bit far from home, so it doesn't really matter if I go once a week or two to three times a month. It's not a routine, but if it's a routine near my house or office, it's still okay." (MF/11/37-38)

For Gen Z consumers, the purpose of visiting a coffee shop is determined by the atmosphere and facilities offered by the coffee shop. Likewise, the location of the coffee shop is determined based on Gen Z's purchasing objectives, making the taste of coffee or comfort the main thing in choosing the coffee shop.

Service quality is the result of a comparison between consumer expectations and perceptions (Bungatang & Reynel, 2021). Service quality indicators are closely related to customer satisfaction. Even the results of interviews, respondents stated that service is one of their priorities in choosing a coffee shop to their satisfaction. Thus, improving service quality

will have significant results on customer satisfaction, especially among Gen Z.

“From the service, I like the friendly smile of the baristas; the most important thing is to be friendly.” (WF/26/90)

“... usually, it's the service from the barista or the employee. Good coffee shops sometimes the barista or waiter gives us coffee; he also kind of invites us to chat a little bit about what this coffee is, how it is made, so the product knowledge is good. We feel, oh cool, there is more experience offered when drinking coffee here.” (MF/13/34-36)

"Not bothering in the sense that... Not whatsoever... Of course polite in terms of grammar, gesture, and service. If the waiter is rude to serve us. The waiters are, of course, dexterous in the sense that ... I want to sit at the table. There are dirty plates or dirty glasses used by previous customers. He is quick to respond to clean up even though maybe he doesn't notice. When I call and ask for help cleaning it quickly, I don't have to call two or three times. Then friendly, naturally waiters are friendly, smile, greet, say hello..." (AA/40/196-201)

Based on the interview results, service quality plays a significant role in customer satisfaction. Perceived service quality is understood as a form of attitude and an overall evaluation. In this context, Gen Z respondents assess service quality based on the attitude and communication of baristas with customers. Additionally, waitstaff who are agile, responsive to customer needs, and attentive to the coffee shop environment contribute positively to the experience. Respondents reported feeling more satisfied when cashiers and baristas were friendly, approachable, and capable of engaging in discussions to build strong relationships with customers.

Moreover, an active barista with extensive knowledge of the coffee products offered adds significant value to the coffee shop experience, making it more appealing to respondents. Conversely, a barista who struggles to communicate effectively or displays expressions that make customers uncomfortable can decrease consumer satisfaction, particularly among Gen Z customers.

A unique characteristic of Gen Z is their tendency to choose coffee shops based on social influence, validated by their surrounding environment. Social influence is a primary driving factor that shapes consumer behavior, especially in relation to sustainability, as it often affects consumer actions, behaviors, and expectations (White et al., 2019).

“... Just a few coffee shops so far, and even then, it was because my friends invited me...” (AA/29/117-118)

“... besides being a habit, it's also like when friends invite me or when I want to try new coffee. Oh, this place just opened here, let's check it out...” (MF/3/7-10)

“Switching to a new coffee shop is mostly because my friends or my partner invited me. They said it's viral or something, so I wanted to try it out, just FOMO.” (WF/27/91-92)

Based on the interview with a Gen Z coffee enthusiast, researchers discovered that one of the reasons Gen Z frequently switches from one coffee shop to another is the influence of their social circle, such as partners and friends. This tendency is further amplified by viral trends and the current phenomenon of FOMO (Fear of Missing Out). Positive recommendations from close acquaintances or their social environment often serve as a primary factor in their decision to explore new products or services.

Purchase

According to (Erlina & Hermawan, 2021), the marketing mix has a significant influence on revenue growth and company value, as empirically proven in the consumer goods industry, where the marketing mix serves as a tool to develop sales and has become the fundamental concept of modern marketing that significantly attracts consumers. The researchers found that the coffee purchasing behavior of Gen Z consumers is easily influenced by their environment, work demands, price, coffee quality, service, coffee-making process, coffee shop location, product innovation, and the presence of digital platforms.

“...being invited by friends to buy coffee, or the main reason is usually when it’s afternoon, after eating, and then need to get back to work. When I’m already tired and stressed from work, I just buy coffee, Fore.” (WF/08/21-23)

“The two things that usually make me not return are mostly these two. First, it’s the price-to-product ratio. For example, if they sell a product that’s bad, like poor-quality beans, but they sell it for 50 thousand rupiah, you feel cheated or like it’s overly marked up. Sometimes, if you’re in a rush, you might buy it once or twice, like when you’re in a mall and craving coffee, but the next day, you won’t come back. That’s from the price and product side. The next thing is the service. Like I mentioned earlier, you want a smooth process, and not too complicated. Sometimes, the service is bad, like when it takes forever for your order to arrive, or the cashier or barista is rude—well, that’ll make me not come back again.” (MF/14/49-53)

“There are some. The latest one was when I went to Indomaret Point because Indomaret is everywhere in the stations. It’s convenient and also because they just released a new menu. Aside from that, I also go to Tuku because it’s close to my office and accessible by motor or online. I also buy from Calf a few times...” (AA/04/16-19)

The coffee purchasing behavior of Gen Z consumers is becoming increasingly complex, which requires companies to keep up, understand, and create a marketing mix system to win the hearts of Gen Z consumers who are easily swayed and like quickness.

Customer Satisfaction

Consumer satisfaction arises from the experience customers have while transacting at a coffee shop. According to (Pekovic & Rolland, 2020), postmodern consumers do not simply buy products or services, but rather purchase memories after consuming something. The results of the research indicate that consumer satisfaction significantly influences customer loyalty. This aligns with the interviews, where respondents stated that their reason for visiting a coffee shop depends on who they are with and for what purpose. When the goal is to stay at the coffee shop for a long time, they will choose a coffee shop that offers comfort in terms of environment, service, and facilities. However, if the purpose is just to buy coffee, they will opt for a coffee shop that serves coffee with the right taste and satisfaction, without seeking comfort in the shop itself. Several factors that make respondents trust a coffee shop start with the coffee machine used, the choice of coffee beans, the barista's knowledge of coffee, and the overall quality of service.

“... there are a few things that make me think, ‘Oh, I might come here again tomorrow.’ First, it’s about whether they have a good machine or not. By machine, I mean the espresso machine, the coffee grinder, and typically, good coffee shops display beans from various regions. Third, it’s the service, from the barista or staff. A good coffee shop is often where the barista or waiter who serves the coffee also engages with you a

bit, like talking about the coffee—what kind it is, how it's made, so the product knowledge is good. This way, we feel like there's more of an experience being offered when drinking coffee here.” (MF/10/31-36)

“For the coffee itself, it's definitely the taste. If it's a dine-in place, then the way it looks when it's served to us is important, aside from the taste. There's an aesthetic to it, even though I'm not the type of person who likes to take photos. But it's just nice when we get something we ordered, and it looks beautiful. Also, for the coffee shop, it must be comfortable, fitting my criteria for a coffee shop. And if I'm close and familiar with the owner, that also helps...” (AA/60/358-375)

“Taste. Especially now, I drink coffee more often at the office using an online app. So, that's it. The main thing is the taste.” (WF/45/142-143)

The experience felt by consumers will determine their satisfaction with the coffee shop. This experience is based on the character represented by the coffee shop, and this character will eventually attract consumers who share the same preferences.

Consumer Loyalty

Loyalty behavior is demonstrated through repeat purchases by consumers. When consumer satisfaction with a coffee shop is met, it encourages the desire for repeat purchases. Consumer loyalty is considered proactive when a consumer frequently buys from a particular coffee shop brand and is unwilling to accept other brands.

“... once I find one that I like, I'll keep coming back for a long time.” (WF/24/81)

“Besides the habit, there's also the invitation from friends or trying new coffees. Oh, there's a new one opening here, let's try it. That happens too.” (MF/3/7-8)

Customer loyalty refers to the commitment to consistently repurchase or engage in repeat purchases of preferred products or services in the future, despite situational influences and marketing efforts, particularly in the context of coffee shops in Jakarta. This is typically the result of high customer satisfaction, both in terms of price and quality (Dam & Dam, 2021). The loyalty behavior of Gen Z in selecting coffee shops in Jakarta, as shown in this study, depends on personal consumer preferences. These preferences may relate to product, price, promotions, location, service quality, and social influences, all of which contribute to consumer satisfaction.

Conclusion

Customer loyalty can be defined in various ways, but it is generally characterized by the frequency of repeat purchases made at frequently visited coffee shops. The underlying reason why Gen Z consumers remain loyal to specific coffee shops, despite the abundance of choices available in Jakarta, ultimately hinges on their satisfaction preferences. According to this study, six key indicators influence these preferences: product, price, promotion, location, service quality, and social influence. Customer experience plays a crucial role in shaping consumer satisfaction. For example, interactions between customers and baristas, as well as how baristas explain the coffee-making process and select coffee beans, leave a lasting impression on customers. Baristas who possess strong product knowledge, engage in meaningful conversations and build customer rapport create emotional connections. These connections, in turn, encourage repeat purchases at the coffee shop.

For coffee shops offering online and grab-to-go services, the primary strategy to foster customer loyalty lies in focusing on taste and promotions. Interviews with three respondents

revealed that the flavor of the coffee is the main factor driving repeat purchases, despite the proliferation of coffee shops. Specific taste preferences include the levels of bitterness and acidity, along with consideration of the aftertaste. To accommodate diverse preferences, coffee shops are encouraged to offer various coffee options. The location of a coffee shop is often determined by Gen Z consumers' purpose when purchasing coffee. Respondents noted that proximity is not always the key factor in choosing a coffee shop. Instead, they prioritize facilities, cleanliness, and the overall atmosphere of the venue. Additionally, social influences from close networks, such as friends and family, provide additional validation for their choice of coffee shop, thereby enhancing their satisfaction. In conclusion, the overall formation of Gen Z consumer loyalty relies heavily on their satisfaction levels across the aspects mentioned above.

Suggestion

First, this study has its limitations, which open opportunities for further research. Some interviews were conducted via video calls, making it challenging for researchers to capture non-verbal cues compared to in-person interactions. Similarly, there were limitations in observing the participants' environment, which might have influenced their moods and responses. Some participants may have been less able to express themselves freely during video calls, making it harder to establish rapport between the interviewer and respondents. Future research should explore these nuances further by combining direct field observations with face-to-face interviews.

Second, since this consumer research was conducted within a specific context, future studies are encouraged to be carried out in different regions or cultural settings. By comparing how Gen Z consumers in various cultures perceive the motivational attributes of purchasing coffee and understanding their aspirations, we can gain a deeper understanding of this demographic. Further investigation into Gen Z is particularly important, as this population is expected to dominate Indonesia's market in the future.

Finally, as this study aims to uncover insights into the phenomenon of Gen Z consumer loyalty, there are limitations in determining the extent to which the indicators influence Gen Z's consumption behavior. Based on these insights, future research could address this issue by expanding the sample size and employing quantitative survey methods. By adopting survey-based methods, it would be possible to test a model that can be generalized to a broader context.

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Chapter 12

Identification of Entrepreneurial Intention of PPM School of Management Students: A Theory of Planned Behavior Study in the Context of Entrepreneurship Education

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ABSTRACT

The ratio of Indonesian entrepreneurs to the total population remains low compared to Singapore, Malaysia, Thailand, even in other developed countries such as China, Japan, and United States. This is due to Indonesians' prevailing mindset favoring employment over entrepreneurship. The research aims to identify entrepreneurial intention, a crucial issue in contemporary higher education, given entrepreneurship's significant role in driving economic growth and reducing unemployment. Additionally, it aims to provide insights for PPM School of Management and related stakeholders to develop entrepreneurship education programs and ambiance fostering entrepreneurial intention among undergraduate and graduate students, with the hope of increasing the number of graduates capable of contributing to innovation-based economic growth and creating future job opportunities. Conducted among 120 undergraduate and graduate students at PPM School of Management, the research utilizes the Theory of Planned Behavior framework for analysis. The findings indicate that subjective norms among student environment are still low, thus affecting entrepreneurial intentions. The factor of students' subjective views of support or rejection from people who are influential in their decision to engage in entrepreneurship is an important role in influencing students' entrepreneurial intention. This study also provides a foundation for further research in entrepreneurship development within higher education.

Keywords: Theory of Planned Behavior, Entrepreneurial Intention, Entrepreneurship Education, Undergraduate Students, Graduate Students, Economic Growth.

1. INTRODUCTION

Indonesians still have the mindset to become workers rather than entrepreneurs. This can be shown by the decreasing number of Total Early-Stage Entrepreneurial Activity (TEA) from 2013 to 2022. TEA or Total Early-Stage Entrepreneurial Activity Rate as the prevalence rate of individuals in the working-age population who are actively involved in starting a business in the phase before the birth of the company or the phase covering 42 months after birth (Global Entrepreneurship Monitor, 2022).

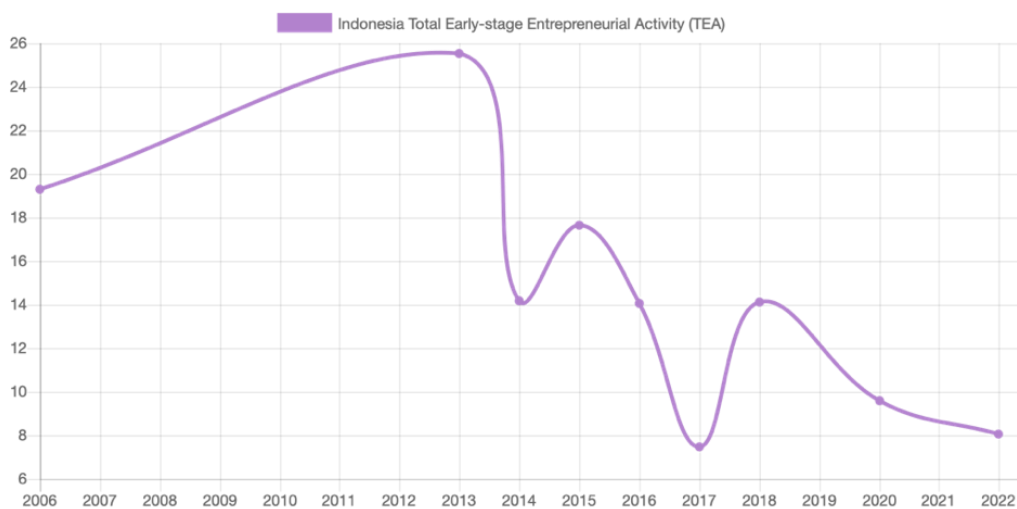


Figure 1. Total Early-Stage Entrepreneur Activity (TEA)
Source: Global Entrepreneurship Monitor (2022)

Based on Figure 1, Indonesia's TEA experienced a decline from 25.52 in 2013 to 14.2 in 2014, with a peak decline to 7.47 in 2017, indicating challenges in building and maintaining an environment that supports entrepreneurship in Indonesia during that period.

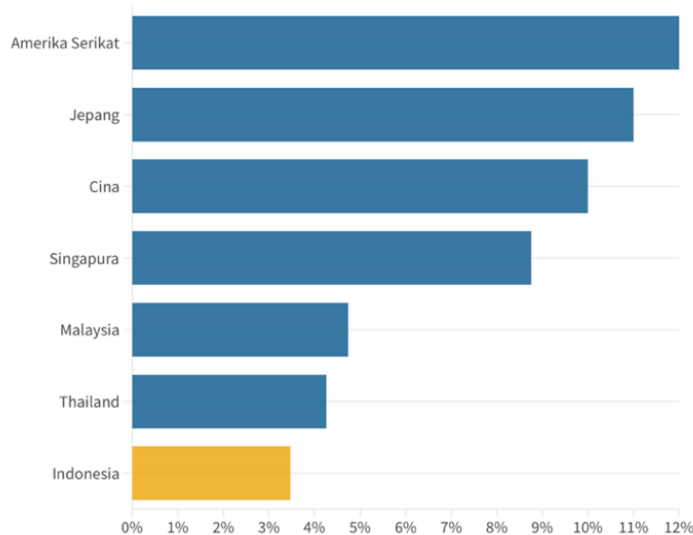


Figure 2: The Ratio of Entrepreneurs to the Total Population
Source: Katadata (2020)

The importance of entrepreneurship in supporting economic development,

competitiveness, job creation, and national prosperity has increased global interest in the development of entrepreneurship and business education, with the hope that this will lead to improvements in social, economic, and organizational development (Bell, 2019). However, in reality, the number of Indonesian entrepreneurs is still low compared to other countries. Based on Figure 2, Indonesia's entrepreneurship ratio is only 3.47% compared to Singapore, which reaches 8.76%, and Malaysia and Thailand, which are already above 4.5%. Even in developed countries, the average ratio has reached 10-12%.

The level of entrepreneurial activity depends on the number of entrepreneurs present. The higher the number of entrepreneurs, the more the entrepreneurial activity will increase. A large body of literature on entrepreneurship acknowledges the contribution of entrepreneurs to national economic growth and development (Lv et al., 2021). The increase in the number of entrepreneurs can help the national economy by creating jobs and reducing unemployment. So how can we increase the number of entrepreneurs? Some experts believe that entrepreneurs can be created by fostering entrepreneurial qualities such as knowledge, attitudes, and entrepreneurial skills through education and encouragement of creativity (Otache, 2019). Public policy planners and government institutions around the world recognize entrepreneurship education as a means to encourage social innovation. Entrepreneurship education provides students with basic knowledge and stimulates entrepreneurial thinking. So, who can be educated to become an entrepreneur more easily? Entrepreneurs are the foundation of a country's economy. To strengthen a country's economy, the focus must be on the younger generation (Hameed & Irfan, 2019). Students have the highest potential for innovation and entrepreneurship because they have the ability to learn independently and foster a spirit of innovation and entrepreneurship more easily. Students who receive entrepreneurship education have higher entrepreneurial intention (EI) (Lv et al., 2021).

With the development of society, more countries are realizing the importance of entrepreneurship education. There is an increasing interest in how education can enhance entrepreneurship by fostering innovation (Lv et al., 2021). There is a real need to develop an opportunity-oriented entrepreneurial mindset among students by providing them with opportunities to discover and nurture entrepreneurial aspirations. Educational institutions should focus on producing graduates who are not only job seekers but also job creators. However, students often do not see entrepreneurship as a viable option, thus sidelining it as a career. Therefore, educational institutions are expected to play an important role in the ecosystem that promotes entrepreneurship and encourages students to consider it as a viable career alternative. Although educational institutions implement various approaches to support entrepreneurship, not all entrepreneurship programs facilitate it as a career choice for their students (Tomy & Pardede, 2020). Understanding EI among students is an important first step in understanding how to promote entrepreneurship in higher education. The intention to start a business among students, related to the image of entrepreneurship as an alternative career, is important for developing the motivation and ability of graduates to engage effectively in entrepreneurial activities (Tomy & Pardede, 2020).

This day, the priority of entrepreneurship support in higher education institutions has been more emphasized on entrepreneurship education. Empirical studies on entrepreneurship focus on researching whether entrepreneurship programs have an influence on the decision to become an entrepreneur or not, a question that has been answered positively by most studies, although some studies have found contrasting results (Hahn et al., 2019). Understanding how education and resources provided in high schools can help students choose entrepreneurship as a career option. Although high schools provide various supportive entrepreneurship programs, it remains a question how to effectively ensure they reach the students (Tomy & Pardede, 2020). In recent decades, the role of higher education institutions has no longer been just as educational institutions, but also as promoters of entrepreneurial behavior and catalysts for the

creation of new businesses (Wegner et al., 2020). Entrepreneurship education has rapidly developed since it was first proposed. Current research states that entrepreneurship education actively promotes EI and enhances entrepreneurial competence. Some experts have suggested that entrepreneurship education is the main driving force for improving the development of entrepreneurial skills and believe that entrepreneurship education can influence and enhance entrepreneurial competence (Lv et al., 2021). Additionally, motivation is also an important factor that should be explored to explain the tendency of high school graduates not to pursue careers in entrepreneurship (Anwar & Abdullah, 2021).

Entrepreneurship education assumes diverse perspectives, but there is a common understanding of the importance of supporting entrepreneurship education and creating a conducive environment for innovation and entrepreneurship (Wegner et al., 2020). Although entrepreneurship education can enhance EI, there are other effective mechanisms that can help students boost their self-confidence. Providing entrepreneurship training at the high school level has also been proven to enhance EI. Researchers found that entrepreneurship projects and entrepreneurship training can improve EI (Tomy & Pardede, 2020). Entrepreneurship driving strategies emphasize entrepreneurship training, executive educational facilities such as business incubators, technoparks, startup accelerators, a business-supportive atmosphere or environment, networking with executives and bankers, as well as social support (Wegner et al., 2020). Campus-based incubators serve as tangible platforms for young entrepreneurs to take their first steps towards establishing new ventures. Incubators and technoparks strengthen the influence of self-confidence on EI (Tomy & Pardede, 2020). This also includes the use of case studies, assignments, and training that enhance creativity, project-based learning, guest speakers, and field visits. Therefore, universities that adopt the "entrepreneurship-driven strategy" strive to provide several of the aforementioned programs with the aim of helping the development of students' EI. This is a more holistic approach to fostering entrepreneurship than merely offering entrepreneurship education (Wegner et al., 2020).

EI plays an important role in subsequent entrepreneurial behavior. Therefore, understanding the formation of EI is very important. According to (Krueger, 2009), "the formation of intention is fundamental to human decision-making." Therefore, entrepreneurship is a deliberate process and a planned behavior. That means starting a new business requires planning as one of the initial steps in this process (Al-Jubari et al., 2018). With the increasing recognition of the role of entrepreneurship as a determining factor in economic development and a major driver of innovation, theories and research have increasingly focused, for many years now, their attention on the development of models to understand and potentially predict entrepreneurial behavior (Vamvaka et al., 2020). The theoretical model that has dominated entrepreneurship research over the past three decades is the intention-based entrepreneurial behavior model, among which Ajzen's Theory of Planned Behavior (1981) has emerged as one of the most prominent and frequently cited models for predicting, explaining, and changing human social behavior (Ajzen, 2012).

The research aims to identify EI, which is a crucial issue in the context of higher education today, considering the important role of entrepreneurship in driving economic growth and reducing unemployment. Additionally, this research also aims to provide insights for PPM School of Management and related stakeholders to develop entrepreneurship education programs and an atmosphere that can enhance EI among undergraduate and postgraduate students, with the hope of increasing the number of graduates capable of contributing to innovation-based economic growth and creating jobs in the future.

2. LITERATURE REVIEW

Theory of Planned Behavior

To better understand EI, this research is based on the Theory of Planned Behavior (TPB) framework. TPB is a psychological theory that focuses on attitudes, subjective norms, and perceived behavioral control, which helps us understand individual behavioral intentions (Ajzen, 1991). (Ajzen, 2005) stated that when the probability of success is high, individuals will pay more attention to their intentions. In the context of entrepreneurship education, this theory helps analyze the process of entrepreneurial behavior. Because the goal of entrepreneurship education does not necessarily mean that all participants will start a business in the short term, we do not use entrepreneurial behavior as a predictor. To foster entrepreneurship among students, it is necessary to ensure that students have high EI. This study uses the TPB premise to use intention as a substitute for behavior, which is a relevant tool for understanding the development of EI through entrepreneurship education. Because the acquisition of knowledge can change behavior, EI can be influenced by learning outcomes. Studying various behaviors that change attitudes will influence EI. Entrepreneurship education can change individuals' abilities (knowledge, skills, and entrepreneurial spirit) towards entrepreneurial intentions. Especially among the younger generation, education influences attitudes towards entrepreneurship (Lv et al., 2021).

The basic argument underlying the EI model is that entrepreneurship is a planned behavior and under the control of an individual's will, intentional and not instinctive, where individuals develop EI over time before taking action to create a new venture and make decisions. Relevant empirical research is reviewed with a special emphasis on the intention-behavior relationship and the factors that can lead to changes in behavioral intentions (Ajzen, 1985). TPB enhances the knowledge of the younger generation to understand the environment in which they start their ventures (Martins et al., 2023). According to (Ajzen, 2006), TPB is human behavior guided by three types of considerations: beliefs about the possible consequences and experiences related to the behavior (behavioral beliefs), beliefs about normative expectations and the behavior of other important people (normative beliefs), and beliefs about the presence of factors that can facilitate or hinder the performance of the behavior (control beliefs). In aggregate, behavioral beliefs result in favorable or unfavorable attitudes toward the behavior (attitude toward behavior); normative beliefs result in perceived social pressure or subjective norms (subjective norm); and control beliefs result in perceived behavioral control or self-efficacy. The effects of attitude toward behavior and subjective norm on intention are moderated by perceived behavioral control. In general, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger the intention of a person to perform the intended behavior. Finally, with sufficient control over the behavior, a person is expected to carry out their intention when the opportunity arises. Therefore, intention is assumed to be a direct precursor to behavior. To the extent that perceived behavioral control is veridical, it can serve as a proxy for actual control and contribute to the prediction of the intended behavior.

Among the existing intention models, Ajzen's TPB has been widely used and researched in the entrepreneurship literature. TPB is based on the premise that three determining factors: (1) attitude towards behavior, (2) subjective norm, and (3) perceived behavioral control, directly provide the basis for the motivation to intend to perform the behavior. Attitude towards behavior refers to the extent to which an individual has a favorable or unfavorable evaluation of the behavior in question. Subjective norm refers to the extent to which a person perceives their behavior as consistent with the thoughts of significant others. Perceived behavioral control is the extent to which the target behavior is within the decision-maker's ability (Esfandiar et al., 2017). Thus, the TPB provides a coherent and generally applicable theoretical framework

that helps understand and predict EI by considering not only personal but also social factors. Personal history, characteristics, and skills may predispose individuals to EI as well as the social context (social and cultural support). However, according to the TPB, only three components of the TPB—attitude towards behavior, subjective norm, and perceived behavioral control—directly predict behavioral intention. All other factors are believed to influence intention through these three components (Moriano et al., 2012).

Attitude Towards Behavior

Attitude toward behavior (ATB) or attitude is a psychological tendency expressed by evaluating entities at a certain level of liking or disliking. The global measure of attitude toward entrepreneurship and entrepreneurial behavior reflects individuals' beliefs about how the desired or undesired outcomes overall. Attitude as a significant factor influences entrepreneurial motivation and mediates the relationship between motivation and EI. Based on a meta-analysis (Collins et al., 2004) of 41 papers, entrepreneurial motivation plays an important role in choosing a person's career path (N. Shah et al., 2018). In fact, the more positive the attitude towards entrepreneurship, the better the perception of the desire to create a business (Esfandiar et al., 2017). ATB in TPB is defined as "the overall evaluation of an individual towards a behavior" (Ajzen, 1991). The relationship between attitude and behavior occurs indirectly through attitude influencing intention and intention influencing behavior. ATB is determined by significant beliefs regarding the desirability of the outcomes of this behavior. In the context of EI, attitude towards behavior refers to the subjective evaluation of entrepreneurial activities and their outcomes, reflecting the extent to which individuals perceive entrepreneurial activities as valuable and beneficial experiences. When people expect positive outcomes from entrepreneurial activities, they are more likely to engage in business creation. A positive attitude towards entrepreneurial activities contributes to the formation of EI. Previous empirical studies have shown that the relationship between attitudes towards entrepreneurship and EI is significantly influential (Nowiński & Haddoud, 2019).

According to (Liñán & Chen, 2009), "attitude towards entrepreneurship is the extent to which individuals have a positive or negative personal evaluation of becoming an entrepreneur." According to TPB, the attitude towards a behavior is determined by the overall set of measurable behavioral beliefs that link the behavior to various outcomes and other attributes. Furthermore, the strength of each belief is weighted by the evaluation of the outcome (Ajzen, 1991). Therefore, two people may have the same strong belief that entrepreneurship has new challenges, but one of them might view these challenges positively while the other finds them unpleasant. The process of attitude formation can explain why people with different beliefs can exhibit identical attitudes, and vice versa (Moriano et al., 2012).

Thus, the statement that there is a positive and significant personal influence on entrepreneurial interest has been proven. Indicators of entrepreneurial interest include self-confidence (strong personality, optimistic), task and result-oriented (profit-oriented, determination, hard work, energetic, full of initiative), willingness to take risks (enjoying challenges), originality (creative, innovative, versatile, resourceful), and always have a long-term vision (Firman, 2021). The more someone adopts a positive attitude towards entrepreneurial behavior and its consequences, the greater the likelihood that they will establish EI to initiate entrepreneurial behavior such as business creation. Therefore, we identify the following hypothesis:

H1. There is a positive relationship between attitude towards behavior and entrepreneurial intention.

Subjective Norm

Subjective norm (SN) considers an individual's personal values and norms as well as

the pressure exerted by the surrounding society or by influential people in the individual's circle in the act of entering a business (Vega-Gómez et al., 2020). SN refers to a person's beliefs about how and what to think towards people who are considered important and is motivated to follow that person's thinking (Utami, 2017). SN reflects the influence of cultural values inherent in society and expectations for starting entrepreneurial activities (Esfandiar et al., 2017).

SN is defined as an individual's perception of social pressure to engage or not engage in entrepreneurial behavior (Ajzen, 1991). SN consists of two components: normative beliefs and the motivation to comply with those beliefs (Ajzen & Fishbein, 1980). The first component, normative beliefs, relates to the perceived probability that individuals or groups who are important references approve or disapprove of certain behaviors; they establish norms that determine how the subject should behave. The second component, motivation to comply, reflects an individual's willingness to adhere to norms and behave according to expectations. Depending on the social environment, these pressures can become obstacles to the development of an entrepreneurial career. The accepted SN influences the perception of the desire of those who decide to start an entrepreneurial business. Because SN varies across different cultures, it is natural that its influence on the tendency to become an entrepreneur also varies according to the cultural context (Esfandiar et al., 2017).

A person's interest in becoming an entrepreneur is formed due to several critical factors, namely personal concerns regarding an individual's personality, sociological concerns related to family relationships, and environmental concerns related to the surrounding environment. The discovery that comes from within oneself will encourage someone to seek triggers in starting a business. How parental education in childhood and the experiences gained can influence the development of entrepreneurial interest (Firman, 2021). Previous research defines that SN supported by the environment and circle of relatives leads to a strong relationship with EI (Martins et al., 2023). Therefore, we identify the following hypothesis:

H2. There is a positive relationship between subjective norm and entrepreneurial intention

Perceived Behavioral Control

Perceived behavioral control (PBC) is considered the most controversial construct in TPB, partly due to inconsistencies in empirical findings regarding its effect on intention and partly due to disagreements related to its conceptualization and operationalization. The concept of PBC when introduced by Ajzen in 1991 as another antecedent factor that can predict intention, was defined as "a person's perception of the ease or difficulty of performing the behavior of interest." Initially, according to (Ajzen, 2002), PBC was understood as a unidimensional construct, similar to the social learning construct according to (Bandura, 1977, 1982) of self-efficacy, which is an individual's perception of their ability to perform the actions required to deal with prospective situations. PBC and self-efficacy are essentially similar constructs, leading several researchers to replace PBC with self-efficacy in their studies. (Vamvaka et al., 2020).

However, according to other researchers, such as (Armitage & Conner, 2001; Kraft et al., 2005), they have noted and provided evidence that the PBC constructed by Ajzen has two constituent elements: self-efficacy and perceived controllability. Self-efficacy includes internal control factors such as knowledge and skills and reflects a person's perception of the ease or difficulty of performing a certain behavior, as well as their confidence in their ability to perform that behavior. On the other hand, perceived controllability includes external control factors, such as resources, opportunities, and potential obstacles, and reflects a person's perception that the execution of the behavior is entirely dependent on themselves. Thus, according to (Ajzen, 2002), the current view is that PBC is separated into self-efficacy and perceived controllability, with self-efficacy measured in terms of perceived difficulty and perceived confidence. (Vamvaka et al., 2020). PBC is defined as the factors that influence an individual's motivation

and intention to become an entrepreneur. PBC refers to an individual's perception of their ability to perform certain behaviors. Individuals typically choose to engage in behaviors they believe they can control and master. PBC refers to the perception of the ability to run a new business. The greater the perceived PBC, the stronger the inclination to run a business (Halizah & Darmawan, 2023). The most crucial thing in building an entrepreneurial spirit is constantly changing one's mindset to achieve success. This mindset is the most critical factor for daring to become an entrepreneur (van Lieshout et al., 2021).

Quoted from Segal (Kurniawan et al., 2019), coined the "push" theory and "pull" theory to explain entrepreneurial motivation. The "push" theory states that individuals are driven to entrepreneurship due to negative external forces such as job dissatisfaction, difficulty in finding employment, unsatisfactory wages, or a demanding work schedule. The "pull" theory states that individuals are attracted to entrepreneurial activities to seek freedom, self-satisfaction, prosperity, and other desired outcomes. Therefore, we identify the following hypothesis:

H3. There is a positive relationship between perceived behavioral control and entrepreneurial intention

Entrepreneurial Intention

Entrepreneurial intention (EI) is defined as a conscious state of mind that precedes action and directs attention to entrepreneurial behaviors such as starting a new business and becoming an entrepreneur (Moriano et al., 2012). Forming the intention to develop an entrepreneurial career is the first step in the process of business creation. The approach oriented towards theory and process represents a direct analysis of entrepreneurial behavior. This provides insight into the decision-making process of an individual to start a new venture before analyzing the practical opportunities available to them (Esfandiar et al., 2017). EI refers to self-confidence regarding the drive to start a new business venture and the plan to achieve something in the future (Halizah & Darmawan, 2023). Intention is the result of attitudes formed through life experiences, personal characteristics, and perceptions from previous experiences (Kurniawan et al., 2019).

According to (Ajzen, 2011), intention represents "an indication of a person's readiness to perform a behavior". EI in the context of entrepreneurship is a state of mind that directs and guides attention, experience, action, goal setting, communication, commitment, organization, and other types of work to engage in entrepreneurial behavior (Vamvaka et al., 2020). EI is not a binary decision of "yes or no," but rather extends along the nomological continuum, from a preference for entrepreneurship over being an employee to a commitment to an entrepreneurial career, and ultimately becoming a new entrepreneur (Thompson, 2009). EI directs and guides individuals' actions towards the development and implementation of new business concepts. EI becomes a key predictor of future entrepreneurial behavior because individuals will stimulate their entrepreneurial potential after truly possessing the ability and social support. High EI is characterized by the tendency to act autonomously, the willingness to innovate and take risks, the tendency to be aggressive towards competitors, and being proactive towards market opportunities (Wegner et al., 2020).

EI is also understood as the human attitude towards the consequences of decisions made and their desire for belief, self-efficacy, and the probability of responding to opportunities (Yi, 2020). This includes ambition, steadfast commitment, and the desire for independence. Researchers also use socio-psychological constructs to study EI and investigate related behaviors and determinants. The literature on EI mostly uses undergraduate university students as research subjects (Anwar & Abdullah, 2021). According to (Ramos et al., 2020), having awareness of EI is important because this goal serves as the foundation for individuals to start entrepreneurship and contribute to the realization of business projects.

Preference for entrepreneurship according to (Ajzen & Fishbein, 1980) as "choice

intention" also referred to as "latent entrepreneurship" is defined as individuals who prefer to engage in entrepreneurship rather than being salaried employees. Based on (Thompson, 2009), the first stage in the entrepreneurial process, latent entrepreneurship is a necessary, but not sufficient for someone to engage in the entrepreneurial paradigm because a latent entrepreneur (invisible, but with the potential to emerge) may have the will and drive to become an entrepreneur, but does not always take concrete actions to start a new venture. The second stage in the entrepreneurial process is the individual's commitment to entrepreneurial ventures and the process of starting a business. Commitment to entrepreneurship reflects the view (Ajzen & Fishbein, 1980) that intention is a choice with commitment and is characterized by a mindset focused on creating a business venture. The final stage of EI formation based on (van der Zwan et al., 2010), called "nascent entrepreneurship" is the transition from commitment to the growth phase, consist of activities related to early business ventures. These activities gather knowledge by attending entrepreneurship seminars, building social and financial capital, planning facilities and equipment, forming and refining ideas for new products or services. The dynamic view of EI formation as a process that occurs over time, consist of increasing levels of entrepreneurial engagement, described as the "entrepreneurial ladder" (Vamvaka et al., 2020).

The relationship between intention and attitude and perceived behavioral control based on research and meta-analysis reviews provides strong empirical support for the TPB as a robust model for explaining and understanding the formation of EI and behavior (Vamvaka et al., 2020). Many studies that have examined the applicability of the Theory of Planned Behavior (TPB) in entrepreneurship generally conclude that attitude and Perceived Behavioral Control (PBC) are significant predictors of intention. The intention to perform a behavior is a key element of TPB (Ajzen, 1991); the stronger the intention to perform a behavior, the greater the probability of effective performance. EI is positively related to a positive attitude towards entrepreneurship, supportive subjective norms, and high PBC.

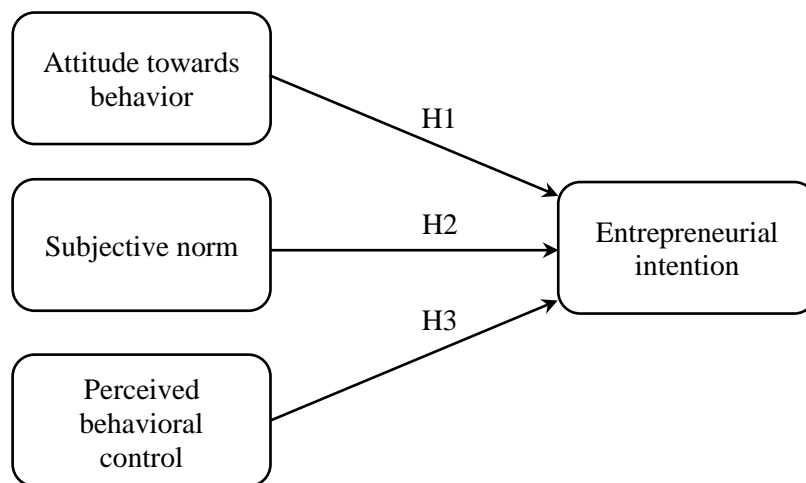


Figure 3. Research Framework

Source: Theory of Planned Behavior, Ajzen (1981)

3. RESEARCH METHOD

The researchers used a quantitative survey with a questionnaire containing statements from similar questionnaires used in previous research (I. A. Shah et al., 2020; Vamvaka et al., 2020) for this study. Questions in the form of statements were rated on a 6-point Likert scale, with 1 indicating strong disagreement and 6 indicating strong agreement. Respondents were taken from undergraduate and postgraduate students of PPM School of Management – Central Jakarta with a combined population of 1046 people, consisting of the Bachelor of Business

Accounting program, Bachelor of Business Management program, Bachelor of Business Management Blended Learning program, Master of Management Wijawiyata Management program, Young Executive Master of Management program, and Executive Master of Management program. We used proportionate stratified random sampling by distributing questionnaires to those students, resulting in 119 questionnaires. We rounded it up to 120 questionnaires, evenly divided into 60 undergraduate students and 60 postgraduate students.

The sample size was calculated using G*Power. A sample size of 119 is required for model testing based on a power of 0.95. The minimum power required in social and behavioral science research is usually 0.8, therefore our sample size can be considered adequate. Using the Statistical Package for the Social Sciences (SPSS) modeling to test the hypothesized relationship. SPSS is a statistical analysis technique, including descriptive statistics, validity and reliability tests, classical assumption tests such as normality test; multicollinearity test; heteroscedasticity test, regression analysis such as T-test and F-test, and coefficient of determination analysis. The SPSS analysis uses version 26.

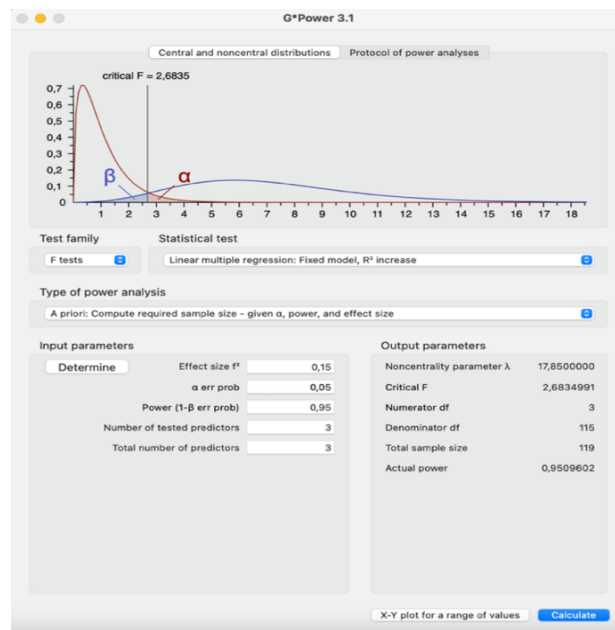


Figure 4. G*Power Sample Measurement Results
Source: G*Power

4. RESEARCH RESULTS AND DISCUSSION

4.1 Data Description

4.1.1 Descriptive Statistics

In this study, primary data were collected to examine the influence of EI on undergraduate and postgraduate students at PPM School of Management using the Theory of Planned Behavior analysis framework. The distribution of the questionnaire consisted of 60 undergraduate respondents and 60 postgraduate respondents from various programs (Table 1). The results of the descriptive statistical analysis on the student data show that the attitude toward behavior of the students has an average of 4.743 with a standard deviation of 0.9519. The subjective norm has an average of 3.907 with a standard deviation of 0.8789. Perceived behavior control has an average of 3.963 with a standard deviation of 0.9019. Entrepreneurial intention has an average of 4.388 with a standard deviation of 1.0935. The results can be seen in Table 2.

Table 1. Respondent Profile

Characteristics	Category	Total	Presentation
Gender	Man	62	51.7 %
	Woman	58	48.4 %
Education	Bachelor of Business Accounting	5	0.41 %
	Bachelor of Business Management	30	25 %
	Bachelor of Business Management Blended Learning	25	20.9 %
	Executive Master of Management	21	17.5 %
	Young Executive Master of Management	16	13.4 %
	Wijawiyata Master of Management	23	19.1 %

Source: SPSS version 26 (2024)

Table 2. Descriptive Statistics

Variable	n	Min	Max	Mean	Std. Deviation
Attitude toward behavior	120	2.0	6.0	4.743	.9519
Subjective norm	120	1.5	6.0	3.907	.8789
Perceived behavior control	120	1.3	6.0	3.963	.9019
Entrepreneurial intention	120	1.4	6.0	4.388	1.0935

Source: SPSS version 26 (2024)

4.2 Validity and Reliability

4.2.1 Validity Test

The validity test refers to whether the instruments or measurements used in the research can be considered valid or not. If the calculated $r >$ table r , then the instrument used is valid. With the table r (0.1779). The results can be seen in the table below.

Table 3. r Value for Each Instrument

Statement Item attitude toward behavior	r Value	Statement Item subjective norm	r Value	Statement Item perceived behavior control	r Value	Statement Item entrepreneurial intention	r Value
A1	0.749	B1	0.786	C1	0.720	D1	0.733
A2	0.777	B2	0.770	C2	0.693	D2	0.853
A3	0.789	B3	0.716	C3	0.764	D3	0.837
A4	0.856	B4	0.608	C4	0.852	D4	0.808
A5	0.835	B5	0.735	C5	0.849	D5	0.882
A6	0.899	B6	0.590	C6	0.825	D6	0.862
				C7	0.800	D7	0.887
				C8	0.629		
				C9	0.732		

Source: SPSS version 26 (2024)

4.2.2 Reliability Test

Reliability analysis uses Cronbach's Alpha. The reliability variable if the Alpha value > 0.60 indicates a high level of internal consistency for each variable, i.e. attitude toward behavior (0.899), subjective norm (0.796), perceived behavior control (0.908), and entrepreneurial intention. (0.929). The results can be seen in the table below.

Table 4. Reliability Statistics

Variable	Cornbach's Alpha
Attitude toward behavior	0.899
Subjective norm	0.796
Perceived behavior control	0.908
Entrepreneurial intention	0.929

Source: SPSS version 26 (2024)

4.3 Classical Assumption Test

4.3.1 Normality Test

The normality test was conducted using the One-Sample Kolmogorov-Smirnov Test. The result (0.20) indicates that the data distribution for the four variables (attitude toward behavior, subjective norm, perceived behavior control, and entrepreneurial intention) is not significantly different from a normal distribution ($p > 0.05$). This confirms that the data has a normal distribution.

Table 5. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		120
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.62726689
Most Extreme Differences	Absolute	.051
	Positive	.042
	Negative	-.051
Test Statistic		.051
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal

b. Calculated from data

c. Lilliefors Significance Correction

d. This is a lower bound of the true significance

Source: SPSS version 26 (2024)

4.3.2 Multicollinearity Test

The multicollinearity test was conducted on the variables attitude toward behavior, subjective norm, and perceived behavior control using Collinearity Statistics. The results show that the tolerance values for attitude toward behavior (0.685), subjective norm (0.638), and perceived behavior control (0.580) are above 0.10, and the VIF values for attitude toward behavior (1.459), subjective norm (1.568), and perceived behavior control (1.725) are below 5, indicating that there is no multicollinearity problem in the regression model. The results can be seen in Table 6.

4.3.3 Heteroscedasticity Test

The heteroscedasticity test is used to determine whether there is a deviation from the classical assumption of heteroscedasticity of the residual variance for all observations in the regression model. The testing method used is to look at the scatterplot; if the dots are spread irregularly, then heteroscedasticity does not occur. In Figure 5, it shows that heteroscedasticity does not occur because the dot distribution is irregular.

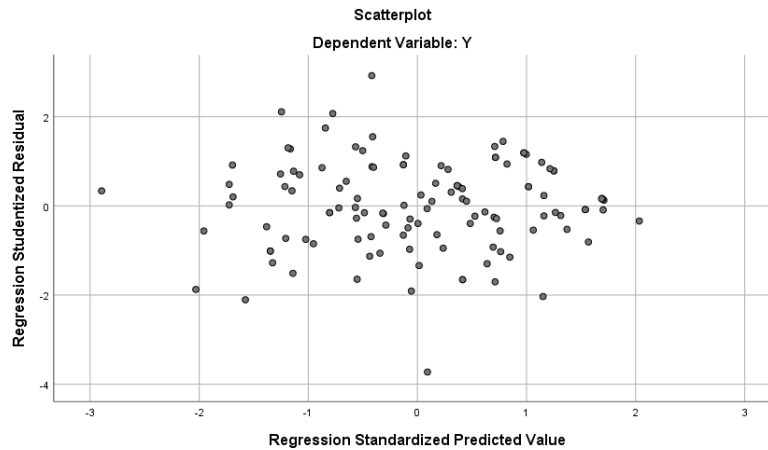


Figure 5. Scatterplot of Indicator Distribution
Source: SPSS version 26 (2024)

4.4 Regression Analysis

4.4.1 Regression Model

Regression analysis was conducted to test the effect of attitude toward behavior, subjective norm, and perceived behavior control on entrepreneurial intention. The results can be seen in the table below.

Table 6. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.473	.335		-1.415	.160		
	Attitude toward behavior	.566	.074	.493	7.658	.000	.685	1.459
	Subjective norm	.037	.083	.030	.448	.655	.638	1.568
	Perceived behavior control	.513	.085	.423	6.044	.000	.580	1.725

a. Dependent Variable: Y

Source: SPSS version 26 (2024)

The regression analysis results show that attitude toward behavior (mean = 4.743, beta = 0.566, $p < 0.0001$). This research is in line with previous research conducted by (Hong et al., 2020), showing that attitude toward behavior has a positive and significant relationship with entrepreneurial intention. Therefore, hypothesis H1 is accepted. Thus, PPM School of Management undergraduate and graduate students have a positive attitude towards entrepreneurial intention.

The regression analysis results show that perceived behavior control (mean = 3.963, beta = 0.513, $p < 0.0001$). This research is in line with previous research conducted by (Su et al., 2021), showing that perceived behavior control has a positive and significant relationship with entrepreneurial intention. Therefore, hypothesis H3 is accepted. Thus, PPM School of Management undergraduate and postgraduate students have perceived behavior control believe that their resources and abilities are able to encourage the realization of entrepreneurial intention.

The regression analysis results show that subjective norm (mean = 3.907, beta = 0.037, $p > 0.0001$). This study is in line with previous research conducted by (Su et al., 2021), showing that subjective norm has no relationship to entrepreneurial intention. Therefore, hypothesis H2 is rejected.

$$Y = - 0.473 + 0.566 X1 + 0.037 X2 + 0.513 X3$$

4.4.2 T-Test

The T-Test aims to determine whether there is a partial influence exerted by the independent variable (X) on the dependent variable (Y). The T-test results show that attitude toward behavior has a positive and significant relationship with entrepreneurial intention with t-value of 7.658, which exceeds the critical t-table value of 1.98063 at a significance level of 0.05. Therefore, hypothesis H1 is accepted. The T-test results show that perceived behavior control has a positive and significant relationship with entrepreneurial intention with a t-value of 6.044, which exceeds the critical t-table value of 1.98063 at a significance level of 0.05. Therefore, hypothesis H3 is accepted. The T-test results show that subjective norm does not have a relationship with entrepreneurial intention with a t-value of 0.448, which is less than the critical t-table value of 1.98063 at a significance level of 0.05. Therefore, hypothesis H2 is rejected. The results can be seen in Table 6.

4.4.3 F-Test

The F test aims to determine whether there is a simultaneous effect of the independent variable (X) on the dependent variable (Y). If the calculated $F < \text{table } F$, then there is an influence. The $F\text{-calculated}_{0.05, 3, 116} = 78.842$ indicates that attitude toward behavior, subjective norm, and perceived behavior control simultaneously influence entrepreneurial intention ($F\text{-calculated}_{0.05, 3, 116} = 78.842 > 2.68$). The results can be seen in the table below.

Table 7. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.471	3	31.824	78.842	.000 ^b
	Residual	46.822	116	.404		
	Total	142.293	119			

a. Dependent Variable: Y

b. Predictors: (Constant), X3, X1, X2

Source: SPSS version 26 (2024)

4.5 Analysis of the Coefficient of Determination

4.5.1 Coefficient of Determination

The coefficient of determination functions to determine the extent of the influence exerted by the independent variable (X) simultaneously on the dependent variable (Y). The

analysis of the coefficient of determination shows that the regression model is able to explain 67.1% of the variation in the dependent variable (Y). The results can be seen in the table below.

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.819	0.671	0.662	4.447

Source: SPSS version 26 (2024)

5. CONCLUSION AND SUGGESTIONS

Based on the research results, it can be concluded that the Theory of Planned Behavior model with the variables of attitude towards behavior, subjective norm, and perceived behavioral control can be used to understand and explain the entrepreneurial intention of undergraduate and postgraduate students at PPM School of Management. The variables of attitude towards behavior and perceived behavioral control have a positive and significant relationship with entrepreneurial intention, while the subjective norm does not have a relationship with entrepreneurial intention. The research results indicate that the subjective norm in the environment of undergraduate and postgraduate students at PPM School of Management is still low, thereby affecting entrepreneurial intentions. The factor of students' subjective views on the support or rejection from influential people in their decisions to engage in entrepreneurship plays an important role in affecting students' entrepreneurial intentions. Further research is needed to investigate the factors that may moderate or clarify the relationship between subjective norm and entrepreneurial intention. Therefore, it is recommended that PPM School of Management and relevant stakeholders develop programs and an atmosphere that can enhance subjective norms among undergraduate and postgraduate students. Thus, it is expected to increase the number of graduates who can contribute to innovation-based economic growth and create jobs in the future.

Implications of the Research

Entrepreneurship is one of the most important factors contributing to economic and social development, being the main driver of job creation and national wealth. As a result, many policy initiatives aim to steer society towards entrepreneurial career choices. The current study provides several implications for interventions aimed at enhancing students' EI. Based on the research findings that indicate the subjective norms in the environment of undergraduate and postgraduate students at PPM School of Management are still low, it is important for PPM School of Management and related stakeholders to develop entrepreneurship education programs and an atmosphere that can enhance EI among its students, with the hope of increasing the number of graduates capable of contributing to innovation-based economic growth and creating jobs in the future. Some of them include:

1. Business Incubator

Development of a mentoring program that connects students with experienced entrepreneurs or accomplished alumni in their field. This mentoring can provide guidance, share experiences, and help students develop their entrepreneurial intentions and skills. Currently, PPM School of Management already has two activities related to this, namely Bizcube and PPM Network. First, Bizcube—open to all students from various programs,

one of its latest activities is the Entrepreneurial Student Development Program. However, unfortunately, this program only opens registration with a minimum of 3 students, making it difficult for students who already have early-stage businesses to invite other members to participate due to differences in vision and mission. The same goes for students who are just about to start a business, but find it difficult to invite their other friends because of different business or focus. So this can discourage students who actually want to participate. Therefore, we suggest that this program open an individual category to encourage active participation from various parties (groups and individuals). Second, the PPM Network currently has one of its best programs, which is mentoring with alumni. However, unfortunately, it is not held regularly, even though those of us who have participated in this program have felt significant benefits in knowledge beyond formal lectures. In the future, it could be considered to hold this program at least once a month with a focus on discussions related to entrepreneurship and its implementation in the real world.

2. Collaboration program with successful entrepreneur organizations

Collaboration with successful entrepreneur organizations not only creates a connection between theory and practice but also provides a deep understanding of the real challenges and opportunities in the industry. Currently, PPM School of Management has collaborated with the Himpunan Pengusaha Muda Indonesia (HIPMI), but the program being conducted is not yet active and has not invited students to participate actively. Based on our knowledge, the program is hindered because there is no team responsible for this program from the student side. Therefore, we suggest that this program be handled by students who genuinely want to actively participate in the program, not necessarily from the student executive board (BEM). Of course, with certain assessments from the lecturers or the responsible division heads.

3. Promoting entrepreneurial networking

Currently, PPM School of Management has a communication base through the PPM Network website at <https://ppmalumni.net>. However, it is considered insufficiently facilitating due to the low participation of students and alumni in actively communicating on the website. In addition, there is a lack of activities to enhance networking that would allow students and alumni to mingle with each other. For that reason, we propose a new program called StartupSphere. (Where Business Dreams Take Flight). It is a program aimed at actively promoting entrepreneurial networking on a regular basis among students, alumni, and entrepreneurial communities from various fields.

Limitations and Recommendations for Future Studies

Despite the theoretical and practical relevance of this research, there are several limitations that provide suggestions for future studies. First, we only examined a sample from one educational institution, which may limit the generalization of the findings to the general population. However, the focus of this research is to identify EI to provide insights for PPM School of Management and related stakeholders to develop entrepreneurship education programs and an atmosphere that can enhance EI among students. It would be better to study students' EI before and after taking courses to see how entrepreneurship education can enhance their ability to start new business ventures. Future research could examine in more detail how students' EI changes over time and whether entrepreneurship education increases or decreases EI. This would broaden the scope of this research, but it would require more time and resources to implement, especially if conducted on a global scale.

Second, although research on the formation of EI is generally recognized, longitudinal studies linking entrepreneurial intention and entrepreneurial behavior are needed to test the predictive validity of entrepreneurial intention on entrepreneurial behavior and to provide an additional robustness check on the tested model. However, since the goal of entrepreneurship education does not necessarily mean that all participants will start a business in the short term, we do not use entrepreneurial behavior as a predictor. Thus, this research uses the TPB premise to employ intention as a substitute for behavior, which is a relevant tool for understanding the development of EI through entrepreneurship education (Lv et al., 2021).

Third, we only examined three determinants based on the TPB: (1) attitude towards behavior, (2) subjective norm, and (3) perceived behavioral control, which directly provide the motivational basis for EI. However, it would be better with the addition of other predictors such as entrepreneurial education (Li & Wu, 2019; Hong et al., 2020; Ramos et al., 2020), entrepreneurial network (Tomy & Pardede, 2020), passion (Li & Wu, 2019; Neneh, 2020), business incubators (Su et al., 2021), innovation (Wegner et al., 2020), and social support (classroom atmosphere and support from family and friends) (Neneh, 2020; Su et al., 2021) that contribute to the explanation of EI variance. Therefore, to gain a more comprehensive understanding of EI formation, the addition of these predictors should be considered in future research.

Fourth, future research can identify new types of factors influencing EI that have not yet been discussed in the literature. This may include examining individual attributes such as enthusiasm and perseverance inherited based on parental experiences and moderating the way entrepreneurship education has evolved. With the increasing interest of academics, entrepreneurs, and policymakers in the relationship between entrepreneurship education and EI, there are many intriguing research avenues that can be pursued (Ferreira et al., 2017).

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Chapter 13

Teacher, Doctor of Philology, Associate Professor at the Academy of Public Administration of the President of the Republic of Azerbaijan **The essence of intercultural dialogue and its importance in the development of modern society. Experience in the Republic of Azerbaijan**

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ABSTRACT

Multiculturalism is the crucial tool of intercultural dialogues and civilizations in order to manage risks and ensure sustainable development of society. It is not possible to be tolerant, to respect representatives of other cultures, to create mutual understanding and civilizations' dialogues without learning of those cultures, history and achievements. The analysis of the events occur today indicates that, establishment and development of dialogue among civilizations has become a necessity of life. However, from which point of view the problem is assessed? The question keeps its urgency. The basis of the problem demonstrates triangle dialogues between civilizations. Historical traditions, good governance, human resources. These are the points of above-mentioned angles. Indeed, as the result of the policy founded by national leader Heydar Aliyev and successfully continued by President Ilham Aliyev, preserved and developed tolerance of our country is a great contribution to the culture of tolerance in the world and priceless value for the future generations.

Keywords: Dialogues Among Civilizations, Multiculturalism Model of Azerbaijan, Tolerance, Historical Tradition, Good Governance, Human Resource, Science.

ARTICLE

Azerbaijan, which has played the role of a bridge between the West and the East, has been a place where various religions and cultures have met throughout history. Azerbaijan's historical development, geographical location, ethnic composition of its population and other factors have played a major role in the formation of the current environment. For thousands of years, the current historical environment has provided every opportunity for the common existence of various religions. In various periods of history, paganism, Zoroastrianism, Christianity, Islam and many other religious beliefs have spread to one degree or another in the lands of Azerbaijan, mutually influenced each other and generally showed the characteristics of spiritual life. "Azerbaijani culture is such a complex and rich phenomenon that it has benefited from various civilizational achievements in various periods and at the same time stood at the cradle of some of them, that it is impossible to comprehend and embrace it with simple, standard contemplation" (7, p.1).

With the collapse of the socialist camp, the current political map of the world has changed and some new problems have emerged. Along with economic, ecological and demographic problems, the problems of spirituality have also sharpened as a result of the failure of the spiritual value system to form rapidly or the purposeful marginal interventions in the system of values that is forming.

In such a period, the theory of the "clash of civilizations" based on the existing differences among world religions emerged and found its own supporters. Some "powers" often intended to use the religious factor to justify their own activities. Harvard University professor Samuel Huntington published his article "The Clash of Civilizations" in the journal "Foreign Affairs" in 1993. In this article, he gave his theory of the "clash of civilizations" to the discussion of society. Later, this article was published in book form (8, p.16). According to Huntington's views, the new century will be the century of the clash of civilizations.

The theory has attracted the attention of the public, theorists and practical politicians. Even today, the theory is measured in various ways. If some consider Huntington's concept as a theory that is true, others say that it is useless. According to S. Huntington's theses, the future of humanity will be characterized by a "clash of civilizations" that differ from each other in their historical past, cultural traditions, and especially in their religious confessions. According to the American scholar, the "cold war", which was indicated by the political conflict between the democratic West and the communist East, in the very next period, the main source of conflict and conflict will be not ideology and political views, but differences in religion and culture. He himself said that "the bloodiest conflicts in the future will occur along the borders separating civilizations" (9).

According to scientific analyses, multiculturalism is a necessary tool for the dialogue of cultures and civilizations in order to ensure such serious risk management and future-oriented development of society. Without learning the nature, characteristics, historical development and achievements of other cultures, it is impossible to establish tolerant interest in them, respect for their representatives, mutual understanding, and dialogue of civilizations. According to the analysis of events taking place in the world today, the establishment and development of dialogue between civilizations has become a vital necessity. In this sense, the comparison of ideologies, the assimilation of various cultures, the protection of national-cultural values, and the spiritual impact opportunities of the virtual world are more related to the human factor. The strategy that serves the establishment of civil development and scientific society based on science and education also includes the importance of creating immunity against such effects. In such an environment, the establishment of dialogue between religions and cultures is of great

importance for the preservation of various cultures of human civilization. In this respect, the experience of countries and regions rich in traditions of tolerance and tolerance can be an example. Azerbaijan is a unique example of peaceful coexistence of many nations and religious confessions. The fact that they share the same life destiny has played a major role in the formation of strong relations between many ethnic and religious groups living in the territory of Azerbaijan. Throughout history, the peoples of Azerbaijan have repeatedly fallen into a state of dependence on powerful states, and the resulting environment has led them to come closer, despite differences in worldviews. The collapse of the Soviet Union became the main test for the traditions of religious tolerance in the region. As a result of these developments, the peoples of the former allied republics gained independence and freedom of religious belief. The greatest threat to the foundations of tolerance in Azerbaijan was the Armenian aggression, which caused the death of thousands of peaceful residents and forced more than a million of our citizens to leave their homeland. However, these events could not have a critical negative impact on relations between religious confessions in the republic. After Heydar Aliyev came to power, these relations seriously improved. In modern Azerbaijan, state-religious relations are regulated by law. All religious disputes are equal before the law and have the same status. In addition to protecting the rights of Muslims, who constitute the majority of the country's citizens, the state also shows concern for other religions spread in the country. According to Article 48 of the Constitution of the Republic of Azerbaijan, each person has the right to freedom of conscience (1, p.16). According to Article 18, paragraphs 1 and 3 of the Constitution, religion in the Republic of Azerbaijan is separate from the state, all religious beliefs are equal before the law, and it is forbidden to spread and preach religions that degrade human identity and contradict the principles of humanity. The Law of the Republic of Azerbaijan "On freedom of religious belief" guarantees the right of each person to determine and declare his relationship with religion and to implement this right (10). The innovations that the new calls of the modern era have brought to our lives and thoughts cover various areas of life, as well as the basis for bringing the way of thinking, the formation of new ideologies to the agenda, and discussing them in terms of the values of the new era. "Religion is not only the free spiritual heritage of human culture, but also the truth that every new generation lives, learns and is interested in" (11, p.197).

After gaining independence, it was extremely difficult to ensure the continuity of spiritual values in a complex period called the transition period in our country. The elimination of the results of the process of moving away from national-spiritual roots that existed for 70 years required the determination of serious state policies in this area. The most important issue is to determine the ideological vacuum and to realize the tasks put forward by the new stage. The National Leader of the Azerbaijani people, Heydar Aliyev, turned this area into one of the spiritual bases of statism by providing strategic education covering all aspects of national-spiritual development in the new historical period that started in Azerbaijan. "Tolerance is a very broad concept. It belongs to many aspects of both human relations, processes experienced in human society, and inter-state, international, inter-religious relations... It means not only tolerance of religions to each other, but also tolerance of each other's customs, spirituality, and cultures" (12). Against the backdrop of threats and appeals experienced in the world, the politics carried out in Azerbaijan is based on historical tradition, human potential and good governance. In this respect, the world is given a clear message by the declaration of the multicultural lifestyle and the declaration of the year of multiculturalism. The study of the three factors mentioned above means that Azerbaijan has always become an integrated place of cultures and religions of representatives of different ethnic groups. Tolerance and friendly relations between representatives of the Muslim, Christian and Jewish population have always been characteristic of the humanistic culture of the Azerbaijani people (2, p.102).

The interest in religious monuments in Azerbaijan is an indicator of the relations between religion and the state: "In Azerbaijan, the state does not only erect and restore mosques and other monuments belonging to religion. At the same time, temples belonging to other religions are also being repaired and built. Of course, state policies and the principles of this policy are also correctly established here. This is our way of life. This is our view of the world. We live like this and by living like this we prove to ourselves, the region and the world that multiculturalism exists. Multiculturalism is a relatively new concept. In essence, it means the coexistence of people from different cultures and religions. In other words, this concept has existed in Azerbaijan for centuries and is still present and growing stronger today. The people of Azerbaijan lived in various socio-political organizations in different periods. Despite this, as a satisfactory situation, these positive tendencies are always strengthened and strengthened during the period of independence. The factors that strengthen our successful development are as follows "(9). According to the analysis, the basis of the activity carried out in this field in the country are three factors: historical tradition, good governance and human potential. These three factors have been formed throughout history. Azerbaijan is one of the rare countries where different cultures and civilizations come together in an environment of mutual understanding, and which has transformed multicultural values into a way of life. Multiculturalism is a humanistic perspective that recognizes the cultural rights of representatives of different peoples living in the same country and the policy that is appropriate to it. "Multiculturalism is an essential tool for the dialogue of cultures and civilizations" (13).

The accepted fact is that multiculturalism has become a value that characterizes the Azerbaijani society, and in our country there has been a tradition of respectful approach to representatives of different peoples and religions for centuries. After the Republic of Azerbaijan regained its independence for the second time, this tradition was elevated to the level of principles and proved to be an important direction of state policy as a result of Heydar Aliyev's leadership skills, political wisdom and foresight. The National Leader said: "In Azerbaijan, located at the junction of Europe and Asia, on the Great Silk Road, ancient religious beliefs such as Zoroastrianism and fire worship have left their mark, and Islam, Christianity and Judaism have lived together peacefully for centuries in an atmosphere of dialogue and mutual understanding, and still do. Azerbaijan has played an important role in the reunion of the East and the West" (14).

President Ilham Aliyev, who has been pursuing the multicultural policy that has been consistently implemented in the Republic of Azerbaijan, traditionally meets periodically with representatives of the peoples and religious communities living in our country and congratulates them on their religious holidays. The establishment of the State Undersecretariat of the Republic of Azerbaijan for International, Multicultural and Religious Affairs by the President's order, the establishment of the Baku International Multicultural Center are clear indicators of the interest shown in this area. At the same time, according to the order signed by President Ilham Aliyev "On declaring 2016 as the "Year of Multiculturalism" in Azerbaijan, the preservation, development and promotion of multicultural traditions are in the constant focus of the country's administration (5). We can boldly say that Azerbaijan has now been recognized as a place of multiculturalism and intercultural dialogue in the world. The Heydar Aliyev Foundation has also rendered unique services in presenting the multicultural values of our people to the world, in promoting the dialogue between civilizations between countries and international organizations, and in promoting the Azerbaijani model of multiculturalism.

At this point, let's say that Azerbaijan is one of the few countries in the world that has preached the principles of multiculturalism. Today, multiculturalism has become a priority in the state policy of the Republic of Azerbaijan. The reality of the days we live in is that the Azerbaijani

model of multiculturalism has now been perfectly formed. Unfortunately, conflicts and humanitarian problems in many countries of the world have turned into tragedies for separate peoples. At the same time, these conflicts have occurred on national and religious grounds. At a time when Islamophobia tendencies are increasing in the Western world, conflicts between ideologies, beliefs, and sects are increasing and deepening in the Eastern world. This ultimately deepens cultural and intercultural contradictions.

Some Western states are giving up on multiculturalism because it is so complex to manage, and they are openly stating that it has failed as a value.

The conflicts that have occurred in the world in recent years, especially the political statements of some leaders that have caused tension between civilizations and cultures, indicate that the increasingly tense relations have reached the border of hostility. Therefore, it is very important for the role of intercultural dialogue to dominate the world and for global problems to be solved on an intellectual, cultural and tolerant level. Increasing the initiatives and roles of countries with strong potential in this field in dialogue issues are also important factors.

President of the Republic of Azerbaijan Ilham Aliyev, by declaring 2016 as the "Year of Multiculturalism" in our country, has given another message of peace to the world. This step confirms that the state of Azerbaijan is the guarantor of the loving and friendly coexistence of all peoples living on its territory, their cultural development, and the preservation of their customs and traditions. President Ilham Aliyev, emphasizing that Azerbaijan has become the center of intercultural dialogue, stated that there is a great need for dialogues in order to establish peace in the world. Indeed, today Azerbaijan is not only a bridge from the East to the West and from the West to the East, but also a political-economic and cultural-spiritual center where political and economic interests, religions, cultures and civilizations meet and complement each other. At the official opening ceremony of the 3rd World Forum on Intercultural Dialogue, President Ilham Aliyev said in his speech: "Azerbaijan is located at the intersection of civilizations, cultures and religions. We are located between Europe and Asia. Of course, this geographical location has contributed to Azerbaijan's cultural diversity. For centuries, representatives of all cultures, religions and ethnic groups have lived in Azerbaijan as one family in peace and dignity. We are proud that these positive trends have become even stronger in the years of independence. It is enough to consider our historical monuments so that the cultural diversity of Azerbaijan is clearly known. We are proud of our historical and cultural heritage. One of the oldest mosques in the world, built in 743, is located in the old city of Azerbaijan, Shamakhi. One of the oldest churches in the world - the Church of the Caucasian Albanians is located near another old city of Azerbaijan, Sheki. Orthodox and Catholic churches, synagogues, the temple of the fire worshipers are part of our cultural heritage, and we are proud of it. Today, representatives of all religions and ethnic groups live in Azerbaijan and have contributed to the successful development of our country. I think that this is one of our greatest assets. We are proud of this and are holding various international events to promote multicultural values, peace, cooperation and mutual understanding. I think that such measures, open discussions and exchange of ideas are needed in the world to strengthen positive trends"(4). We can confidently say that as a result of the successful political strategy implemented by Azerbaijan, the international scientific community is currently discussing the "Azerbaijani model of dialogue between civilizations", and is opening a conversation about the importance of scientifically studying and implementing the high values originating from the traditions and customs of our people. It is not by chance that today Azerbaijan has become a place where scientists, religious and political figures meet, calling for mutual cooperation in solving global problems that have emerged as manifestations of intercultural conflict. Azerbaijan is recognized all over the world as a place where cultures and civilizations meet. In this sense,

the Azerbaijani model of intercultural dialogue and multiculturalism attracts the attention of the whole world.

Azerbaijan, which ensures the continuity of the dialogue process between civilizations and cultures, is a bridge between the East and the West. The economy and scientific-cultural potential of Azerbaijan have reached such a point that it not only plays the role of a bridge between two cultures, but also represents the unity of civilizations by being a carrier of both. The great economic successes gained in recent years have allowed Azerbaijan to strengthen its international position and to make better use of its favorable geographical position between the East and the West. President Ilham Aliyev has highly evaluated the uniqueness of Azerbaijani multiculturalism and explained it: "Azerbaijan, located on the historical Silk Road, was known for centuries as a place where various civilizations met, where an environment of national and cultural diversity was formed, where representatives of different nations and religions lived in peace, tranquility, mutual understanding and dialogue. Multiculturalism in our country has become a way of life that has no alternative" (4). The following three factors have played an important role in the formation and success of the Azerbaijani model of multiculturalism. 1. Historical tradition, 2. Good governance, 3. Human potential.

According to the above, we can say that special importance has always been given to taking complex measures in terms of the development of the human factor in the country and to shaping the youth with multicultural values. At the center of the policy aimed at the development, strengthening and management of the human being in all aspects are primarily the citizens of Azerbaijan, especially the youth of Azerbaijan. Knowledge and skills have an important role in the strategy of transforming "black gold" into "human gold". "... The transformation of the oil factor into human capital leads to the development of human potential. Among the strategically important, inexhaustible and constantly developing natural resources, the human potential, which is of the greatest importance, has always acted and continues to act as the determining factor of development. Recently, the fact that the development of countries, the standard of living and welfare of the population depend on knowledge and skills has brought the importance of the human factor to the forefront once again (6). This approach stems from the items of the triangle we have mentioned above. Without science and education, neither dialogue, nor peace, nor tolerance can be achieved. Even the line that the Republic of Azerbaijan has taken in this field is essential to say that it can be shown as an example to other states not only with its material resources, but also with its spiritual resources, including its high spirituality, tolerance, multicultural lifestyle, and its tendency to live together and peace. The multicultural values that have been preserved and developed as a result of the policy laid by National Leader Heydar Aliyev and successfully pursued by President Ilham Aliyev are contributions to world culture.

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EDITOR'S BIOGRAPHY

Prof. (Dr.) Pranav Mishra



Prof. (Dr.) Pranav Mishra is an Academician with degrees in MBE, M.Phil., Ph.D., and UGC NET. He has been chosen by the Indian government to serve as the MENTOR OF CHANGE for the NITI Aayog (under Atal Innovation Mission). He also won a gold medal at his Masters. He is a graduate of the highly acclaimed IIM-Rohtak.

His work-related internship project was completed at Pepsi Co. He has 20 years of extensive expertise in both teaching and research. Business Economics and Marketing are his two main interests. Several of his research papers have been published in reputable National and International Journals. In conferences all around the country, he has delivered papers. He has a wealth of expertise working on administrative and academic projects for Academic Institutions.

He has been awarded by numerous Awards and accolades. His recent awards have been in the Field of Circular Economy by Indian Circular Economic Forum, Top Emerging Leaders by Hindustan Times, Top Academician by Purwar Achiever's Foundation, Felicitation by Commission for Other Backward Classes, Felicitation by Golden Sparrows on United Nations Day, Leading professors & Academicians by Business Talks Magazine to being recognised as one of the most sought after TED speakers.

He also keeps being invited as the Guest of Honor and session chairs at different events & conferences. He is the author of three books and a co-author of an International book. A number of workshops and faculty development programmes were arranged by him, and he also participated in them. Also listed under his name are three patents.

Additionally, he often attends courses held by Art of Living and is an avid adherent to existential philosophy.

Awards & Recognition

1. Awarded "Top 30 Emerging Leaders 2023" by Hindustan Times.
2. Awarded as a certification of recognition as an "Outstanding Leadership Excellence Award 2024" in "5th Education Leaders Conclave & Awards 2024 Dubai" by "Elevating Education in the Global Perspective in EDTECH.
3. Awarded as a "Empowered Women's Forum Award" from Purwar Achievers Foundation on May, 2023

4. Certificate of Appreciation by Youth of Change in his support and contribution to “Water for All, All For Water” held in March, 2024.
5. Certificate of Appreciation by LLDIMS in his invaluable service and contribution to achieving NAAC A+.
6. Awarded “Certificate of Appreciation” from “United Nation” Humanitarian Day Celebration 22nd August, 2022 in his hard work and dedication towards humanity.
7. Awarded as a “Visionary Educationist Award” from Commission for Other Backward Classes by Govt. of NCT of Delhi at Teachers day on 2nd of September, 2023 in the Auditorium of Delhi Secretariat, I.P. Estate New Delhi.
8. Awarded as an “Academic Excellence Award-2024” from Social Development Federation in 2024.
9. Awarded as a “Young Leader of the Year Award 2024” from ICCI Intiexcellent Chamber of commerce and Industry in 23rd October, 2024.
10. Awarded as a “Notable personalities of India” by Business Talkz Magazine in 2024.

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Mr. Lawrence Walambuka



Lawrence Walambuka holds BA international Relations and BA Honours in International politics and currently doing Masters in international politics at University of South Africa. Lawrence is an award winner, second runner up in the College of humanities for the 11th Annual University of South Africa Student and Innovation Showcasing in November/December 2023. The author is an analytically-minded international relations specialist who has a strong focus on strategic analysis of foreign markets to help realize organizational goals, ability to accurately assess foreign laws, regulations, sociopolitical and socioeconomic factors and their potential impact on organizational goals. Experience in designing public relations strategies in foreign markets for true global involvement. He has a thorough understanding of South Africa's constitution and other statutory instruments. And experienced in lecturing, has Passion for Research, business management, accounting and financial management and worked in diverse sectors including construction, retail, agriculture, government parastatals, workforce solutions and education. Lawrence has been in South African education sector since 2011 as a lecturer and Head of Department of Commerce and academic manager/campus manager since 2020 to date. His focus has been on the meaning, construction and practice of leadership in Higher Education in South Africa. He has been an active practitioner in the Higher Education Sector for over 12 years. He has risen from the ranks of being a Lecturer to that of Senior Lecturer, Head of Commerce Depart and Campus Manager in a multi-campus context of Private College set up. Lawrence has a record of accomplishments in managing complex departments, which include student affairs, academic operations, marketing, finance and health and safety in a large Multi- Campus Private Colleges. During his tenure in higher education, he had a privilege of being exposed to the higher education regulatory environment as a campus manager. A major focus of the Campus Manager during his tenure was on transformation and ensuring improvements in the quality of the student experience in all campuses. In the DHET management of Private colleges, as campus manager: he was responsible for Monitoring Quality Assurance of all examination procedures and implementing DHET, CHE, QCTO and SETA policies.

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