BUSINESS CHALLENGES AND OPPORTUNITIES IN INDONESIA: BRAND MANAGEMENT, RENEWABLE ENERGY, MERGERS AND ACQUISITIONS, REVENUE OPTIMIZATION, EMPLOYEE PERFORMANCE, AND TECHNOLOGICAL ADVANCEMENTS IN VARIOUS INDUSTRIES

Editor

Prof. Dr. Pranav Mishra

NCM Publishing

Business Challenges and Opportunities in Indonesia: Brand Management, Renewable Energy, Mergers and Acquisitions, Revenue Optimization, Employee Performance, and Technological Advancements in Various Industries

Editor

Prof. Dr. Pranav Mishra

Published by: NCM Publishing House

Publishing Date: 30.12.2024

ISBN: 978-625-95577-0-0

Business Challenges and Opportunities in Indonesia: Brand Management, Renewable Energy, Mergers and Acquisitions, Revenue Optimization, Employee Performance, and Technological Advancements in Various Industries

Publication No: **30**

Editor	***Prof. Dr. Pranav Mishra***
Cover Designer	***Mr. Kerim KARADAL***
ISBN	**978-625-95577-0-0**
Publisher Certificate No	**51898**
Publisher Type	International Publishing House
Release Date	2024

CONTACT

Phone: +90 505 965 4613
e-mail: ceocongress.info@gmail.com
www.ceocongress.org

LIBRARY INFORMATION CARD

Mishra, Pranav; Editor, 12, 2024. **Business Challenges and Opportunities in Indonesia: Brand Management, Renewable Energy, Mergers and Acquisitions, Revenue Optimization, Employee Performance, and Technological Advancements in Various Industries**. NCM Publishing House, Bursa.
Language: English
Edito: Prof. Dr. Pranav Mishra
ISBN: **978-625-95577-0-0**

PREFACE

In today's fast-paced and ever-evolving global economy, businesses must continuously adapt to remain competitive and relevant. This is especially true for Indonesia, a nation that has emerged as one of Southeast Asia's most dynamic markets. With its unique blend of cultural diversity, burgeoning industries, and shifting regulatory landscapes, Indonesia presents both incredible opportunities and complex challenges for business leaders, entrepreneurs, and policymakers alike.

This book, *Business Challenges and Opportunities in Indonesia: A Comprehensive Analysis Across Industries*, brings together a diverse collection of research and strategic insights aimed at understanding and navigating the complexities of business in Indonesia. It is a reflection of contemporary business issues, from brand management and marketing strategies to the impact of regulatory changes, technological advancements, and employee engagement. The chapters within this book not only address key challenges but also offer actionable recommendations for overcoming them, providing valuable insights for both academics and industry professionals.

The contributions featured in this volume explore a wide array of topics. For instance, the influence of brand personality, brand experience, and brand image on brand loyalty are examined in depth, with a focus on how these elements contribute to long-term customer relationships in Indonesia's competitive markets. Regulatory challenges in the renewable energy sector are critically analyzed, highlighting both the opportunities and obstacles businesses face as they navigate complex environmental regulations. Further chapters delve into strategies for optimizing B2B sales processes, addressing mergers and acquisitions in the mining and construction sectors, and examining the effects of work-life balance and career development on employee satisfaction and retention.

In addition, this book explores broader, industry-specific concerns such as the role of carbon management in the energy-intensive pulp and paper sector, the effectiveness of robotic process automation in financial operations, and the impact of climate change on manufacturing industries in Indonesia. These diverse perspectives provide readers with a holistic view of the business landscape in Indonesia, offering solutions that are not only innovative but also grounded in real-world industry practices.

What makes this collection especially relevant is its focus on Indonesia—a country marked by a complex mix of local traditions, global economic shifts, and rapid technological advancement. The insights offered in this volume serve as a guide for those seeking to understand the evolving market forces and trends in Indonesia, and for those who wish to leverage these insights for success in the region.

As the business world continues to change, Indonesia's role in the global economy will only grow. This book aims to equip readers with the knowledge, strategies, and frameworks necessary to navigate the unique challenges and seize the abundant opportunities that lie ahead. Whether you are a business leader, academic, or policymaker, the chapters in this book will provide you with the tools to better understand, respond to, and thrive in Indonesia's dynamic business environment.

We hope that this collection of insights not only enhances the understanding of business dynamics in Indonesia but also serves as a catalyst for further research and innovation in the years to come.

Prof. Dr. Pranav Mishra
Bursa, Türkiye – December 2024

CONTENTS

CHAPTER 1

The Influence of Brand Personality, Brand Experience, And Brand Image on Brand Loyalty with Brand Love as An Intervening Variable at PT. XYZ in JABODETABEK

Erlando Simanjuntak
IPMI INSTITUTE
erlando.simanjuntak@ipmi.ac.id
Orcid: 0009-0007-3866-1946

Yulita Fairina Susanti
IPMI INSTITUTE
yulita.susanti@ipmi.ac.id
Orcid: 0000-0001-9631-6074

ABSTRACT

In the increasingly competitive digital marketplace, fostering customer loyalty is not only crucial for a company's survival but also for its long-term success. As customers have a growing array of choices, maintaining strong relationships with them becomes a critical driver of sustainable growth. Brand personality, brand experience, and brand image are essential factors that influence how customers perceive, interact with, and form emotional connections to a brand. Brand personality reflects the human traits associated with a brand, helping consumers form deeper emotional bonds. Brand experience encompasses the interactions and sensory responses that customers have with a brand, while brand image is the perception of the brand shaped by prior information and experiences.

Previous research highlights the significance of these factors in shaping customer behaviour. Brand image and brand love have been found to significantly impact brand trust, which in turn has a positive influence on brand loyalty. While the effect of brand experience on brand trust may vary, its role in shaping the overall customer journey remains pivotal. Brand love, which represents the deep emotional connection and affection a consumer feels towards a brand, is often a critical mediator in the relationship between brand personality, brand image, and brand loyalty.

This paper explores how brand personality, brand experience, and brand image collectively contribute to enhancing brand loyalty, with brand love acting as a key intervening variable. By examining the complex relationships between these elements, this study provides insights into how companies can develop strategies to cultivate strong, loyal customer bases in a highly competitive business landscape.

Keywords: Brand Personality, Brand Experience, Brand Image, Brand Love, Brand Loyalty.

I . INTRODUCTION

In today's digital era, where technology is rapidly advancing and competition among businesses is becoming increasingly intense, it is essential to continuously adapt and innovate to maintain market share. To remain competitive in the industry, companies must understand the desires and needs of their customers to retain consumer loyalty. Customer loyalty to a product, service, or brand indicates that they are satisfied with the brand and will remain loyal to it. This loyalty is a sign that a company has successfully maintained customer loyalty compared to its competitors.

According to Kasmir (2019), for companies looking to expand their market, it is crucial to outmaneuver their competitors, even if they might be pursuing similar strategies. Capturing market share can be achieved through both sales revenue and the number of customers. When competitors emerge, a company must immediately conduct a competitor analysis by identifying competitors, determining competitors' objectives, assessing competitors' strengths and weaknesses, and predicting competitors' reactions to market threats. The increasing number of competitors forces companies to create various brands that can provide a distinct identity for their products.

In the education industry today, particularly in the language learning sector in Indonesia, technological advancement is significant and expected to continue growing. This growth occurs because language skills, especially English, remain a necessity for many people. English has become an integral part of daily life for many individuals, not just as a means of communication.

This has led to a phenomenon of high enthusiasm among certain segments of the population regarding the development of English proficiency. To meet consumer demand, language learning institutions are introducing various new programs. Consumers seek affordable and flexible learning options, which is a behavior that companies aim to fulfill. Consumer behavior is defined as the actions taken by customers in deciding to enroll, use, and evaluate educational services that can meet their needs.

II. BRAND PERSONALITY

Brand personality is defined by Aaker (1997) in Limanjaya (2015) as a range of human-like characteristics linked to a brand, including personality traits, gender, and social standing. This suggests that consumers can utilize brand personality as a way to express themselves and that it can materialize symbolically. "People choose their brands the same way they choose their friends," according to Rutter (2016), citing King (1970). They really enjoy them as individuals in addition to their abilities and physical attributes (p.14). According to Mader and Keller (2001), brand personality can foster interactions with consumers by assisting them in identifying the brand (Nurani Haryanto, 2010). According to Ocktaria (2015), brand personality refers to traits associated with the brand and is significant since it can increase the brand's worth in the eyes of customers.

Brand Personality is one of many forms of brand personalization that arises from various aspects. It can make consumers tend to attribute human traits to determine the brand's characteristics. Similar to people, each brand has distinct traits such as elegance, simplicity, naturalness, luxury, appeal, uniqueness, and so on. The brand's characteristics are adjusted to fit the consumer's characteristics, making the brand personality a distinctive feature. This factor can influence consumers' purchase intentions. The concept of Brand Personality is a fragment of the brand image possessed by consumers, based on brand personification, where human attributes are attached to brand objects, and these objects are treated as entities that people like to form relationships with (Rutter et al., 2019). According to Khani et al. (2013), there are three reasons for the emergence of Brand Personality: first, it arises from consumer interaction with the brand; second, from the impression created by the company; and third, from the brand's image created by the company based on product characteristics, such as product category and distribution channels. Additionally, a striking Brand Personality can represent customers' impressions and meet their emotional needs, thus increasing brand loyalty (Farhat and Khan, 2011).

III. BRAND EXPERIENCE

According to Panjaitan et al. (2016), brand experience can influence modern marketing strategies. Marketers should be able to plan their initiatives more effectively by having a more comprehensive grasp of brand experience. Consumer feelings, emotions, perceptions, or reactions regarding a brand's identity, design, sales messaging, actors, or advertising environment are referred to as brand experience (Zarantonello, 2010). "Subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand related stimuli that are part of a brand's design and identity, packaging, communications, and environments" is how brand experience is defined in brand management literature (Joshi & Garg, 2021). Brand experience, according to Neumeier (2013), is how a customer responds to a good, service, or organization. Filho (2014) states that the interaction between the brand experience and the consumer's experience is known as the "brand experience." Additionally, Filho (2014) argues that positive interactions between customers and the product or service—such as when they tell others about the product and look for information about events, promotions, and other relevant topics—can result in a positive brand experience. Consumer perceptions of a brand's touchpoints or direct interactions with a service provider can be compared to brand experience.

IV. BRAND IMAGE

A consumer's perception of a brand is shaped by the information they learn from their interactions with the product. Keller (2013) states that a consumer's reaction to a brand, whether favorable or unfavorable, is known as its brand image. According to Freddy Rangkuti (2009: 90), brand image is the perception that consumers have of a company that they hold in high regard. The product itself, labels, brand names, colors, logos, promotional strategies, ads, price, brand owners, place of origin, marketing items, and product users are some of the tools used in product marketing to create a brand image. One can distinguish their brand from others by using their brand image. According to Durianto, Sugiarto, and Sitinjak (2004), Brand image is a collection of memories that customers form about a brand as a result of their impression of it. A powerful brand is established in the thoughts of the customers. Because they are consistent with a brand's image, consumers typically stick with it. Lee, James, and Kim (2014) assert that brand image serves as the foundation for more informed strategic marketing choices about product positioning and market segmentation targeting.

V. BRAND LOVE

Tanamal, Fajarwati, and Hadi (2022) reference Albert, N., and Carroll as saying that brand love is Brand love is the intense affection that happy consumers have for a brand, and happy consumers are more likely to like the brand. This relationship, which is made up of thought, emotion, and behavior, transcends the inanimate brand and the individual. Despite the differences in these definitions, they all imply that brand love is a reflection of consumers' happiness and emotional fervor for a company.

Based on the aforementioned reasoning, we may deduce that brand love is a strong bond between a customer and a brand that fosters enduring engagement. According to Lewarissa (2012), there are three signs of brand love:

1. Loving the brand
2. Feeling comfortable using the brand
3. Admiring the brand

VI. BRAND LOYALTY

Brand loyalty, as defined by Rodrigues and Reis (2013), is the practice of consistently purchasing the same brand rather than doing so at random, including making a personal choice depending on one's financial situation. Brand loyalty is defined by Fetscherin et al. (2014) as a favorable attitude and consistent buying behavior toward a particular brand.

According to Torres et al. (2015), brand loyalty is a gauge of a consumer's interest in a brand and reflects their dedication to the good or service based on how frequently they make future purchases. Accordingly, customer satisfaction with a brand has an impact on brand loyalty (Biedenbach et al., 2015). Consumer behavior is influenced by the psychological function of brand loyalty (2014).

Based on the given definitions, it can be inferred that brand loyalty is a consumer behavior in which a brand gains the trust of a customer through repeated purchases, resulting in regular product use. Kuenzel and Halliday (2010) provide a number of markers of brand loyalty, such as:

1. Regular/Repeat Purchases
2. Purchasing Beyond Product/Service Lines
3. Recommending the Product to Others
4. Loyalty

VII. THE RELATIONSHIP BETWEEN BRAND PERSONALITY, BRAND EXPERIENCE, AND BRAND IMAGE ON BRAND LOYALTY AND BRAND LOVE

According to Sangadji & Sopiah (2013) in Amalia (2018), Brand Personality is closely related to brand attachment, using the brand as a basis for differentiation and interaction with consumers.

Brand Experience refers to the unique experiences customers have when using a product, which leaves a distinctive impression on their minds and hearts. Brand Experience is a key theme in marketing involving emotions, creating high-level and comprehensive experiences (Portas, 2017).

Kotler and Keller (2009) define Brand Image as the perception or principles held by customers, formed from associations in their minds. A positive brand image enhances customer satisfaction and willingness to purchase and consume products from that brand. Islam and Rahman (2016) argue that a positive brand image leads to brand love.

Brand Personality is crucial for the success or failure of a brand. It influences consumer behavior and helps build a strong (loyal) network around a brand. The brand personality must be consistent and distinctive to meet consumer needs (Kumar et al., 2006).

According to Gentile, Spiller, and Noci (2007), brand experience arises from interactions between consumers and brand attributes, leading to personal and varied feelings. Positive brand experiences can influence consumer perceptions and ultimately their loyalty (Brakus and Keller as cited in Shamim et al., 2013).

Brand Image is related to consumer beliefs and choices about a brand (Setiadi, 2003). A positive brand image increases the likelihood of purchasing and brand loyalty compared to a weaker brand image. Freddy Rangkuti (2002) states that brand loyalty occurs when a consumer perceives a brand as having higher value than others.

Brand Love represents the emotional attachment a consumer has towards a brand. When consumers are attracted to or love a brand, their loyalty increases, and they are willing to invest more effort and energy to obtain it (Carroll and Ahuvia, 2006 in Ida et al., 2017). Research by Huang (2017), Bairrada et al. (2018), Song et al. (2019), and Sarkar et al. (2019) confirms that brand love positively influences brand loyalty.

VIII. CONCLUSION

Based on the research that has been conducted, the following conclusions can be obtained:

a. Brand Personality or brand personality has been proven to have a positive effect on increasing Brand Love, which can be interpreted as the higher the Brand Personality value attached to consumers, the more it will form a sense of consumer love for the brand.

b. Brand experience has been proven to have a positive effect on brand love, which can be interpreted as the higher the consumer experience in using the brand, the higher the consumer love for the brand will be.

c. Brand image has a positive effect on brand love, giving the understanding that the higher the brand image, the more consumers can strengthen consumer understanding of the brand, so that it will increase the level of consumer love for the brand.

d. Brand personality has a positive effect on brand loyalty, giving the understanding that the higher the brand personality, the stronger the product brand will have a strong appeal to consumers, so that it will have an impact on high consumer loyalty to the brand.

e. Brand experience has a positive effect on brand loyalty, which can be interpreted as the higher the consumer experience in using the brand, of course it will increase customer loyalty to the brand.

f. Brand image has a positive effect on brand loyalty, which means that the higher the brand image, the more consumers can strengthen their understanding of the brand, so that it will have an impact on high consumer loyalty to the brand.

g. Brand love has a positive effect on brand loyalty, meaning that the higher the level of consumer love for the brand, the higher the customer loyalty to the brand.

REFERENCE

1. Dr. Kasmir, S. M. (2019). Pengantar Manajemen Keuangan. Jakarta: Kencana.
Joshi, R., & Garg, P. (2021). Role of Brand Experience in Shaping Brand Love. 11.
2. King, S. (1970). What is a Brand. London: J. Walter Thompson.
3. Kotler, P., Keller, K. L., & Chernev, A. (2022). Marketing Management. United Kingdom: Pearson Education Limited.
4. Lee, L., James, J., & Kim, Y. K. (2014). A Reconceptualization of Brand Image. 1.
5. Tanamal, F. E., Fajarwati, D., & Hadi, D. P. (2022). ANALISIS PENGARUH BRAND ENGAGEMENT DAN BRAND LOVE TERHADAP BRAND EQUITY DAN PURCHASE INTENTION HANDPHONE MEREK SAMSUNG. 3.
6. Aaker, Jennifer L. 1997. "Dimensions of Brand Personality." Journal of Marketing Research. https://doi.org/10.2307/3151897.
7. Ahuvia, Aaron C. 2015. "Nothing Matters More to People than People: Brand Meaning and Social Relationships." Review of Marketing Research. https://doi.org/10.1108/S1548-643520150000012005.
8. Farhat, Reshma, and Bilal Mustafa Khan. 2012. "Brand Personality, Consumer Congruity and Advertising: Influence on the Apparel Brands." Prastuti: Journal of Management & Research. https://doi.org/10.51976/gla.prastuti.v1i1.111204.
9. Fetscherin, Marc, Michele Boulanger, Cid Gonçalves Filho, and Gustavo Quiroga Souki. 2014. "The Effect of Product Category on Consumer Brand
10. Relationships." Journal of Product and Brand Management. https://doi.org/10.1108/JPBM-05-2013-0310.
11. Filho, Cid Goncalves, Plinio Rafael Reis Monteiro, and Gustavo Quiroga Souki. 2010. "The Impacts of Brand Love, Brand Equity in the Consumer‟s Loyalty and the Customer‟s Purchase Intentions: The Development and Testing of Alternative Models in the Automotive Sector." EnANPAD.
12. Kevin Lane Keller. 2013. Strategic Brand Management : Building, Measuring, and Managing Brand Equity Fourth Edition. Journal of Brand Management.
13. Khani, Sajad, Seyyed Mahdi Imanikhah, Hamed Gheysari, Seyyed Saadat Kamali, and Tahereh Ghorbanzadeh. 2013. "The Relationship of Appliance Consumer Personality Trait, Brand Personality, Brand Loyalty and Brand Equity in the Mobile Phone Industry." International Journal of Fundamental Psychology and Social Sciences.
14. Kotler & Keller. 2016. Kotler & Keller - Marketing Management. Boletin Cultural e Informativo - Consejo General de Colegios Medicos de España.
15. Lewarissa, Adrianus SN. 2012. "Pengaruh Brand Love Sebagai Faktor Mediasi antara Costumer Satisfaction terhadap Brand Loyality dan Positive Word Of Mouth Produk Notebook." Yogyakarta. Universitas Atma Jaya
16. Nurani, Eka Setya, and Jony Oktavian Haryanto. 2010. "Pengaruh Celebrity Endorser, Brand Association, Brand Personality Dan Product Characteristics Dalam Menciptakan Intensi Pembelian." Journal of Business Strategy and Execution.
17. Ocktaria, Rossa, Srikandi Kumadji, and Kadarisman Hidayat. 2015. "Pengaruh Brand Personality Dan Sales Promotion Terhadap Brand Equity Dan Keputusan Pembelian." Jurnal Administrasi Bisnis (JAB).
18. Rodrigues, Paula, and Raquel Reis. 2013. "The Influence of „Brand Love‟ in Consumer Behavior – The Case of Zara and Modalfa Brands." In Proceedings of 22nd International Business Research Conference.
19. Rutter, Richard, John Nadeau, Ulf Aagerup, and Fiona Lettice. 2020. "The Olympic Games and Associative Sponsorship: Brand Personality Identity Creation, Communication and Congruence." Internet Research. https://doi.org/10.1108/INTR-07-2018-0324.

CHAPTER 2

Navigating the Regulatory Landscape: Opportunities and Challenges for Renewable Energy Business in Indonesia

Reza Perkasa ALAMSYAH
IPMI Institute
reza-alamsyah@ipmi.ac.id
Orcid: 0009-0006-6011-9742

Sidrotun NAIM
IPMI Institute
sidrotun.naim@ipmi.ac.id
Orcid: 0000-0002-8485-8981

ABSTRACT

The study investigates renewable energy businesses in Indonesia in the context of the dynamic regulatory environment. The study highlights severe shortcomings in economics and finance, government policy and the political environment. The key research questions are: what are the applicable laws and regulations on renewable energy in Indonesia, what are the areas for opportunities in terms of investment and growth in the renewable energy sector in Indonesia, what are the major issues in which renewable energy companies have to deal with the various regulations imposed in Indonesia and how policy recommendations may be designed in order to complement the energy transition in Indonesia. The research through the detailed literature review focuses on those variables such as foreign investment, government policy and market infrastructure. It uses literatures in a range of systematic reviews and expert evaluations to present a clear view of the opportunities and challenges in the sector. The themes mainly revolve around the political support for renewable energy, the importance of investors unbiased policy, and the significance of political will. Using the qualitative research methodology is exploratory in scope which should help specifically examine the broader breaks of the Indonesian renewable energy market to allow the target audience in Indonesia, policymakers, potential investors, and businesspeople operating in the renewable energy sector to receive certain benefits from the outcomes of this case study.
Keywords: Renewable Energy, Government Policy, Investment opportunities, Energy Transition, Political support, Qualitative research.

INTRODUCTION

The efforts made to combat climate change have been unprecedented, which has been met by global cooperation for significant summits such as COP28 which took place in Abu Dhabi, UAE on November 30th to December 12th, 2023. As a result of COP28, developing countries are set to receive increased financing for fighting climate change as the conference's goal of bringing international climate finance up to US$ 100 billion was met. Further, COP28 aims to revive the broader international climate agreement regarding order's multilateral trading system. COP29 will forge on and build on these ambitious goals, focusing on establishing a new international financial goal to help developing countries shift to low carbon economy, adapt to climate change impacts, strive for more greenhouse gas emission reductions and build more climate-resilient communities. Considering this aims and Indonesia's climate edge aspirations, at COP29 the country focuses on enabling systems change to achieve fair and innovative climate finance for the purpose of independently achieving 31.89% reductions in its emissions and supported reductions of 43.2%. Speaking on the country's climate and energy policies, Indonesia has been promoting initiatives such as the renewable energy mix and carbon emission certification schemes such as the Indonesian Emission Reduction Certificate (SPEI) as ambitious emission targets.

In the context of Indonesia, the commitment made by the authorities to be net zero by 2060 or even earlier is a commitment towards development which is sustainable nation. It is highly anticipated that geothermal resources will play a big role in this transition as it is expected that such resources will contribute 23% by 2025 and 31% by 2050 to the country's energy mix. In addition to this, such a transition promises not only a reduction in greenhouse gasses however, there are also great prospects for economic growth, investments and climate finance in Indonesia.

In addition, the energy transition in the case of Indonesia presents a target area that has potential space for greater climate finance as well as investment. With utilizing forces of key actors from the energy ecosystem, Indonesia has the potential of improving its energy policies and implementing cleaner energy technologies. This introduction paper attempts to discuss the regulations surrounding the renewable energy sector in Indonesia, recognizing the opportunities as well as the challenges, and discuss how the country can deal with these challenges in order to achieve the goal of a more sustainable economy.

1. LITERATURE REVIEW

The renewable energy sector in Indonesia can be dynamic and robust considering the tremendous need to switch to sustainable energy systems and the abundant of potential resources in the country. This literature review focuses on several issues that may assist in explaining the situation and these include, the dynamics of private investment, government interventions, targets for renewable energy and development of markets for their renewable energy. These factors are crucial in perceiving the potential and constraints to the operation of renewable energy businesses in Indonesia.

In the case of systematic review of Schmid S. Tobias, *"How do policies mobilize private finance for renewable energy? —A systematic review with an investor perspective"* Still, the authors assert, "residential investors' investment decisions always rotate around the expected risk /return of investments". With the highest potential to renewable resources, Indonesia presents an attractive market to renewable energy (REN) businesses. Investment strategies expose investors to risk such as regulatory risk, perceived high initial capital requirement, and the need for intensive infrastructure investment. Schmid points out that government policies are vital in that they aid in factors that lessen the risks as well as offering factors that increase the attractiveness of Renewable Energy investment projects. For such reasons, these dynamics are essential for increasing private investment in Indonesia's renewable energy sector.

In the paper titled *"Rethinking renewable energy targets and electricity sector reform in Indonesia: A private sector perspective"* Martha Maulidia, while looking at the ambiguities around renewable energy development in Indonesia, illustrates how government and political policies are thought to be instrumental in the renewable energy picture. Some interest groups say there is need for an overarching policy which makes the private sector interested in investing so as to mitigate the monopolized power market system and intricate electricity pricing regulation schemes. Maulidia states that in order to entice foreign investors, Indonesia should promote easier doing business, well defined policies as well as consistent incentives. Her research highlights the importance of political will and proactive steps in addressing the risks of investment and creating a positive atmosphere for renewable energy market solutions. Maulidia stresses the importance of the Indonesian renewable energy targets in addressing the energy trilemma: sustainability, security and affordability. These targets are the hallmark of new development policies as they are no longer framed in abstract objectives, but rather in concrete measures of success. However, in order to overcome the present situation where there is insufficient investment in the electricity infrastructure of the country, there is need to ensure substantial participation of the private sector. Maulidia suggests that Indonesia further enhanced its resolve towards renewable energy by overcoming investment barriers and conducting extensive electricity market analysis,

Pei-Te Chiueh research titled "*A challenging approach for renewable energy market development"* attempts to explore the relationship between renewable energy policies implemented by a country and the extent of renewable energy products manufactured in that country. It is reasonable to expect that countries with comprehensive policies on renewables such as production incentives and subsidies would tend to have a more developed market and more products consumed. In Chiueh's conclusions, the author believes that Indonesia can be similar as countries who pin their hopes on the adopted policy instruments. Feed in tariffs, tax breaks and production subsidies are reasoned to be the most useful tools in popularizing renewable energy technologies for economic competitiveness against conventional energy sources. Finally, as stated by The Ministry of Energy and Mineral Resources (ESDM) and the Indonesia's state-owned utility company PLN, dominate the Indonesia's landscape in terms of installed capacity and generated power from renewable energy sources. Indonesia's large renewable energy resources consist of geothermal, hydro, solar and wind energy. In the scenarios drawn up by the government's stakeholders of renewable energy utilization, great emphasis is placed on early coal plants' retirement for emission reduction and improvement of the overall renewable energy mix. Performance of these scenarios for ESDM and PLN is necessary for the accomplishment of national energy objectives and advancing sustainable energy transition.

2. RESEARCH METHOD

The methodology employed in this research is the exploratory qualitative research approach. This approach seeks to deepen the understanding of the regulatory landscape, the opportunities and challenges that exist, and the policies that can be instituted in the renewable energy sector in Indonesia. Qualitative research designs are often the most appropriate for understanding complicated and multidimensional problems. This method enables the gathering and interpretation of in-depth and context rich data from diverse stakeholders engaged in the renewable energy sector. Some qualitative methods are being employed in the primary data collection by performing interviews with the Subject Matter Experts (SME) in this area. Individual stakeholders will be interviewed using in-depth, semi-structured interviews in order to capture the breadth and depth of their experiences and the intricacies of their perspectives.

Primary data are drawn from the following sources: Govern Office Representatives the Ministry of Energy and Mineral Resources ESDM on regulatory policies and initiatives, PT PLN Persero representative's implementation constraints, operational experiences and private renewable energy firm representative's investment decisions, experiences and challenges in regulatory frameworks. The secondary data will be obtained from the literature review, studies of like-kind in the area, and reports available to the public. These will comprise materials dealing with documents and publications of the ESDM about energy policies, regulations, targets and reports by PLN and the national energy council containing substantive renewables projects and strategies, and journals and articles on the renewable energy market, policy and investment in Indonesia.

3. RESULTS AND DISCUSSION

In order to answer the research question, various sources of data were obtained. The first and primary method was the implementation of oral in-depth interviews with practitioners, business experts, academics as well as regulators. These interviews gave a platform for 10 (ten) specialists in their respective fields and were conducted around October and November 2024. To further enhance such understanding of the topic, interviews were held with a total of 23(twenty-three) i-Participants, to seek their opinion. The table below summarizes the educational achievement of both participants and i-participants, showing the unique barriers, angles and levels of the study subjects

Table-1: Key Stakeholder Background of Participants of in-depth interview session.

Key Stake Holder	Total	Percentage
Academia	20	61%
Business Practitioners	10	30%
Government Official/Regulator	3	9%

Table-2: Feedback from SME interview related Key Opportunities and Key Challenges faced by renewable energy businesses in navigating the regulatory landscape in Indonesia

No	Key Opportunities	Key Challenges
1	Abundant Renewable Resources	Regulatory Complexity
2	Government Incentives	High Initial Costs
3	Growing Energy Demand	Policy and Political Uncertainty
4	International Commitments	Infrastructure Limitations
5	Technological Advancements	Access to Financing
6	Private Sector Participation	Supply Chain Issues
7	Job Creation	Environmental Concerns
8	Environmental Benefits	Land Acquisition
9	Energy Security	Market Competition
10	Market Expansion	Public Perception
11	Foreign Investment	Economic Viability
12	Public-Private Partnerships	Technological Barriers
13	Innovation and Research	Environmental Concerns
14	Sustainable Development Goals	Operational Challenges
15	Economic Growth	Grid Integration

CONLUSION AND RECCOMENDATION

Focusing on the feedback obtained during the interviews conducted with the Subject Matter Expert (SME) points towards the potential available, as well as challenges faced by renewable energy businesses in Indonesia.

There is quite a large local potential for renewable energy generation as Indonesia is rich with renewable sources such as geothermal, solar and wind. Additional power demand and government provisions will support investment. On the regional scale commitments to the climate targets also bolster this sector. Also, technological progress and active involvement of the private sector aid the growth of this sector. The renewable energy industry is ready to create new employment opportunities, improve the environment and guarantee energy independence. Supported by public and private partnerships, transformations and technological developments, prospects of international investments and economic growth markets are waiting for expansion.

However, businesses have certain challenges to contend with the complexity of regulation and the need for significant upfront investment are barriers to progress. The policy integration of renewable energy sources into the energy mix and other geopolitical factors add complications. The limitation of infrastructures and the degree of accessibility of financing are constant problems. Apart from these supply chain issues, the geo-political environment and land disputes are a hindrance. Other essential challenges remain competition in the market, customer engagement and constant profitability. Sociably, building up on the huge potential offered through renewable energy will also require overcoming certain technological and interaction challenges. Improving policies and investing strategically while balancing these investments and difficulties is critical to enhancing Indonesia's renewable energy industry and attaining sustainable development and climate change resiliency. Several recommendations from this study to implement in order to establish a more renewable energy investment friendly environment, deal with already existing challenges and speed up its transition to sustainable and resilient future energy system as follow:

Streamline All Regulatory Processes: Unite fragmented paperwork and regulatory processes to eliminate the very matter of regulatory complexity and improve transparency. This can be done by embodying a single window clearance system regarding renewable energy, which in turn will reduce red tape and make life easier for all that revolve around the compliance needs of these regulations. Moreover, clearly defined and consistently enforced policies will encourage investors and provide a more stable environment.

Enhance Financial Incentives and Access to Financing: More of such financial incentives in form of tax exemptions, public subsidies, low interest rates to newline banks, building an exclusive green funding system, and partnering together with global climate change international ventures could help a lot too. Such policy changes would greatly increase the number of companies able to fund investment on the renewable energy.

Investment in infrastructure and technological advancement: Create budget for improvement and development of energy infrastructure in order to allow integration of renewable energy into the overall energy system. By investing in better technologies for energy storage, better energy grids, and better harnessing of renewable energies it would increase the reliability of renewable energy systems. Even the introduction of new technological advancements in this realm can be significantly boosted through public-private partnerships.

REFERENCES

Schmidt, T. S., Blum, N. U., & Wakeling, R. S. (2013). **Attracting private investments into rural electrification — A case study on renewable energy-based village grids in Indonesia**, Energy for Sustainable Development.

Maulidia, M., Dargusch, P., Ashworth, P., & Ardiansyah, F. (2019). **Rethinking renewable energy targets and electricity sector reform in Indonesia: A private sector perspective**, Renewable and Sustainable Energy Reviews.

Langer, Jannis & Quist, Jaco & Blok, Kornelis. (2021). **Review of Renewable Energy Potentials in Indonesia and Their Contribution to a 100% Renewable Electricity System**, Energies.

Chiueh, P.-T., & Yu, Y.-H. (2011). **A challenging approach for renewable energy market development**, Renewable and Sustainable Energy Reviews.

P. A., Duic, N., Noorollahi, Y., Mikulcic, H., & Kalogirou, S. (2020). **Sustainable development using renewable energy technology**, Renewable Energy.

Firmansyah, V, Adinarayana, M. K., Tetrisyanda, R., & Wibawa, G. (2023). **Scenario of renewable energy transition from fossil energy resources towards net zero emission in Indonesia,** E3S Web of Conferences.

Setyowati, A. B. (2021). **Mitigating inequality with emissions: Exploring energy justice and financing transitions to low carbon energy in Indonesia,** Energy Research & Social Science.

Wang, Q., & Zhan, L. (2019). **Assessing the sustainability of renewable energy: An empirical analysis of selected 18 European countries,** Science of The Total Environment.

CHAPTER 3

Addressing M&A Challenges: Strategic Recommendations for PT XYZ in the Mining and Construction Sector

Adrius Sinuhaji
IPMI Institute
adrius.sinuhaji@ipmi.ac.id
Orcid: 0009-0008-4056-2856

Roy SEMBEL
IPMI Institute
roy.sembel@ipmi.ac.id
Orcid: 0000-0002-9023-9976

Melinda MALAU
Universitas Kristen Indonesia
melinda.malau@uki.ac.id
Orcid: 0000-0002-6576-3063

ABSTRACT

This thesis investigates the key challenges of merger and acquisition (M&A) difficulties encountered by PT XYZ in the mining construction industry. Its aim is to propose strategies to address both M&A. The research employs various methods, including Gap Analysis, SWOT Analysis, and TOWS Matrix for strategic recommendations. The project timeline spans from week one to week twelve, covering initiation, planning, execution, closure, and control. Deliverables include a literature review, industry and company analyses, a problem summary, recommendations, an implementation plan, a presentation, and the final thesis. Findings indicate that a multifaceted approach is essential to tackle M&A challenges. PT XYZ should focus on gradual integration, enhance cross-functional collaboration, and draw on its experience in similar consolidations to address M&A issues. Recommendations for the organization, industry, business, and customers highlight the importance of operational efficiency, sustainability, customer engagement, and technological innovation. Limitations include issues with data accessibility and the unpredictable nature of M&A outcomes. Future projects should prioritize digital transformation, sustainability initiatives, and diversification into renewable energy and technology sectors to ensure PT XYZ's long-term growth and resilience.

Keywords: Merger and Acquisitions, Strategic Recommendations, Mining Construction.

1. INTRODUCTION

The mining construction industry is essential to the global economy, supplying raw materials for sectors such as infrastructure, energy, and manufacturing. This industry, which includes the exploration, extraction, and processing of minerals and metals, faces growing pressure to improve operational efficiency and comply with environmental and safety standards, particularly as demand for raw materials increases in developing economies. As noted by Yu et al. (2024), the industry must balance the need for innovation with the growing concerns over environmental sustainability and worker safety.

A major challenge for the mining construction industry is its environmental impact, including deforestation, soil erosion, and water pollution, which can harm local ecosystems. In response, many mining companies are adopting sustainable practices, such as using technologies to reduce waste, improve energy efficiency, and rehabilitate mined areas. Additionally, there is a strong focus on developing more eco-friendly extraction methods to reduce the industry's carbon footprint and promote long-term sustainability.

Safety is another critical concern, as mining operations pose numerous hazards, including cave-ins, toxic exposure, and accidents involving heavy machinery. To address these risks, the industry has implemented comprehensive safety training, advanced technologies like drones for site monitoring, and strict safety protocols. These measures have significantly reduced workplace accidents and fostered a safety culture that not only protects workers but also improves overall productivity and operational efficiency.

Technological advancements are transforming the mining construction industry by enhancing both productivity and sustainability. The integration of automation, robotics, and artificial intelligence (AI) allows for more efficient resource management and decision-making. Automation reduces reliance on manual labor, especially in hazardous environments, while AI and data analytics optimize operations and resource allocation. These innovations not only boost efficiency but also help minimize the environmental impact of mining activities, aligning the industry with broader sustainability goals.

The mining construction industry is also influenced by global economic and geopolitical factors, such as fluctuations in commodity prices, trade policies, and international relations. These factors can impact the feasibility of mining projects and affect investment decisions and market access. As such, companies in this sector must remain adaptable and strategically navigate the global economic landscape to ensure ongoing success.

In Indonesia, both the construction and mining industries are vital to the country’s economic growth. Projections for the Indonesian construction industry show a market size of USD 284.17 billion in 2024, with an annual growth rate of 4.5%, driven by significant government investments in infrastructure and a favorable economic climate. The sector is expected to continue growing at a compound annual growth rate (CAGR) of 7.5%, bolstering Indonesia's economic competitiveness and infrastructure development.

Similarly, Indonesia's mining industry is forecast to grow by 3.48% in 2024 and contribute 10.52% to the nation's GDP. This growth highlights the mining sector's resilience and its essential role in Indonesia's economy. With key commodities like coal, nickel, and copper, the mining industry has attracted substantial foreign investment, particularly in coal mining. As Indonesia continues to develop its mining infrastructure, the sector is expected to remain a crucial driver of economic development, supporting both domestic needs and international exports.

1.2 COMPANY BACKGROUND

PT XYZ, a mining service provider based in Jakarta, Indonesia, was established in 2000. Initially focused on software development for business and finance, the company expanded into the internet café sector in 2001. In 2011, PT XYZ shifted its focus to coal mining after a backdoor listing with a South Korean energy company, eventually selling off its software business. The company rebranded in 2012 and, in 2023, acquired a majority stake in another mining contractor, strengthening its position in the industry.

PT XYZ’s vision is to become a leading holding corporation offering high-quality, sustainable mining solutions. Its mission focuses on operational excellence, emphasizing efficiency, safety, and productivity within the mining sector. The company is committed to providing competitive mining services while promoting environmental stewardship and sustainability, ensuring long-term success in the industry.

1.3 PROBLEM BACKGROUND

PT XYZ has a strong track record of mergers and acquisitions (M&A) in the mining sector, successfully integrating companies like PT ABC, PT DEF, PT GHI, and PT JKL, which enhanced its coal mining services, including overburden removal, coal transportation, and drilling exploration. However, the proposed merger with PT MNOP presents challenges due to their differing focuses—MNOP specializes in vehicle rental and internet services. This sector divergence raises concerns about strategic alignment and cultural integration, as merging companies with such distinct operations could complicate integration and distract from XYZ’s core focus on mining services. Overcoming these challenges will require careful planning to ensure the merger strengthens, rather than detracts from, PT XYZ's competencies in the mining industry.

2. LITERATURE REVIEW

2.1 AGENCY THEORY

Agency Theory examines the relationship between principals (shareholders) and agents (executives), highlighting the potential conflicts of interest when agents prioritize personal goals over the interests of the principals. This misalignment can undermine performance and shareholder value (Ross, 1973; Jensen and Meckling, 1976). A key issue is information asymmetry, where agents possess more information, allowing them to make decisions that benefit themselves rather than the shareholders. To address this, the theory suggests mechanisms like performance-based incentives, monitoring systems, and governance structures to align interests and reduce agency costs.

In mergers and acquisitions (M&A), Agency Theory is particularly relevant, as executives may pursue deals for personal gain rather than shareholder benefit, potentially harming the organization. Therefore, strong governance, transparency, and oversight are critical to ensuring executives act in the best interests of shareholders during these transitions. Overall, effective corporate governance helps address agency problems, improving efficiency and fostering long-term success.

2.2 MERGER AND ACQUISITION

Mergers and acquisitions (M&A) are strategic processes through which companies combine resources, capabilities, and market presence to enhance competitiveness, achieve growth, or diversify operations. A merger occurs when two companies create a new entity, while an acquisition involves one company purchasing another. M&A is often driven by the desire for synergies, such as cost efficiencies, expanded market reach, and improved products. The M&A process involves stages like strategic planning, due diligence, negotiation, and integration. Each phase requires careful management, particularly integration, which can be challenging as it involves aligning operations, cultures, and systems. (Candra et al, 2021)

While M&A can offer significant benefits, it also presents risks. Cultural clashes between merging organizations can lead to employee dissatisfaction and turnover, potentially undermining the benefits of the deal. Overestimating synergies can strain finances, and regulatory hurdles can complicate approvals, especially in regulated industries. These challenges highlight the importance of thorough due diligence and realistic expectations.

For PT XYZ, its past M&A activities have expanded its coal construction services by integrating specialized companies such as PT ABC (land and overburden removal), PT DEF (coal hauling), PT GHI (coal transportation), and PT JKL (drilling exploration). These acquisitions have bolstered PT XYZ's capabilities, creating a more integrated approach and enhancing competitiveness.

Currently, PT XYZ faces challenges in its acquisition of MNOP, a company specializing in 4WD vehicle rentals for mining. This acquisition introduces complexities due to the differing focus of the two companies—PT XYZ's focus on coal services and MNOP's emphasis on vehicle rental. Integrating operations and cultures across these different industries poses risks of inefficiency and operational friction, requiring careful management to ensure the expected benefits of the acquisition are realized.

3. RESEARCH METHOD

3.1 GAP ANALYSIS

Gap analysis is a strategic tool used by organizations to identify discrepancies between their current performance and desired outcomes, helping to pinpoint areas for improvement and guide decision-making (Mutmainah et al, 2022). The process begins by setting clear objectives and performance benchmarks, such as revenue, operational efficiency, or customer satisfaction, which provide a basis for comparison. The next step is assessing the current state of the organization, often through key performance indicators (KPIs), surveys, or financial reviews. This helps to uncover gaps, which may be caused by factors like skill deficiencies, outdated processes, or resource shortages. Once gaps are identified, organizations prioritize them based on their impact and feasibility of addressing them. Strategic plans are then formulated to close these gaps, such as through employee training, adopting new technologies, or process improvements. Gap analysis is an ongoing process, requiring continuous monitoring and adjustment to stay aligned with evolving strategic goals and market conditions, fostering long-term organizational success and competitiveness.

3.2 SWOT ANALYSIS

SWOT analysis is a strategic planning tool that helps organizations evaluate their internal strengths and weaknesses, as well as external opportunities and threats, to inform decision-making and strategic direction (Mardiyana et al, 2022). Strengths refer to the internal factors that give an organization a competitive advantage, such as strong brand recognition, loyal customers, or skilled personnel. Weaknesses are internal limitations, such as resource shortages or outdated technology, that need to be addressed for improved performance. Opportunities represent external factors, like market trends or technological advances, that businesses can leverage for growth, while threats include external challenges, such as increased competition or economic downturns, that could harm performance. By analyzing these four components, companies can develop strategies to capitalize on their strengths and opportunities, while addressing weaknesses and mitigating threats, thus enhancing their market position and overall effectiveness.

3.3 TOWS MATRIX

The TOWS Matrix is an extension of SWOT analysis that helps organizations develop actionable strategies by linking internal strengths and weaknesses with external opportunities and threats (Escalona et al, 2022). Unlike SWOT, which identifies these factors, the TOWS Matrix provides a framework for formulating strategies based on their interactions. It is structured in four quadrants: SO (Strengths-Opportunities) strategies leverage an organization's strengths to capitalize on external opportunities, such as launching new products in response to consumer trends. ST (Strengths-Threats) strategies use strengths to counteract threats, like securing supply chains against economic disruptions. WO (Weaknesses-Opportunities) strategies focus on addressing internal weaknesses to exploit external opportunities, such as investing in employee training to tap into new markets. Lastly, WT (Weaknesses-Threats) strategies aim to minimize weaknesses and protect against external threats, such as streamlining operations to reduce costs during economic downturns. The TOWS Matrix fosters dynamic, critical thinking, enabling businesses to create comprehensive strategies that align internal capabilities with external conditions, promoting long-term growth and resilience.

4. RESULT AND DISCUSSION

4.1 GAP ANALYSIS

Table 1. Gap Analysis of PT XYZ

Aspect	Current State	Desired State	GAP	Action Plan
M&A Integration (MNOP)	Unrelated industries, integration challenges (MNO, NOP)	Successful integration of MNOP with minimal disruption	Difficulty in aligning operations, cultures, and resources across different industries (MNO & NOP)	1. Conduct thorough due diligence on the cultural and operational differences of MNOP 2. Focus on gradual integration and cross-functional teams
Operational Efficiency	Lack of integration in processes and technology across acquired entities	Streamlined operations across all entities (ABC, DEF, GHI, JKL, MNOP)	Process inefficiencies, high overhead costs, and resource duplication	1. Implement a company-wide digital transformation strategy 2. Standardize operational processes and technology across all subsidiaries
Cultural Alignment	Potential clashes due to different organizational cultures (MNO, NOP)	Unified company culture that integrates all entities	Cultural misalignment between old and new acquisitions	1. Initiate team-building activities and leadership workshops 2. Promote shared values and clear communication
Regulatory Compliance	Regulatory delays and challenges in integrating the MNOP merger	Smooth regulatory approval and alignment with industry standards	Delays in M&A process due to regulatory hurdles, especially for cross-industry mergers	1. Work with regulatory experts early to ensure compliance 2. Ensure all acquisitions align with legal and regulatory frameworks in each industry

The gap analysis of PT XYZ highlights several key areas requiring attention as the company navigates the complexities of its merger with PT MNOP and addresses operational inefficiencies.

In terms of M&A integration, PT XYZ faces significant challenges due to the merger of companies from unrelated industries. The current state reflects difficulties in aligning operations, cultures, and resources across the different entities involved, particularly MNO and NOP. The desired state is a seamless integration with minimal disruption. To address this gap, PT XYZ needs to conduct thorough due diligence on the cultural and operational differences between the merged companies, focusing on gradual integration and leveraging cross-functional teams to manage the transition effectively.

Regarding operational efficiency, PT XYZ currently lacks integration in processes and technology across its acquired entities, resulting in process inefficiencies, high overhead costs, and resource duplication. The desired state is streamlined operations across all entities, ensuring cost-effectiveness and operational harmony. To achieve this, PT XYZ should implement a company-wide digital transformation strategy and standardize operational processes and technologies across all subsidiaries, which will help reduce inefficiencies and unify the company's operations.

Cultural alignment is another significant area of concern, with potential clashes between the organizational cultures of PT XYZ and its new acquisitions, particularly MNO and NOP. The desired state is a unified company culture that integrates all entities. To bridge this gap, PT XYZ should initiate team-building activities, leadership workshops, and promote shared values through clear communication to foster a cohesive work environment and mitigate cultural friction.

Finally, regulatory compliance presents challenges in the merger process, with delays and hurdles in aligning with industry standards. The desired state is smooth regulatory approval and seamless integration with industry standards. To address this, PT XYZ should collaborate with regulatory experts early in the process to ensure all acquisitions comply with relevant legal frameworks and mitigate delays in the M&A process, particularly for cross-industry mergers. This proactive approach will help ensure a smooth regulatory path and timely integration.

4.2 SWOT ANALYSIS

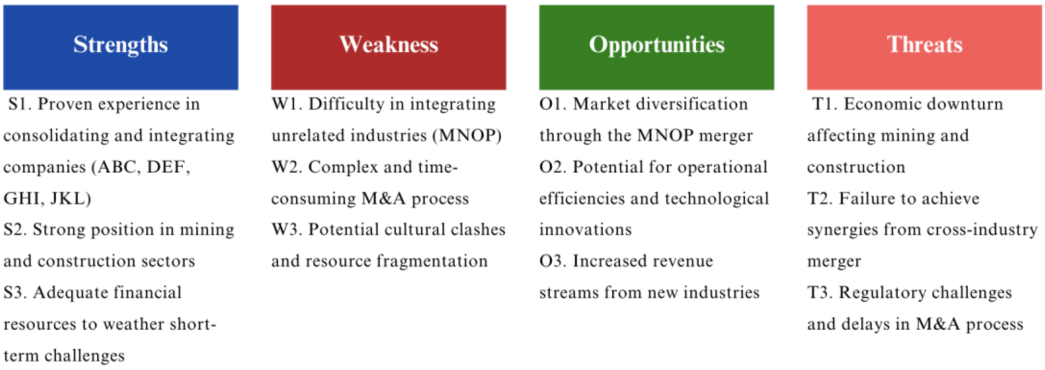


Figure 1 SWOT Analysis of PT XYZ

Figure 1 presents the SWOT analysis of PT XYZ, highlighting key strengths, weaknesses, opportunities, and threats. PT XYZ's strengths include its proven experience in integrating companies within the same industry, bolstering its position in the M&A landscape. Additionally, the company has a strong presence in the mining and construction sectors, backed by a solid reputation, customer base, and financial resources, which provide stability during market fluctuations.

However, PT XYZ faces significant weaknesses, particularly in integrating PT MNOP, a merger involving unrelated industries. The challenges of aligning operations, cultures, and resources complicate the realization of synergies. The complexity and duration of this integration process, along with potential cultural clashes and resource fragmentation, add to operational inefficiencies and strategic hurdles.

Despite these challenges, PT XYZ has opportunities for growth, particularly through market diversification from the MNOP merger. Entering new industries reduces dependence on cyclical sectors and opens new revenue streams. The merger also presents potential for operational efficiencies and technological innovations, enabling cost reductions and increased productivity. PT XYZ could capitalize on these opportunities to strengthen its market position and become a more competitive, diversified entity.

Nevertheless, PT XYZ faces several threats, including the economic volatility of the mining and construction sectors, the risk of failing to achieve synergies from the merger, and regulatory hurdles. Economic downturns and regulatory delays could hinder growth and complicate the integration process, posing risks to PT XYZ's strategic objectives and long-term success.

4.3 TOWS MATRIX

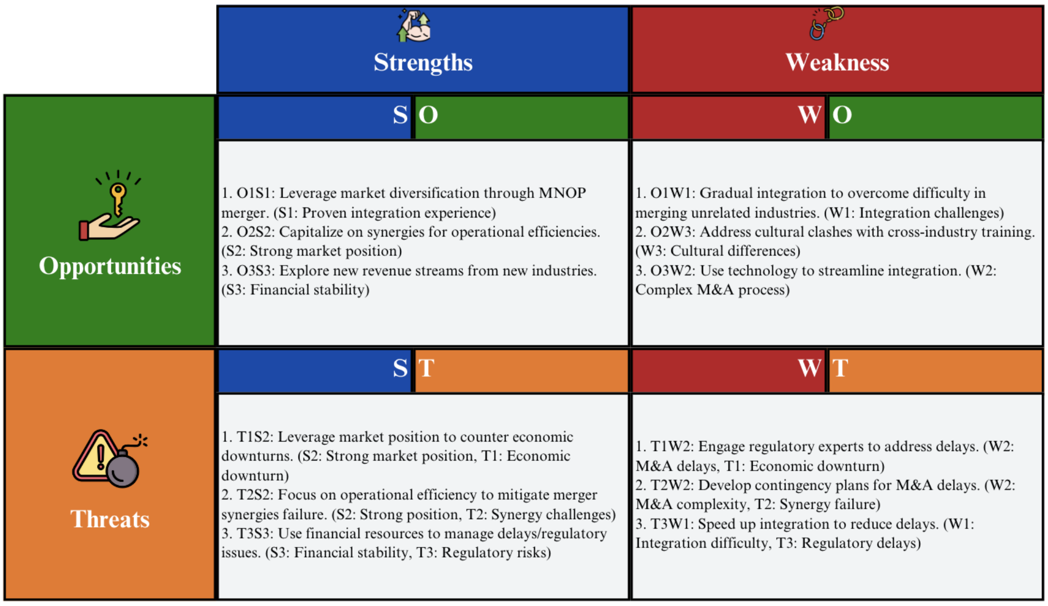


Figure 2. TOWS Matrix of PT XYZ

Figure 2 outlines the TOWS matrix for PT XYZ, providing a strategic framework that aligns its internal strengths and weaknesses with external opportunities and threats. This matrix helps guide PT XYZ through the complexities of the MNOP merger and revenue decline by optimizing strategies for growth, operational efficiency, and risk mitigation.

To leverage its strengths and seize opportunities, PT XYZ can use its successful M&A experience (S1) to navigate the integration of MNOP and expand into new markets (O1). Its strong market position in mining and construction (S2) can be harnessed to achieve operational efficiencies across the company's portfolio (O2), while its financial stability (S3) allows for diversification into new industries, reducing reliance on the cyclical nature of its core sectors (O3). These strengths position PT XYZ to effectively capitalize on the growth potential presented by the MNOP merger.

Addressing weaknesses while seizing external opportunities, PT XYZ should implement a gradual integration approach (W1) to manage the challenges of merging unrelated industries (O1). This would involve aligning business models and cultures step by step, ensuring smooth integration. Additionally, to overcome cultural differences (W3), the company can invest in cross-industry training programs that foster collaboration, which also supports operational efficiencies (O2). Furthermore, digital tools and automation (W2) should be deployed to streamline operations and speed up the integration process (O3), reducing the time and complexity of the merger.

In dealing with external threats, PT XYZ can leverage its market position in mining and construction (S2) to weather economic downturns (T1) by focusing on cost-effective solutions and strengthening customer relationships. To mitigate the risk of synergy failure (T2), PT XYZ can prioritize operational excellence, ensuring maximum productivity even if expected synergies do not fully materialize. Its strong financial position (S3) enables the company to absorb regulatory challenges and delays (T3), allowing it to manage these obstacles without significant strain.

Lastly, to address weaknesses while mitigating external threats, PT XYZ should engage regulatory experts (W2) to navigate potential delays in the M&A process and reduce the impact of economic downturns (T1). Developing contingency plans (W2, T2) will help PT XYZ remain agile if the merger's synergies take longer to realize. Accelerating the integration process (W1) will also help reduce the impact of regulatory delays (T3), enabling PT XYZ to achieve the full benefits of the merger more quickly and efficiently.

5. CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

In conclusion, PT XYZ faces significant challenges in integrating PT MNOP, a company from a different industry, into its operations. While PT XYZ has experience in merging related businesses, the cross-industry nature of this merger presents complexities, such as differences in corporate cultures, operational practices, and business models, which could lead to inefficiencies and friction. Additionally, navigating the regulatory environment and sector-specific compliance requirements further complicates the process. However, PT XYZ's strong financial position, past M&A experience, and stable governance provide a solid foundation for overcoming these challenges. With careful planning, phased integration, and a focus on aligning corporate cultures, PT XYZ can successfully integrate PT MNOP and realize the merger's potential value while maintaining operational efficiency.

5.2 RECOMMENDATIONS

To overcome challenges in mergers and acquisitions (M&A) and address revenue decline, PT XYZ should adopt a phased integration strategy for its acquired businesses, especially PT MNOP, which comes from an entirely different industry. A gradual integration approach will help manage cultural differences, align business models, and prevent operational inefficiencies. Rushing the integration could cause confusion, internal friction, and slow down synergies. In addition, strengthening internal communication and fostering collaboration across departments will be essential. Cross-functional teams, including representatives from HR, operations, finance, and IT, can work together to overcome integration challenges and drive innovation, helping to unify the organizational culture and improve efficiency.

From an industry perspective, PT XYZ has the opportunity to become a leader in sustainable practices and green technologies. With increasing environmental concerns and stricter regulations in mining and construction, PT XYZ can invest in cleaner mining techniques, renewable energy sources, and sustainable construction materials. By focusing on sustainability, the company can not only comply with regulations but also appeal to customers and investors who prioritize environmental responsibility. Collaborating with industry peers on common challenges like automation, supply chain efficiencies, and technological innovation will further strengthen PT XYZ's position as an industry leader, enabling it to improve operational efficiency and share the financial risks of research and development.

In order to address its revenue decline and position itself for future growth, PT XYZ should focus on operational efficiency, market diversification, and innovation. Implementing new technologies such as automation, AI, and data analytics will help reduce costs, streamline operations, and improve productivity across its mining and construction units. Automation can particularly improve resource extraction and logistics, while data-driven decision-making will optimize project forecasting and risk management. In addition, PT XYZ should explore opportunities in emerging sectors, such as renewable energy or technology, to diversify its service offerings and tap into new markets. These strategic moves will help mitigate risks associated with the cyclical nature of mining and construction and create a more resilient business model.

For customers, PT XYZ needs to adapt its offerings to meet the evolving demand for sustainability and efficiency. By integrating green building practices and eco-friendly mining solutions into its service portfolio, PT XYZ can align with global sustainability goals and attract clients who prioritize environmental impact. Offering energy-efficient construction and low-emission mining techniques could set PT XYZ apart as a preferred partner in the industry. Furthermore, enhancing customer engagement through digital platforms like CRM systems and mobile apps will provide real-time updates, improve project transparency, and personalize services. Strengthening customer relationships by focusing on sustainability and providing transparent, high-quality solutions will increase loyalty and strengthen PT XYZ's position in the market.

5.3 PROJECT LIMITATIONS

This project provides valuable strategic recommendations for PT XYZ regarding its M&A and revenue decline, but several limitations must be considered. First, the lack of access to proprietary financial data and internal operational details, especially regarding PT MNOP's integration, means the analysis is based primarily on publicly available information and industry trends, which may not fully capture PT XYZ's unique challenges. Additionally, the unpredictability of M&A outcomes, particularly in cross-industry mergers, introduces uncertainty, as factors like market fluctuations and cultural alignment can affect the integration process and delay the realization of synergies.

Another limitation is the rapid pace of change in the mining and construction sectors, which may make some recommendations less relevant if technological advancements or shifts in regulations alter the industry landscape. The project also focuses mainly on macroeconomic factors and does not deeply explore competitor strategies or customer behavior, which are crucial for understanding PT XYZ's competitive positioning. Lastly, the recommendations assume PT XYZ has the necessary resources to execute them, but challenges such as organizational resistance, unforeseen costs, and regulatory delays could hinder implementation. Thus, the strategies should be flexible and adaptable as PT XYZ navigates the complexities of the M&A process and addresses its revenue decline.

5.4 FUTURE PROJECT SUGGESTIONS

To further strengthen PT XYZ and enhance its competitive position in the mining and construction sectors, several future projects could be pursued. These initiatives would build on the current strategic recommendations and help the company navigate the complexities of M&A and adapt to evolving market conditions.

One potential project is a comprehensive digital transformation strategy. By investing in automation, data analytics, and AI, PT XYZ can modernize its operations, improving efficiency and reducing costs. Automating key processes like project management and supply chain logistics would streamline operations, while data analytics would offer deeper insights for more informed decision-making. This would position PT XYZ as an industry leader in leveraging technology to drive innovation.

Another project to consider is the development of a sustainability initiative. As environmental regulations tighten, PT XYZ could differentiate itself by adopting green practices, such as reducing carbon emissions, using sustainable materials, and implementing eco-friendly construction and mining techniques. This initiative would help PT XYZ meet regulatory demands and appeal to environmentally conscious customers, strengthening its brand and market position.

A third suggestion is expanding into emerging markets, particularly in renewable energy and green technology. By exploring joint ventures or acquisitions in sectors like solar, wind, and hydroelectric power, PT XYZ could diversify its revenue streams and reduce reliance on the cyclical mining and construction industries. This strategic move would position the company to capitalize on the growing demand for sustainable energy solutions and innovative technologies.

Finally, PT XYZ should focus on customer engagement and employee development. A customer relationship management (CRM) system could improve service personalization and enhance communication, helping build long-term loyalty. Additionally, a targeted employee training and culture integration project would ensure smooth M&A transitions, fostering collaboration across teams and ensuring PT XYZ's workforce is equipped to drive future growth and innovation.

REFERENCES

Candra, A., Priyarsono, D. S., Zulbainarni, N., & Sembel, R. (2021). Literature Review on Merger and Acquisition (Theories and Previous Studies). Studies of Applied Economics, 39(4). https://doi.org/10.25115/eea.v39i4.4627

Escalona, M. J., Koch, N., & Rossi, G. (2022). A Quantitative SWOT-TOWS Analysis for The Adoption of Model-Based Software Engineering. *The Journal of Object Technology, 21*(4), 1-15. https://doi.org/10.5381/jot.2022.21.4.a9

Jensen, M. C., & Meckling, W. (1976). Theory of The Firm: Managerial Behavior, Agency Cost, and Ownership Structure. *Journal of Financial Economics, 3,* 305-360. http://www.nhh.no/for/courses/spring/eco420/jensenmeckling-76.pdf

Mardiyana, M., Ihsan, M., Adrial, A., Parida, H., Sidiq, S., & Hidayat, T. (2022). A SWOT (Strength, Weakness, Opportunity, and Threat) Analysis as a Strategy to Enhance Competitiveness. *International Journal of Management Science and Application, 1*(1), 18–27. https://doi.org/10.58291/ijmsa.v1i1.8

Mutmainah, I., Yulia, I. A., Marnilin, F., & Mahfudi, A. Z. (2022). GAP Analysis Untuk Mengetahui Kinerja Implementasi Program Merdeka Belajar Kampus Merdeka. *Jurnal Ilmiah Manajemen Kesatuan, 10*(1), 19–34. https://doi.org/10.37641/jimkes.v10i1.934

Ross, S. A. (1973). The Economic Theory of Agency: The Principal's Problem. *The American Economic Review, 63*(2), 134-139.

Yu, H., Zahidi, I., Chow, M. F., Liang, D., & Madsen, D. Ø. (2024). Reimagining Resources Policy: Synergizing Mining Waste Utilization for Sustainable Construction Practices. *Journal of Cleaner Production, 464*(6), 142795. https://doi.org/10.1016/j.jclepro.2024.142795

CHAPTER 4

Enhancing Telco Operator Profitability by Optimizing B2B Sales Processes

Hasudungan Perdana Cipta SIJABAT
Institut IPMI, Indonesia
hasudungan.sijabat@ipmi.ac.id
Orcid: 0009-0003-1704-1407

Roy SEMBEL
Institut IPMI, Indonesia
roy.sembel@ipmi.ac.id
Orcid: 0000-0002-9023-9976

Melinda MALAU
Universitas Kristen Indonesia, Indonesia
melinda.malau@uki.ac.id
Orcid: 000-0002-6576-3063

ABSTRACT

This journal examines PT XYZ within the telecommunications sector, concentrating on enhancing operational efficiency, addressing lack of employee's proficiency, and increasing net income. The research aims to provide recommendations to streamline complex internal processes, identify key factors contributing to the employee's proficiency, and increase the net income. The study utilizes Root Cause Analysis, Gap Analysis, SWOT and TOWS analyses. Spanning seven weeks, the project will deliver an analysis report that highlights process inefficiencies and employee proficiency challenges, a recommendations report, a presentation summarizing the findings, and an implementation plan featuring actionable steps. The deliverables include a detailed analysis report on process inefficiencies and employee proficiency challenges, a strategic recommendations report with actionable improvement proposals, a summary presentation of findings, and a proposed implementation plan strategy with actionable steps and success metrics. Results show that to address operational inefficiency, focus on change management, principle products, and reduce reliance on partnerships. For employee proficiency and net income decline, prioritize new hiring, development programs, and accelerate the B2B sales process while maintaining a product-focused approach. Recommendations for organizations include integrating Legal and Finance collaboration for efficiency and prioritizing targeted hiring in the B2B sector. The industry should embrace digital transformation and sustainability, while businesses focus on product collaboration and revenue diversification. Customers are encouraged to provide feedback and support brands aligned with their values. Limitations include data availability and stakeholder engagement challenges. Future project suggestions involve exploring employee performance studies, emerging technologies, and market analyses to enhance B2B strategic planning.
Keywords: User Proficiency, Process Improvement, Net Income Decline.

1. INTRODUCTION

The telecommunications industry is a vital sector that facilitates global connectivity through services such as voice communication, data transmission, and internet access. It is characterized by rapid technological advancements, including the transition from analog to digital systems and the development of mobile technologies like 5G. The industry is highly competitive, with numerous players vying for market share, driving continuous innovation to improve service quality and customer experience. Telecommunications also plays a crucial role in economic and social development by enabling communication across various sectors, such as education, healthcare, and business, fostering global opportunities, and supporting digital transformation. (Wickramasinghe and Razak, 2024; Arisar et al, 2024)

In Indonesia, the telecom market is experiencing steady growth, projected to expand at a CAGR of 1.01% from 2024 to 2029, reaching USD 14.36 billion by 2029. This growth is largely driven by the country's digital transformation and the increasing demand for reliable internet services. Although competition is fierce, with multiple key players such as Telkom Indonesia, Indosat Ooredoo, and XL Axiata, the market is marked by low concentration, allowing space for innovation and new entrants. However, challenges remain, particularly in terms of providing network coverage across Indonesia's diverse and geographically challenging landscape, and profitability in the face of intense price competition.

PT XYZ is a major player in Indonesia's mobile telecommunications sector, serving over 170 million customers and maintaining a significant market share. The company, which operates using advanced technologies like 4G and 5G, has a long history of innovation, from launching prepaid services to pioneering mobile financial services and 5G rollout. XYZ's organizational structure is designed to optimize its operations, with divisions focused on network expansion, financial management, marketing, product development, and customer engagement. However, the company faces challenges, including complex internal processes and employee proficiency gaps, all of which need to be addressed for continued growth and profitability.

2.1 Business Process Management

Business Process Management (BPM) is a systematic approach aimed at improving the efficiency, effectiveness, and adaptability of an organization's workflows through continuous analysis, design, implementation, monitoring, and optimization of business processes. BPM focuses on managing and refining daily operations by identifying inefficiencies and making iterative improvements, ensuring that processes align with strategic objectives and enhance overall performance. Key components of BPM include process modeling, which creates visual representations of workflows to identify redundancies and streamline operations, and process automation, which leverages technology to reduce manual effort, minimize errors, and increase efficiency. BPM emphasizes continuous improvement, encouraging organizations to regularly evaluate and refine processes to adapt to changing business conditions and market demands. Additionally, BPM fosters greater transparency and accountability by clearly defining roles, responsibilities, and performance metrics, supporting compliance and strategic alignment. The BPM Life Cycle, which consists of five phases—Design, Modeling, Execution, Monitoring, and Optimization—provides a structured framework for creating, testing, and refining business processes to achieve optimal outcomes and ensure long-term organizational success. (Sujanawati et al, 2022; Klein et al, 2023; Rosemann et al, 2024)

2.2 Complexity of Internal Processes

According to Trivedi et al (2023), the complexity of internal business processes arises from the intricate interaction between various organizational elements such as workflows, technology, and human resources, which become more layered and interdependent as businesses grow and evolve. This complexity can hinder communication, coordination, and efficiency, especially as processes span multiple departments and stakeholders, often involving disparate systems and practices. Effective management of this complexity requires a robust process management framework, continuous monitoring, and adaptability to ensure workflows remain aligned with organizational goals. The internal process of PT XYZ, for instance, illustrates this complexity through stages such as Account Planning, Account Selling, Service Delivery, Service Operation, and Sales Program, each involving multiple teams and roles that require precise coordination. In these stages, challenges such as miscommunication, overlapping responsibilities, manual tasks, and delays in transitions between teams can reduce efficiency and increase the risk of errors. As these processes intertwine, the constant feedback loops and manual tasks further complicate operations, making it difficult to maintain a streamlined, effective workflow. Addressing these challenges is essential for enhancing operational effectiveness and agility in a competitive business environment.

2.3 Proficiency in Mastering and Operate PT XYZ Enterprise Products

Employee proficiency in mastering and operating enterprise products is crucial for both operational efficiency and customer satisfaction, as it empowers employees to handle customer inquiries, resolve issues, and provide valuable support. A deep understanding of the products enables employees to manage complex queries, troubleshoot effectively, and offer insightful recommendations, enhancing the overall customer experience and fostering customer loyalty. Moreover, when employees are proficient, internal operations benefit from reduced errors and misunderstandings, leading to more streamlined processes and greater productivity. To achieve this proficiency, robust training programs are essential, covering all product aspects and incorporating interactive methods like workshops and real-world simulations. Ongoing support and continuous learning ensure that employees stay updated with product developments and industry trends, fostering a culture of continuous improvement. However, a significant challenge at PT XYZ is the knowledge gap among employees, particularly in understanding the products they are selling and managing. This lack of product knowledge creates inefficiencies across the company’s sales process, from product development to billing and collection. For instance, in stages such as Account Planning and Service Delivery, miscommunications or lack of product expertise can delay execution and affect customer satisfaction. This knowledge gap reverberates throughout the process, impacting the company’s ability to meet strategic goals and deliver consistent service quality. Thus, investing in employee product knowledge is vital for operational success and achieving high customer satisfaction.

3. RESEARCH METHOD

3.1 GAP ANALYSIS

Gap analysis is a vital tool for identifying and addressing discrepancies between an organization's current state and its desired future state, helping inform decisions and strategies to close these gaps. It begins by assessing the current state, including performance, resources, and conditions, followed by defining the desired future state with clear, measurable goals. The analysis focuses on identifying gaps—such as performance shortfalls, skill deficiencies, or resource limitations—between the two states, allowing organizations to develop targeted strategies to bridge them. This process culminates in an action plan that prioritizes necessary changes, such as implementing training programs or revising strategies, to achieve the desired outcomes. (Salehi, 2024)

3.2 SWOT ANALYSIS

SWOT analysis is a strategic tool used to assess an organization's internal strengths and weaknesses, as well as external opportunities and threats, enabling informed decision-making and effective strategy development. Strengths refer to internal advantages, such as a strong brand or skilled workforce, while weaknesses highlight areas needing improvement, such as outdated technology or limited resources. Opportunities are external factors that could drive growth, like emerging trends or favorable regulations, while threats are external challenges, such as increased competition or economic downturns, that could negatively impact the organization. By examining these four dimensions, businesses can leverage their strengths, address weaknesses, capitalize on opportunities, and mitigate threats to enhance their competitive position. (Kumar and Praveena, 2023)

3.3 TOWS MATRIX

The TOWS matrix builds on SWOT analysis by providing a framework to develop actionable strategies that address both internal and external factors. It consists of four strategic quadrants: Strengths-Opportunities (SO) Strategies, which leverage internal strengths to capitalize on external opportunities for growth; Strengths-Threats (ST) Strategies, which use internal strengths to mitigate external threats and protect the organization; Weaknesses-Opportunities (WO) Strategies, which focus on overcoming internal weaknesses by taking advantage of external opportunities; and Weaknesses-Threats (WT) Strategies, which aim to minimize internal weaknesses while defending against external threats. By systematically exploring these combinations, organizations can create targeted strategies to enhance their competitive position, resilience, and overall performance. (Escalona et al, 2022).

3.4 PROJECT FLOW

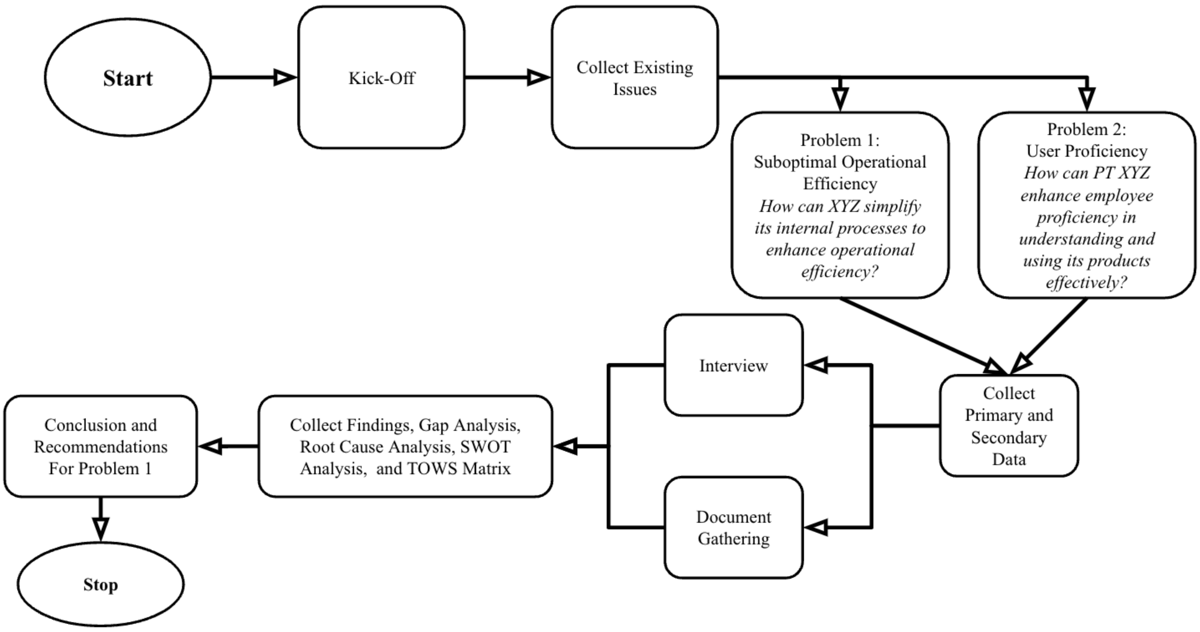


Figure 1 Project Flow of PT XYZ

Figures 1 outline the project flow for addressing operational inefficiencies and user proficiency issues at PT XYZ. The process begins with a "Kick-Off" phase, where project goals, scope, and methodologies are defined, aligning all stakeholders. Next, the project moves to "Collect Existing Issues" to identify operational inefficiencies and areas where user proficiency is lacking. After that, the focus shifts to the specific problems: "Problem 1: Suboptimal Operational Efficiency" and "Problem 2: User Proficiency." In both cases, the project collects "Primary and Secondary Data" to gather insights from various sources. This includes conducting "Interviews" and "Document Gathering" to obtain firsthand feedback and supporting materials. The project then performs a "Gap Findings and Analysis" phase to compare the current state with the desired outcomes, identifying key areas for improvement. Finally, the project concludes with "Conclusion and Recommendations" for both problems, offering actionable solutions to improve operational efficiency and user proficiency, and the process ends with the "Stop" phase.

3.5 DELIVERABLES

The project deliverables include an Analysis Report that evaluates process inefficiencies and employee proficiency issues, using methods like SWOT and TOWS to identify bottlenecks and root causes. The Recommendations Report will translate these insights into actionable strategies for improving efficiency, reducing costs, and enhancing productivity, with tailored solutions like market expansion or product diversification. A Presentation will summarize the findings and recommendations for stakeholders, using visual aids to aid decision-making. Finally, the Proposed Strategies for Implementation will outline specific tasks, timelines, and resources needed to execute the recommendations, addressing potential challenges and ensuring a smooth transition for successful strategy implementation.

4. RESULT AND DISCUSSION

4.1 GAP ANALYSIS

Table 1 Gap Analysis of PT XYZ

Specific Problem	Current State	Desired Future State	Gaps Identified
Product Readiness	Suboptimal readiness in ABC affects market launches.	ABC is fully equipped for effective product launches.	Lack of alignment between ABC and product development teams.
DEF Over-Reliance on Partnerships	Over-reliance on external partnerships.	DEF develops products independently.	Insufficient internal innovation capabilities.
DEF Focus on Operations Over Development	Focus is more on operations than development.	Balanced focus on both development and operations.	Missed innovation opportunities in DEF.
IJK & LMN Internal Focus	Focused on internal processes, neglecting market needs.	IJK & LMN aligned with market demands.	Limited responsiveness to external trends.
Divergence of Tools	Different tools across divisions create inefficiencies.	Common platform for consistent data management.	Data silos and inefficient collaboration.
Lack of Synchronization Between DEF and ABC	Poor integration between product readiness and ABC.	Seamless integration for effective marketing.	Disjointed processes hinder market readiness.
Product and Project Handover Inefficiency	Inefficient handover, leading to miscommunication.	Smooth, efficient handover with clear communication.	Gaps in communication affect launch effectiveness.

PT XYZ's gap analysis shown in Table 1 reveals several strategic issues across its divisions. The ABC division struggles with product readiness, hampering effective market launches due to a lack of alignment between product development and sales teams. The DEF division, overly reliant on partnerships, misses opportunities for innovation and faces an imbalance in focus between operations and product development. IJK and LMN divisions, while focused internally, fail to adapt to external market needs, limiting their responsiveness to trends. Additionally, inconsistent tools and data silos across divisions cause inefficiencies, and poor synchronization between DEF and ABC complicates product launches. To address these gaps, PT XYZ needs to improve inter-divisional coordination, enhance internal capabilities, streamline data management, and foster innovation alongside operational excellence.

4.2 ROOT CAUSE ANALYSIS

Table 2 Root Cause Analysis of PT XYZ

Step	Details
Define Problem	PT XYZ is facing operational inefficiencies in its Business-to-Business ABC lifecycle, leading to delays and higher costs, while employees also lack the necessary skills and knowledge to effectively use tools and deliver quality service.
Collect Data	Data from the focus group discussion highlights several issues, including suboptimal product readiness in the ABC division, excessive reliance on partnerships by DEF, and a focus on operations over development. Additionally, IJK and LMN are overly focused on internal processes rather than external needs, different tools across departments cause unsynchronized data, and there is poor integration between product readiness and ABC operations.
Identify Possible Factors	Key issues include inadequate product readiness and maturity, particularly in the ABC division, and an overreliance on external partnerships by DEF instead of developing in-house capabilities. The IJK department remains focused on internal operations rather than external needs, while different tools across departments lead to unsynchronized data and inconsistent processes. Additionally, there are gaps in employee training, leaving them unprepared to effectively use new systems and products.
Identify Root Causes	The root causes include ineffective methodologies, as DEF's reliance on partnerships instead of developing products in-house stifles innovation. Data silos created by disparate tools prevent comprehensive insights and hinder collaboration, leading to misalignment between ABC and DEF on product launches. There are also challenges in product handovers after readiness, with key information not properly transferred from the ABC team to the service delivery team, causing missed opportunities. Additionally, employees lack proper training on tools and processes, impacting their proficiency and service delivery.
Recommend and Implement Solutions	To address these issues, a unified tool (similar to Jira but more advanced) should be implemented to bridge gaps, improve product readiness in ABC, and align methodologies across DEF, IJK, and LMN. A culture of product ownership should be fostered, reducing dependence on partnerships. Team integration efforts should include better collaboration between product operations and ABC, integrating enablers and Enterprise Architecture into DEF, and setting common targets and KPIs for all departments to align efforts. Additionally, integrating KBLI will enhance overall collaboration, and a new model should be established to support the transition to SaaS and PaaS. Consider developing XYZ into a broader entity, such as XYZ Enterprise, to expand its market reach. Recruitment through a targeted People Development Program will support change management and strengthen workforce capabilities. Finally, comprehensive training programs should be introduced to enhance employee proficiency with tools and products, ensuring better service delivery.

Table 2 outlines the Root Cause Analysis for PT XYZ, detailing steps such as defining the problem, collecting data, identifying possible factors, identifying root causes, and recommending and implementing solutions. PT XYZ is facing operational inefficiencies in its Business-to-Business ABC lifecycle, leading to delays and higher costs, while employees lack the skills to effectively use tools and deliver quality service. Data from a focus group discussion reveals issues like suboptimal product readiness in the ABC division, excessive reliance on partnerships by DEF, and a focus on operations over development. Additionally, IJK and LMN are focused on internal processes rather than external needs, tools across departments are unsynchronized, and there is poor integration between product readiness and ABC operations. The root causes include ineffective methodologies, data silos, misalignment between teams, challenges with product handovers, and insufficient training for employees. To address these, a unified tool should be implemented to improve product readiness and align efforts across departments. A culture of product ownership should be promoted, and team integration should be enhanced with common KPIs and better collaboration. Additionally, XYZ could consider expanding into a broader entity to increase market reach, while recruitment through a targeted development program and comprehensive training initiatives will strengthen workforce capabilities and improve service delivery.

4.3 SWOT ANALYSIS

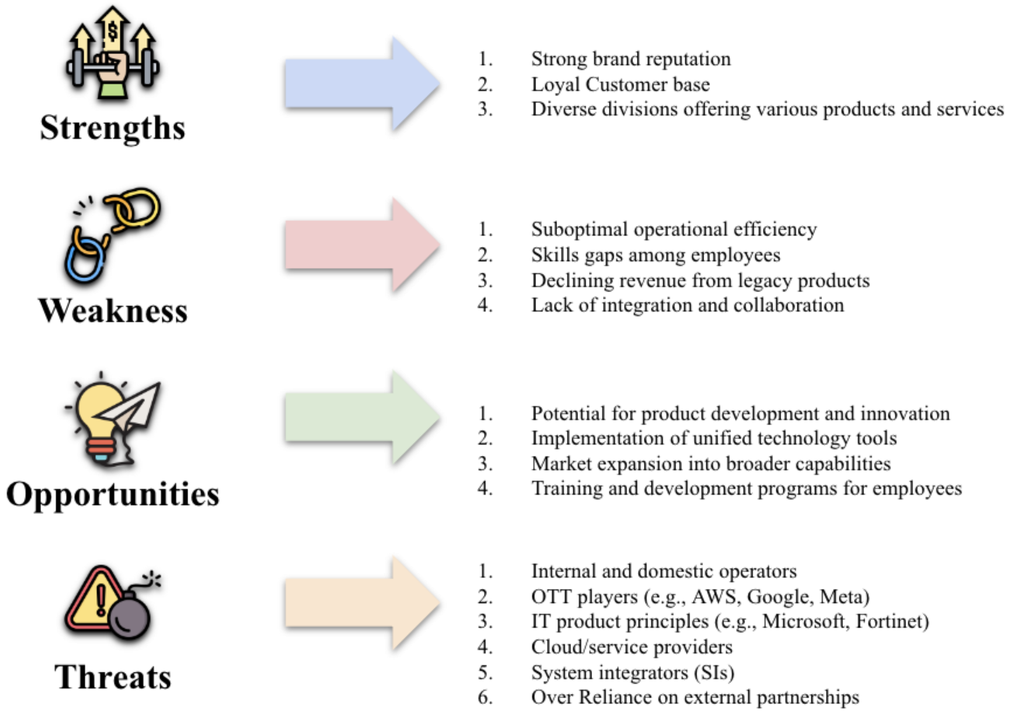


Figure 2 SWOT Analysis of PT XYZ

The SWOT analysis of PT XYZ shown in Figure 2 reveals key strengths, weaknesses, opportunities, and threats that shape its strategic direction. The company benefits from a strong brand reputation and a loyal customer base, which help maintain market stability. Additionally, its diverse product offerings enable it to serve various market segments, enhancing resilience against market fluctuations. However, PT XYZ faces weaknesses such as suboptimal operational efficiency, skill gaps among employees, and declining revenue from legacy products, which point to a need for innovation and better cross-departmental collaboration. Opportunities for growth include product development, the adoption of unified technology tools, and market expansion, while training programs for employees are crucial for enhancing skills. Despite these opportunities, PT XYZ must contend with threats from both internal competitors and external players like OTT providers and cloud services companies, as well as the risks associated with over-reliance on external partnerships.

4.4 TOWS MATRIX

Table 3 TOWS Matrix of PT XYZ

TOWS Matrix	Aspect	Explanation
SO (Strengths-Opportunities)	S1O2	Leverage strong brand reputation to implement a more advanced single tool, enhancing product readiness in ABC, DEF, IJK, and LMN.
	S2O4	Utilize loyal customer base to support ongoing training and employee development through HR Development Programs.
	S3O1	Use divisional diversity to develop new products and solutions, such as a spin-off into XYZ Enterprise.
	S3O3	Capitalize on diverse products and services to expand market capabilities, including SaaS and PaaS.
ST (Strengths-Threats)	S1T6	Reduce reliance on external partnerships by encouraging greater product ownership within the company.
	S3T4	Use product diversity to compete with cloud service providers through SaaS and PaaS models.
	S2T5	Leverage customer loyalty to compete in complex projects through the Enterprise Architecture division.
	S3T1	Collaborate across functions to face domestic operators that are competitors.
WO (Weaknesses-Opportunities)	W1O2	Address operational inefficiencies by implementing a single tool to align methodologies.
	W2O4	Strengthen targeted HR Development Programs to address skill gaps and enhance collaboration.
	W3O3	Counter declining revenue from legacy products by expanding into SaaS and PaaS models.
	W4O1	Improve collaboration between divisions through the development of new products.
WT (Weaknesses-Threats)	W1T2	Tackle inefficiencies with a single tool to remain competitive against OTT players like AWS and Google.
	W4T6	Reduce reliance on external partnerships by enhancing cross-divisional integration.
	W3T5	Shift from legacy products to SaaS and PaaS offerings to compete in technology projects.
	W2T1	Strengthen internal capabilities through strategic recruitment and HR Development Programs.

The TOWS Matrix for PT XYZ shown in Table 3 outlines strategic actions that leverage the company’s strengths, address its weaknesses, and capitalize on opportunities while mitigating threats. In the SO quadrant, PT XYZ can use its strong brand reputation to implement advanced tools across divisions (ABC, DEF, IJK, and LMN), improving product readiness and streamlining operations. Additionally, the company can harness its loyal customer base to support HR development programs, while diversifying its offerings into SaaS and PaaS to expand market capabilities. In the ST quadrant, PT XYZ should reduce reliance on external partnerships by fostering internal product ownership and leverage product diversity to compete with cloud providers. It can also use customer loyalty to win complex projects and collaborate across functions to confront domestic competitors. The WO strategies focus on addressing operational inefficiencies with unified tools, strengthening HR development to close skill gaps, and countering declining legacy product revenue by expanding into SaaS and PaaS models. Finally, the WT strategies stress the importance of tackling operational inefficiencies, enhancing cross-divisional integration to reduce external dependence, and pivoting from legacy products to SaaS and PaaS to stay competitive, all while bolstering internal capabilities through targeted recruitment and training.

5. CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

To address operational inefficiencies at PT XYZ, a comprehensive Change Management strategy is needed, which includes reorganizing teams and implementing a sophisticated tool, more advanced version of Jira, to improve product readiness in the ABC division and align processes across DEF, IJK, and LMN divisions. Promoting a culture of product ownership, rather than relying on external partnerships, will encourage greater internal responsibility and improve overall efficiency.

Additionally, PT XYZ should focus on strengthening employee proficiency through targeted hiring and a structured People Development Program (PDP), aligned with the company's product principles. This initiative should prioritize training that enhances employee skills and ensures standardization in product and project handovers, ultimately boosting the company's ability to meet evolving business needs and improve operational outcomes.

5.2 RECOMMENDATIONS

5.2.1 FOR THE ORGANIZATIONS

To improve operational efficiency, organizations should integrate collaboration between the Legal Division (KBLI) and the Finance Opex Model within their enterprise framework. This collaboration ensures better financial oversight, legal compliance, and a streamlined decision-making process. By fostering regular joint meetings and open communication between these teams, organizations can align objectives, reduce legal risks, and enhance operational cohesion. Additionally, organizations should prioritize targeted hiring and structured employee development programs that align with current and future business needs. Investing in training, mentorship, and continuous learning will build a skilled, adaptable workforce, reduce turnover, and enhance employee engagement, ultimately driving long-term organizational success.

5.2.2 FOR THE INDUSTRY

The industry must embrace digital transformation by adopting technologies like AI, data analytics, and cloud computing to optimize operations and improve customer experiences. Investments in digital tools, along with employee training, will ensure businesses remain competitive in a technology-driven market. Furthermore, sustainability should be prioritized, with companies adopting eco-friendly practices and reducing their carbon footprint. By aligning with growing consumer demand for sustainable products, businesses can enhance their brand reputation and create a competitive edge. Industry-wide collaboration, including partnerships with suppliers and research institutions, can foster innovation and shared best practices, while workforce development programs will ensure employees are equipped to meet the challenges of a rapidly evolving landscape.

5.2.3 FOR THE BUSINESS

Businesses should prioritize enhancing product and project collaboration through advanced communication and project management tools. Leveraging cloud platforms, project management software, and real-time communication apps can improve coordination and streamline workflows, leading to better products and services. Additionally, adopting agile practices will allow businesses to remain responsive to market changes and customer needs, improving project delivery and customer satisfaction. To further strengthen their position, businesses should diversify their revenue streams, exploring new markets, complementary products, and strategic partnerships. This diversification will stabilize income and increase resilience against market fluctuations, while investments in technology solutions like CRM systems and data analytics platforms will boost operational efficiency and enhance customer engagement.

5.2.3 FOR THE CUSTOMERS

Customers should actively engage with businesses by providing feedback on products and services, helping drive improvements and fostering stronger brand loyalty. As consumers become more conscious of sustainability, they should prioritize companies that demonstrate ethical practices and environmental responsibility. Supporting brands with a commitment to sustainability not only benefits society but also encourages other businesses to adopt similar practices. Additionally, customers should use the wealth of information available online to make informed purchasing decisions by researching products, reading reviews, and comparing options. This proactive approach promotes transparency and ensures customers select the best offerings. Lastly, customers should take advantage of loyalty programs and personalized offers, which provide rewards for repeat purchases and enhance their overall experience, fostering long-term satisfaction and brand loyalty.

REFERENCES

Arisar, M. M. K., Lian-Ju, N., & Jokhio, S. H. (2024). Business Approaches Pathways Towards Strategic Market Capture in the Telecommunication industry. *Access to Science, Business, Innovation in Digital Economy*, *5*(2), 222-247. https://doi.org/10.46656/access.2024.5.2(3)

Escalona, M. J., Koch, N., & Rossi, G. (2022). A Quantitative SWOT-TOWS Analysis for the Adoption of Model-Based Software Engineering. *The Journal of Object Technology*, *21*(4), 1-15. https://doi.org/10.5381/jot.2022.21.4.a9

Karki, N. (2022). An Analysis of The Factors Causing Sales Drop at a Department Store: A Case Study of Nepal Bazar International Pvt. Ltd, Biratnagar (Bachelor's thesis, University of Wolverhampton). DOI: 10.13140/RG.2.2.12542.72003

Klein, L. L., de Pádua, S. I. D., Gera, R., Vieira, K. M., & Dorion, E. C. H. (2023). Business Process Management Effectiveness and Maturity Through Lean Management Practices: The Brazilian federal police experience. *International Journal of Lean Six Sigma*, *14*(2), 368-396. https://doi.org/10.1108/IJLSS-07-2021-0125

Kumar, S. C. R., & Praveena, K. B. (2023). SWOT Analysis. *International Journal of Academic Research*, *11*(09), 744-748. https://doi.org/10.21474/IJAR01/17584.

Rosemann, M., Brocke, J. V., Van Looy, A., & Santoro, F. (2024). Business Process Management in the Age of AI–Three Essential Drifts. *Information Systems and e-Business Management*, 1-15.

Sujanawati, R. P., ER, M., & Wibowo, R. P. (2020). Analysis of Business Process Management (BPM) Effect Towards Data and Information Quality Improvement at Higher Education: A Literature Study. *IPTEK The Journal for Technology and Science*, *31*(3), 1-12.

Trivedi, P., Akhter, F., Khan, A., Shajrawi, A. A. I., Ratković, N., & Kausar, F. N. (2023). The Role of Technology in Enhancing Business Processes. *Journal of Management & Educational Research Innovation*, *1*(1), 33-51. https://doi.org/10.5281/zenodo.10055077

Wickramasinghe, S. K. C. R., & Razak, K. A. (2024). The Impact of The Telecommunication Industry on Sustainable Development Goals in Developing Countries. *In Proceedings of the 5th International Conference on Digital Innovation ± Supply Chain* (pp. 153-163).

CHAPTER 5

Climate Change in the Automotive Spare Parts Manufacturing Industry in Indonesia: Threat or Opportunity?

Renward Bangun SINAGA
Institut IPMI, Indonesia
renward.sinaga@ipmi.ac.id
Orcid: 0009-0002-6818-0629

Roy SEMBEL
Institut IPMI, Indonesia
roy.sembel@ipmi.ac.id
Orcid: 0000-0002-9023-9976

ABSTRACT

Indonesia has made significant strides in tackling climate change since participating in the UN Climate Change Conference (COP21) on December 12, 2015, in Paris. On April 22, 2016, Indonesia signed the Paris Agreement and ratified it through Law No. 16 of 2016. Recognizing the urgency, Indonesia committed through its Nationally Determined Contributions (NDC) to reduce greenhouse gas emissions by 29% by 2030. To achieve this, the country developed policies like the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK), promoting renewable energy and low-carbon development. The Indonesian automotive spare parts manufacturing sector has also felt the impact of these policies, facing regulatory pressure and the need for eco-friendly technologies. However, implementing these changes requires careful planning. While there has been research on reducing greenhouse gas emissions, more qualitative studies are needed to explore strategic ideas that can help the industry adopt mitigation strategies to minimize business impacts. These studies would outline the perspectives of company executives, exploring how this issue can be seen not only as a threat but also as an opportunity to improve business performance while supporting government goals. This dual exploration of climate change as both a threat and opportunity for Indonesia's automotive spare parts industry focuses on adapting to environmental policies and market demands. It highlights how these challenges also offer opportunities for innovation, like developing cost-effective and eco-friendly manufacturing processes. However, a comprehensive implementation strategy is crucial to ensure that planned actions result in effective and sustainable outcomes.

Keywords: Climate Change, Greenhouse Gas Emission, Automotive Spare Parts, Sustainability, Environmental, Threat, Opportunity, Green Technology.

INTRODUCTION

Climate change and its negative impacts on the environment and human life have become one of the most critical issues in recent decades. This issue demands thoughtful and concrete actions, one of which is involvement in activities toward carbon neutrality (UNFCCC, 2015).

The rise in global temperatures, changes in extreme weather patterns, and the increase in natural disasters are some of the direct impacts of rising greenhouse gas concentrations in the atmosphere. This environmental damage is caused by various manufacturing activities across diverse industries, one of which is the automotive industry. The economic, environmental, and social impacts of the automotive industry are highly significant. This industry accounts for approximately 50% of the world's oil consumption, 50% of rubber production, 25% of glass, 23% of zinc, and 15% of steel (Orsato, 2009, page 154).

Since it took part in the UN Climate Change Conference (COP21) in Paris on December 12, 2015, Indonesia has made a lot of progress in fighting climate change. On April 22, 2016, Indonesia signed the Paris Agreement and ratified it through Law No. 16 of 2016. Recognizing its urgency, Indonesia committed through its Nationally Determined Contributions (NDC) to reduce greenhouse gas emissions by 29% by 2030. To achieve this, Indonesia developed policies such as the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK), which promotes renewable energy and low-carbon development (New Climate Institute, 2019).

1. BACKGROUND OF AUTOMOTIVE IN INDONESIA

As one of the largest automotive markets in Southeast Asia, Indonesia faces significant challenges related to increasingly urgent climate change issues. The automotive spare parts manufacturing industry, a vital part of the global supply chain, must now adapt to stricter environmental regulations and rising consumer demand for sustainable practices. The Indonesian government is responding to these challenges through decarbonization policies, such as the Low Carbon Emission Vehicle (LCEV) Program and Presidential Regulation No. 55 of 2019, which encourages the development of electric vehicles (EVs) as part of efforts to achieve carbon neutrality by 2060.

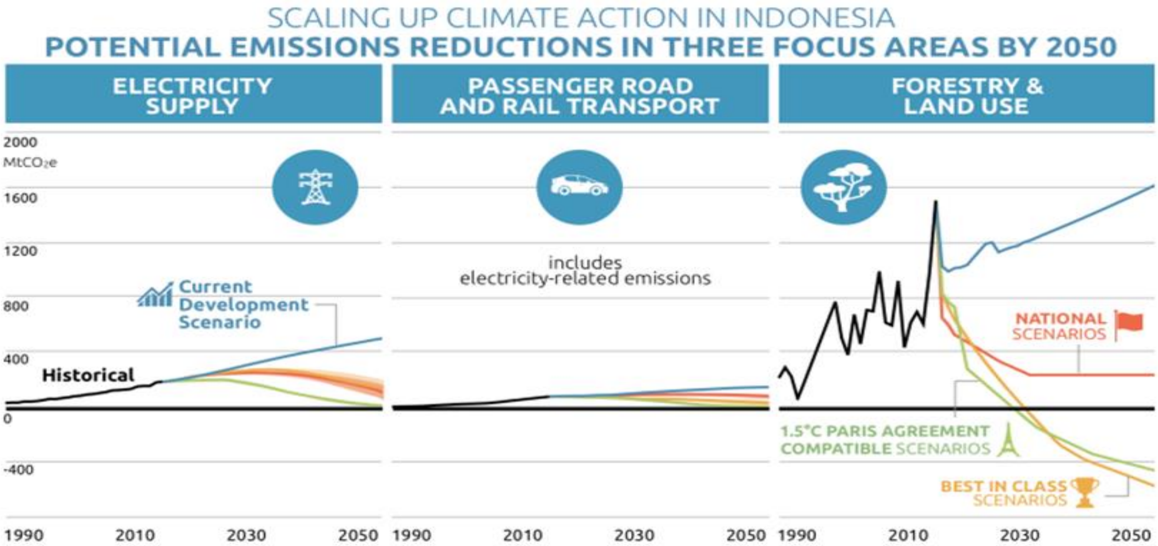
1.1 Climate Action

The Paris Agreement is a legally binding international treaty on climate change adopted by 196 parties at the United Nations Climate Change Conference (COP21) in Paris, France, on December 12, 2015. According to the UNFCCC (2015), its main goal is to keep the "global average temperature increase well below 2°C above pre-industrial levels" and work to "limit the temperature increase to 1.5°C above pre-industrial levels."

As a signatory to the Paris Agreement, Indonesia views this not only as an international commitment but also as an urgent necessity, given the high impact of climate change on the country. Indonesia focuses its climate change mitigation efforts on three main sectors (New Climate Institute, 2019, page 10), as shown in figure 1:

a. Electricity Supply: Indonesia's electricity sector is still heavily reliant on fossil fuels, especially coal. The potential to reduce emissions in this sector is significant through a transition to renewable energy sources such as solar, wind, and hydropower.
b. Passenger Transport: particularly private vehicles, is a significant contributor to carbon emissions in urban areas. Increased use of efficient public transportation and a shift to electric vehicles can help reduce emissions in this sector.
c. Forestry: a major contributor to carbon emissions due to deforestation and land-use change. Annually, millions of hectares of forest are lost because planting areas are growing. Forest restoration and sustainable land management are essential to maintaining forests' capacity as carbon sinks.

Figure 1: Potential achievement of emission reductions by focusing on 3 areas



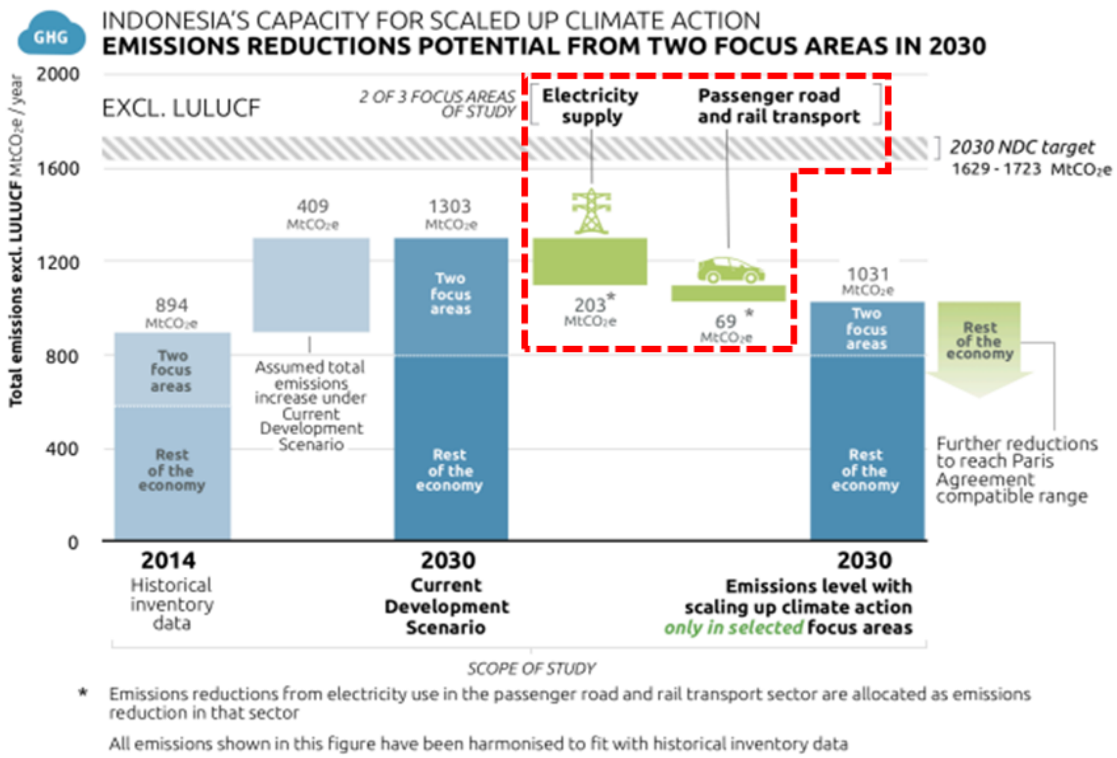
In its implementation, by considering various scenarios, it has been determined what actions will be carried out effectively as in Table 1. Furthermore, this paper will also discuss the focus on the electricity supply and passenger transportation sectors (New Climate Institute, 2019, page 9) as seen in Figure 2.

Table 1: Focus Action plan in efforts to reduce emissions

POTENTIAL EMISSIONS REDUCTIONS IN THREE FOCUS AREAS BY 2050

ELECTRICITY SUPPLY	PASSENGER ROAD AND RAIL TRANSPORT	FORESTRY & LAND USE
Improve renewable energy investment climate by revising the feed-in-tariff scheme, removing administrative barriers, removing fossil fuel subsidies, improving logistical infrastructure and rolling back new risk sharing principles in power-purchasing agreements with PLN.	Define ambitious **emissions standards** for new vehicles and enforce the biofuel blending policy, ensuring sustainability safeguards are in place.	**Provide more support to sub-national governments** to reduce deforestation, combat peatland decomposition and stop peat fires.
Stop plans for new coal-fired power plants and instead scale up investment into renewables with large untapped potentials such as solar PV, and related grid and storage infrastructure.	Initiate an ambitious modal shift towards **public mass transport**, especially in urban areas.	**Revise land-swapping** schemes for peatland land owners meet the needs of more stakeholders.
	Confirm in legislation the plan to ban fossil-fuel car sales in 2040 latest, better even in 2035.	**Extend moratorium** on peatland deforestation.
	Discourage use of private vehicles (e.g. by limiting access in cities), while simultaneously **promoting electric vehicles** with purchase support and "in-kind" benefits.	**Stimulate communities** to engage in canal blockings to ensure peat does not catch fire.
	Invest in charging infrastructure and promote equipment of new (public) buildings with electric charging points.	**Sustain the successes** achieved under the Peatland Restoration Agency.

Figure-2: Key sectors in the climate action mitigation process



1.2 Basic Regulations Related to Climate Change in Indonesia

In Indonesia, there are a number of key national regulations supporting climate change mitigation and adaptation include:

a. Law No. 32 of 2009 on Environmental Protection and Management: Governs emission control and greenhouse gas management.
b. Government Regulation PP No. 61 of 2011 on the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK): Outlines sectoral emission reduction strategies.
c. Government Regulation PP No. 79 of 2014 on National Energy Policy: Directs sustainable energy practices and increased renewable energy use.
d. Law No. 16 of 2016 on the Ratification of the Paris Agreement: Affirms Indonesia's commitment to global emission reduction goals.

1.3 Basic Regulatıons Related to Climate Change in The Automobile Industry

In Indonesia, there are a number of basic regulations which is direct related with climate change and affect to automotive business, especially related subtraction greenhouse gas emissions, electrification vehicles, and implementation practice friendly environment. regulations impacting the automotive sector include:

a. Government Regulation PP No. 55 of 2019 concerning Acceleration of Vehicle Program Electric Motor Based Battery (Battery Electric Vehicle) for Road Transport: Regulations This covers implementation in the production process manufacturing, development infrastructure, and use vehicle electricity.
b. National Action Plan to Decrease Greenhouse Gas Emissions Glass (RAN-GRK) 2011: Encompasses emission reduction strategies for various sectors, including transportation.

2. LITERATURE REVIEW

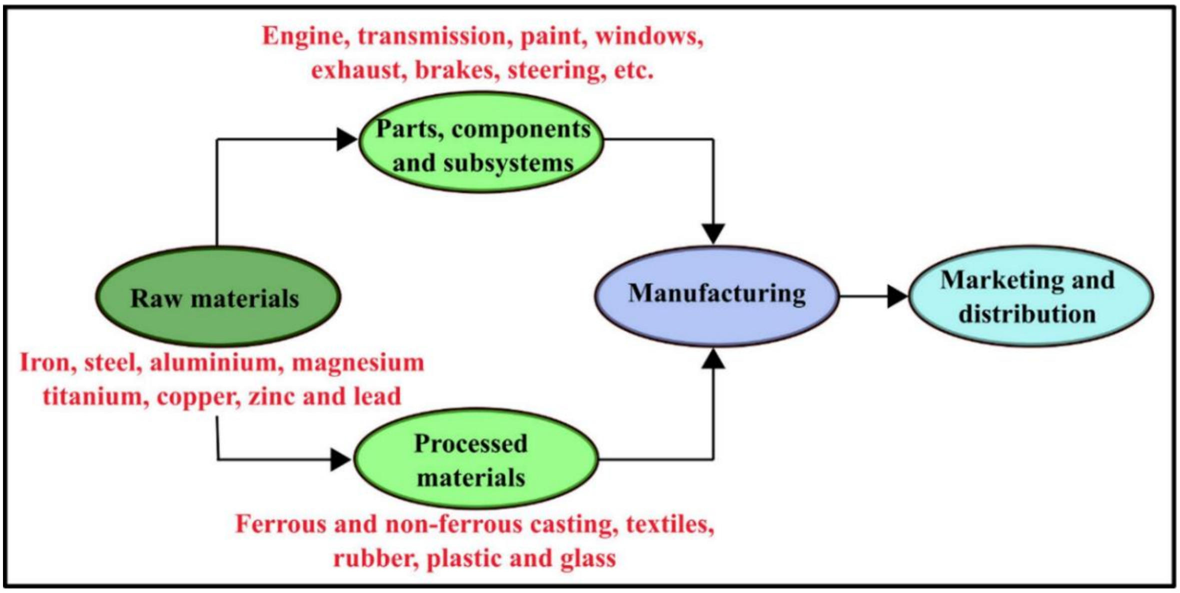
Global CO2 emissions from energy rose by 1.1% in 2023, reaching a record 37.4 Gt (IEA, 2023). Emissions from coal were the primary driver. To curb these emissions, consistent application of clean energy technologies such as solar photovoltaic, wind, nuclear, heat pumps, and electric vehicles has been necessary since 2019.

The manufacturing, use, logistics, and end-of-life management of vehicles are all included in the automotive sector's greenhouse gas emissions. The primary contributors are production processes and energy use.

2.1 Overview of Manufacturing Process Automotive

In general, the process framework within an automotive manufacturing plant involves a long and complex supply chain as shown in Figure 3 (Giampieri, Ling-Chin, Ma, Smallbone, & Roskilly, 2020, page 5). This includes the production of raw materials (e.g., steel, aluminum, plastics, and glass), parts, components, and fabrication subsystems (both internal and external processes). Furthermore, this process involves the assembly of parts, components, and the distribution and sale of vehicles. The automotive manufacturing sector influences and is influenced by other energy-intensive industrial sectors, such as the steel, glass, and petroleum-related industries that supply plastics and rubber for tire production.

Figure 3: Manufacturing process framework automotive



Each car generally consists of thousands of individual components, depending on the brand, model, and complexity of the vehicle. The large number of components naturally requires extensive manufacturing facilities, making it a significant contributor to greenhouse gas (GHG) emissions, which necessitates sustainable recovery actions.

The wide variety of component types has implications for the scope of the automotive manufacturing process, which is extensive and diverse, and must be tailored to the specifications and functions of each component to be produced. Some of the primary manufacturing processes that demand substantial energy consumption and have environmental impacts are shown in Table 2 below.

Table 2: Main automotive manufacturing processes with energy consumption and environmental impact

Process Name	Energy Consumption	Water Consumption	Environmental impact	
			Carbon Emission	Hazardous Liquid Waste
Metal and Plastic Welding	High	Low	High	Low
Coating and Painting	High	High	High	High
Plastic Injection	High	Low	High	Low
Machining	High	High	High	High
Forming	High	High	High	High
Heat treatment	High	High	High	High
Washing	Low	Low	Low	Low
Testing	Low	Low	Low	Low

Source: Own research data.

2.2. Competitive Environmental Strategy (CES)

Many business schools around the world teach success stories of environmentally-oriented investments that have resulted in competitive advantages or even created new market space. However, such proactive corporate behaviour has not become a widespread phenomenon. According to Forest Reinhardt, as cited in Orsato, R. J. (2009, page 3), Sustainability Strategy: When Does Going Green Pay Off? The question is not whether a company can offset the costs of green investments but when it becomes possible. The likelihood that a company can benefit from green investments is largely influenced by "the fundamental economics of the business, the structure of the industry in which the business operates and its position within that structure, and its organizational capabilities."

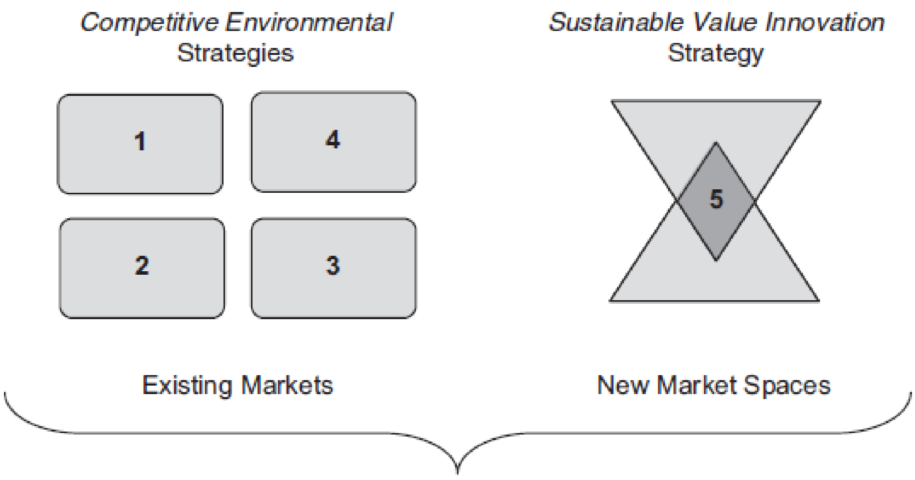
The concept of Competitive Environmental Strategies (CES) is widely used as a guide for companies to not only comply with environmental regulations but also to leverage environmental challenges as opportunities to enhance operational efficiency and product differentiation. This paper analyzes five key Competitive Environmental Strategies (CES), as shown in Figure 4, including:

a. CES-1, Eco-Efficiency, is purposeful approach create mark more with impact a more environment a little bit, in line with principal development sustainable.
b. CES-2, Beyond Compliance Leadership, is a method for organization for beyond condition law in support objective environment and social. Leader in approach This in a way active look for method for impact positive on sustainability, not only follow regulation.
c. CES-3, Eco-branding, is a corporate strategy for display self as friendly environment use interesting caring consumers environment. This tactic creates a brand that represents sustainability.

d. CES-4, Environmental Cost Leadership, is a strategy in which a company reduce cost production with apply practice friendly environment. Approach This No only reduce expenditure but also positioning company as leader in sustainability.
e. CES-5, Sustainable Value Innovation, is method for company for make product friendly environment which also has mark for customer with merge aspect friendly environment with creative ideas for give benefit for business and environment.

The five CES form five possible sustainability strategies. Companies can use CES-1 through CES-4 for increase position competitive in the existing market, while CES-5 (Sustainable Value Innovation) is implemented for create new market space.

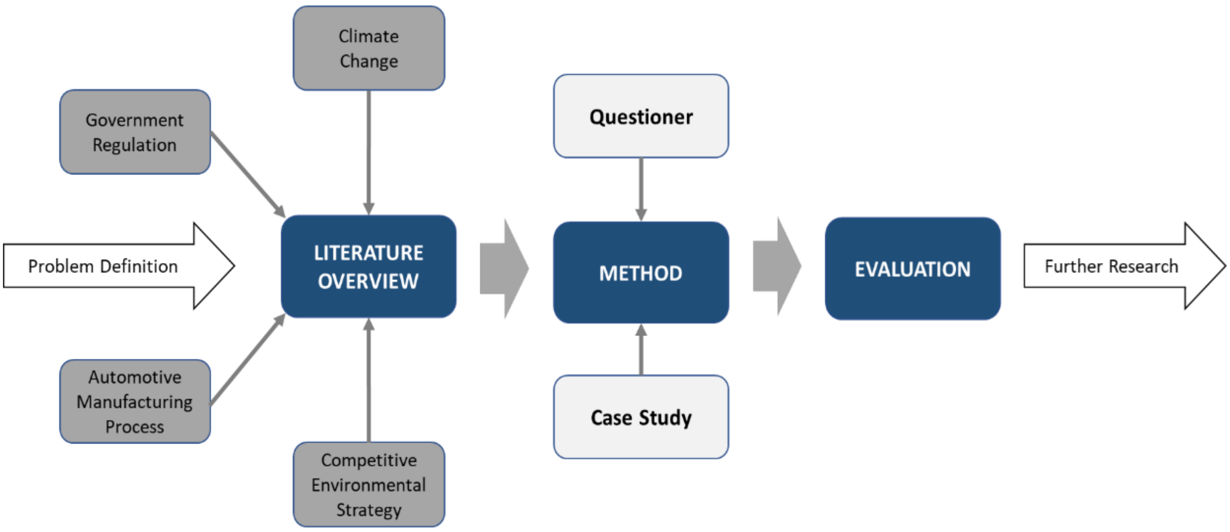
Figure 4: Sustainability Strategy



2.3. Research Framework

A conceptual model was developed for this research as fig.5 below. This modeling will help explain how the research approach is carried out on the problem, the analysis method and evaluation until the expected results are obtained later.

Figure 5: Research Framework



3. METHODOLOGY

Study This use approach qualitative for explore understanding will impact Climate Change to industry manufacturing ethnic group spare automotive in Indonesia. Method study covering review literature academic, policy government, and reports industry related Climate Change, manufacturing and sectors automotive in Indonesia. Study case in one of the company local is also done for analyse How they respond challenge Climate Change. Besides that, primary data analysis was carried out through semi- structured questionnaire with stakeholders interest key, including expert industry and managers sustainability from company leading

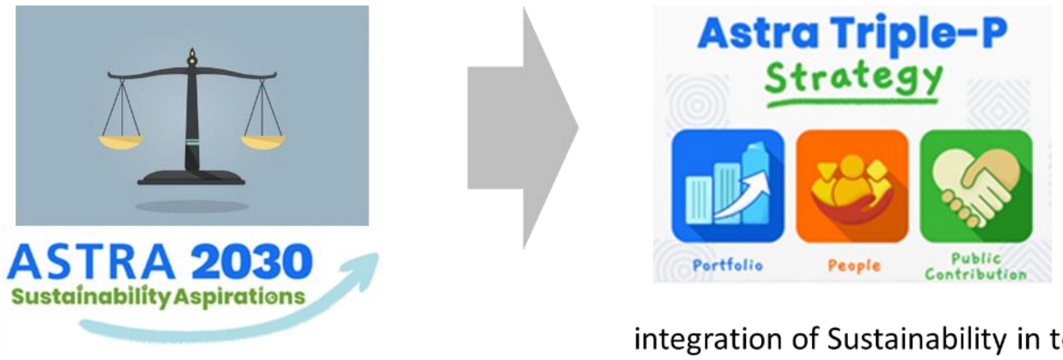
3.1 Data Collection

Study This involving data collection through questionnaire to 105 respondents covering management level to above, and expert in the field environment and department related to the manufacturing process. All Respondent spread across 20 companies different which moves in the field industry similar in Indonesia, especially on the island Java. Questionnaire the consists of 15 questions compiled in a way gradual and systematic.

3.2 Study Case

PT Astra Otoparts is one of company local role important in business ethnic group spare automotive in Indonesia. This company become example How manufacturer ethnic group spare automotive local in Indonesia responds challenge Climate Change through a structured and consistent work program. The company has committed for realize growth business sustainable with integrate element sustainability in the *Triple-P Roadmap* strategy, namely Portfolio, People, and Public Contribution such as shown in Figure 6. The third element This become guide to attendance company can give balance between profit economy, responsibility answer to environment, and benefits positive for community (Sustainability Report PT Astra Otoparts, 2023).

Figure 6: Astra 2030 sustainability business strategy



10 Sustainable Aspirations Roadmap

integration of Sustainability in to 3P roadmap strategy

4. RESULT AND DISCUSSION

4.1 Threats Faced Consequence Climate Change in Indonesia

Industry manufacturing automotive spare parts in Indonesia is facing a number of threats from Climate Change:

a. Pressure Regulation: introduction regulation strict environment, such as subtraction emission mandatory, can increase cost for manufacturers who must invest in technology friendly environment and practice sustainable.
b. Disturbance Chain Supply: vulnerability Indonesia's geography towards disaster natural like floods and storms can bother chain supply, so that influence procurement material raw materials and production ethnic group spare in a way appropriate time.
c. Improvement Cost Operational: transition to manufacturing sustainable often involving investment a significant start in technology new and training, which can burdensomely source Power company small and medium enterprises (SMEs) in the industry.

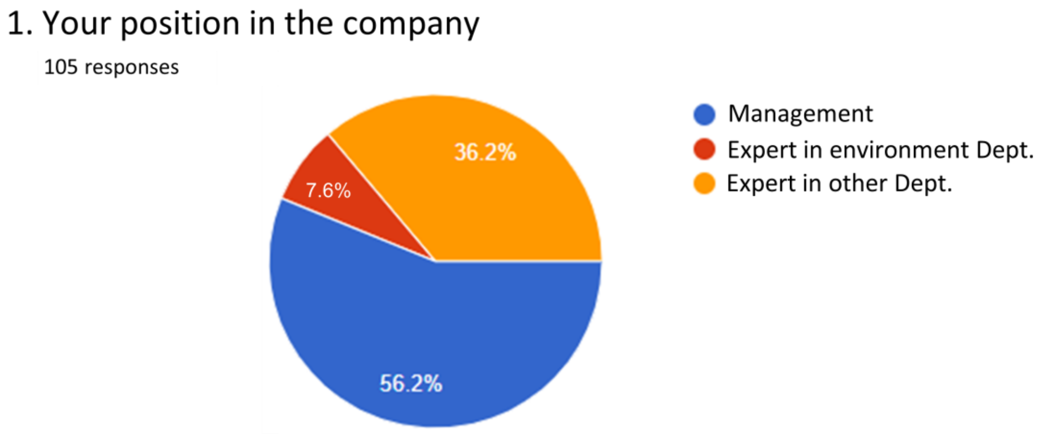
4.2 Opportunities in Green Transition

The results of the questionnaire obtained, as per the data below this, giving description understanding, views and responses from the parties' key in the industry manufacturing group of automotive spare parts to Climate Change as well as results obtained through various initiatives that have been done.

Following is summary from questionnaire obtained:

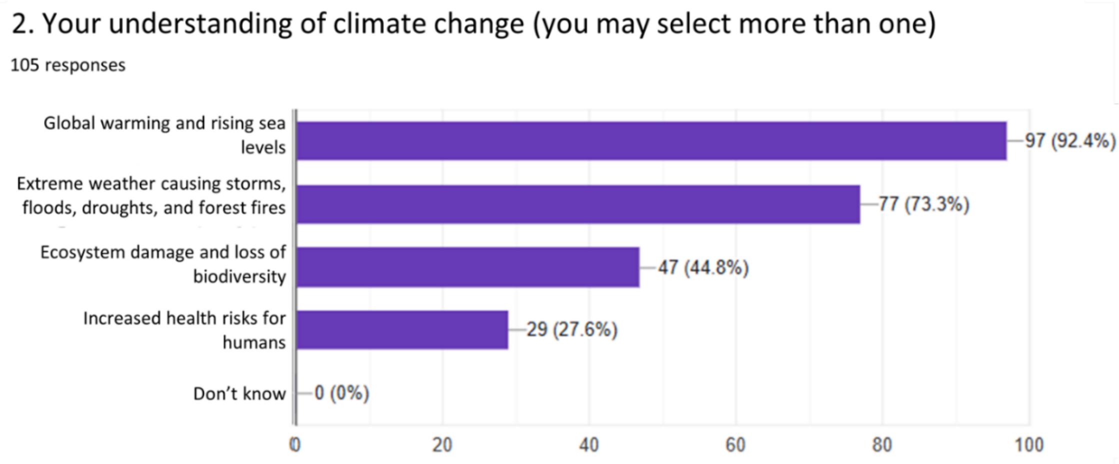
a. Understanding about Issue Climate Change.
   Respondents from group management to on 56.2 % is sufficient representing executives and decision makers decisions in the company like seen in Figure 7.

Figure 7: Position respondents in company



The questionnaire results indicate that all respondents are aware of and understand climate change issues, although their levels and scopes of understanding vary, as shown in Figure 8. These results suggest that relevant stakeholders across the respondents' companies have updated their knowledge about climate change and related situations.

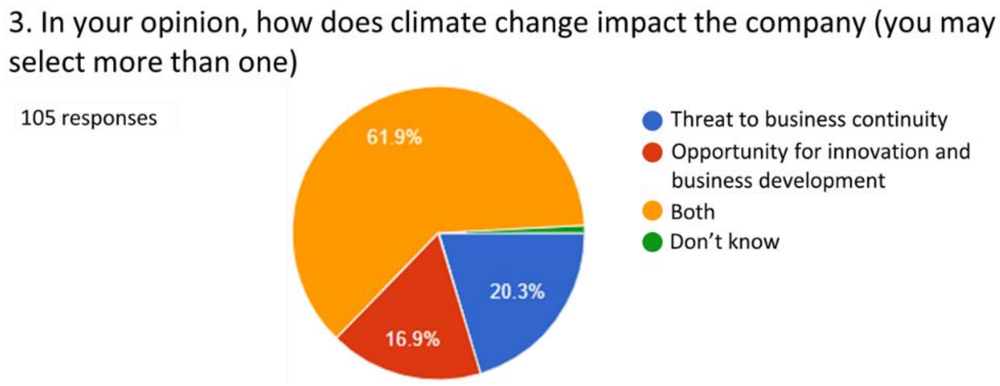
Figure 8: Overview of understanding level regarding Climate Change



b. Impact and Pressure Climate Change.

Although 20.3% of Respondent look at Climate Change as threat in Figure 9, there were also 16.9% who saw it as opportunities, while majority Respondent as much as 61.5% view Climate Change as combination both of them.

Figure 9: Respondent's opinion about climate change

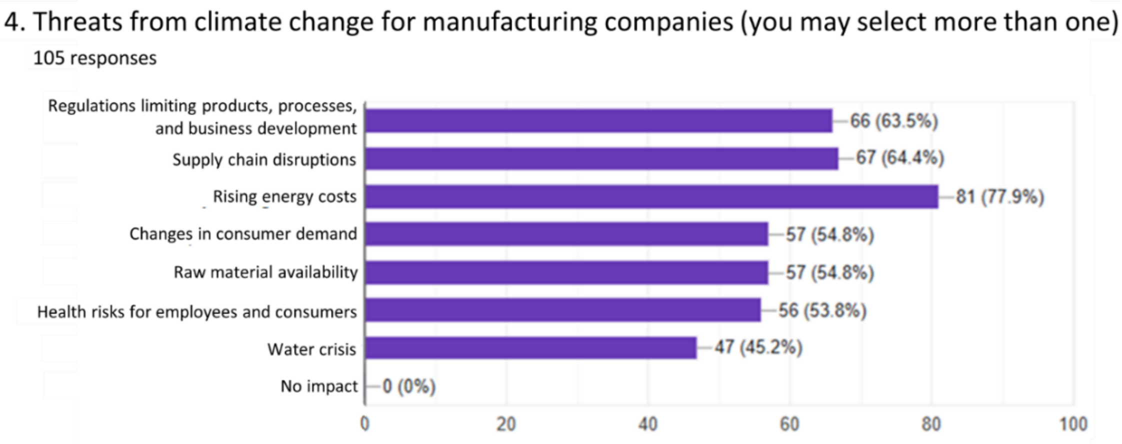


c. Threats and Opportunities

Related emerging threats, respondents agreed that matter This reflected in the impact Climate Change push increase cost energy (77.9%). This is followed by potential disruption in the chain supply which was also acknowledged by 64.4% of respondents as well as pressure from global policies and regulations government felt by 63.5% of respondents, such as seen in Figure 10.

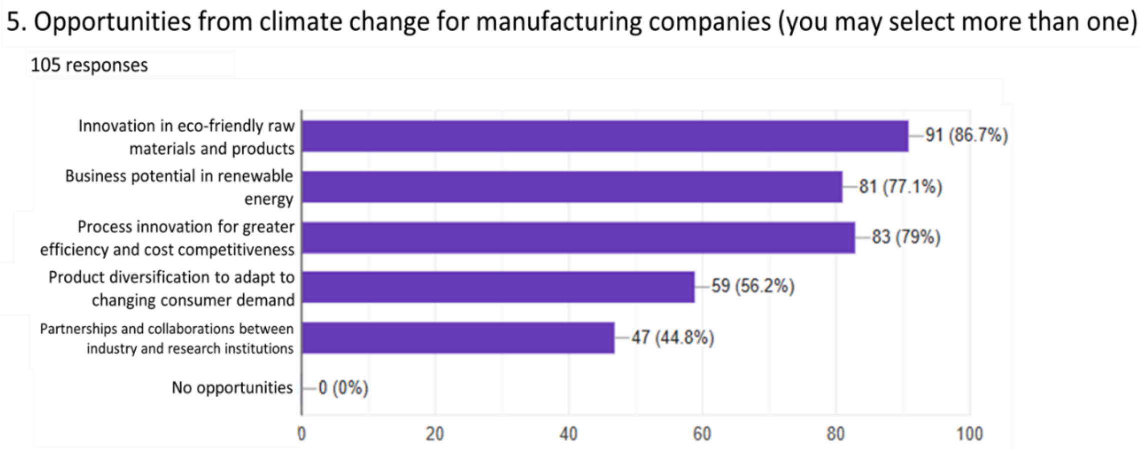
Global policies and national government regulations impose restrictions on manufacturing companies through various direct and indirect mechanisms. In the long term, companies that can adopt environmentally friendly and energy-efficient technologies are more likely to effectively manage these impacts and maintain their competitiveness.

Figure 10 : Respondent's opinion about the threat



From a different perspective, the survey results show that respondents view this situation as an opportunity for innovation through the use of more environmentally friendly materials and products, which was recognized by 86.7% of respondents, as shown in Figure 11. Other identified opportunities include the potential for innovation in further process efficiency (79%) to manage power costs and enhance company competitiveness, as well as new business opportunities in the renewable energy sector (77.1%). With this understanding, stakeholders are expected to consider how to plan mitigation strategies as well as develop improvement and innovation plans for their respective companies.

Figure 11: Respondent's opinion about the Opportunity



4.3 Case Study: PT Astra Otoparts

PT Astra Otoparts give description real about views and responses company to Climate Change. As form concrete from support to Aspiration Astra Sustainability 2030, PT Astra Otoparts set target, launch activity together, and do monitoring as effort achieve the target of seven component main sustainability, such as subtraction greenhouse gas emissions glass (GHG), increase use energy renewable, reduction intensity water withdrawal, diversion waste solid, business model resilience , health and safety employees , as well as development community (PT Astra Otoparts, Sustainability Report, 2023, p. 6).

From the perspective of the Competitive Environmental Strategy (CES) theory, a company's response like this can be understood within the framework of the strategic approach adopted by PT Astra Otoparts, as illustrated in the images below. Figure 12 shows that PT Astra Otoparts' activities fall under CES categories 1-4. Meanwhile, Figure 13 highlights activities within the CES-5 category.

Figure 12: CES1-4 Implementation at PT Astra Otoparts

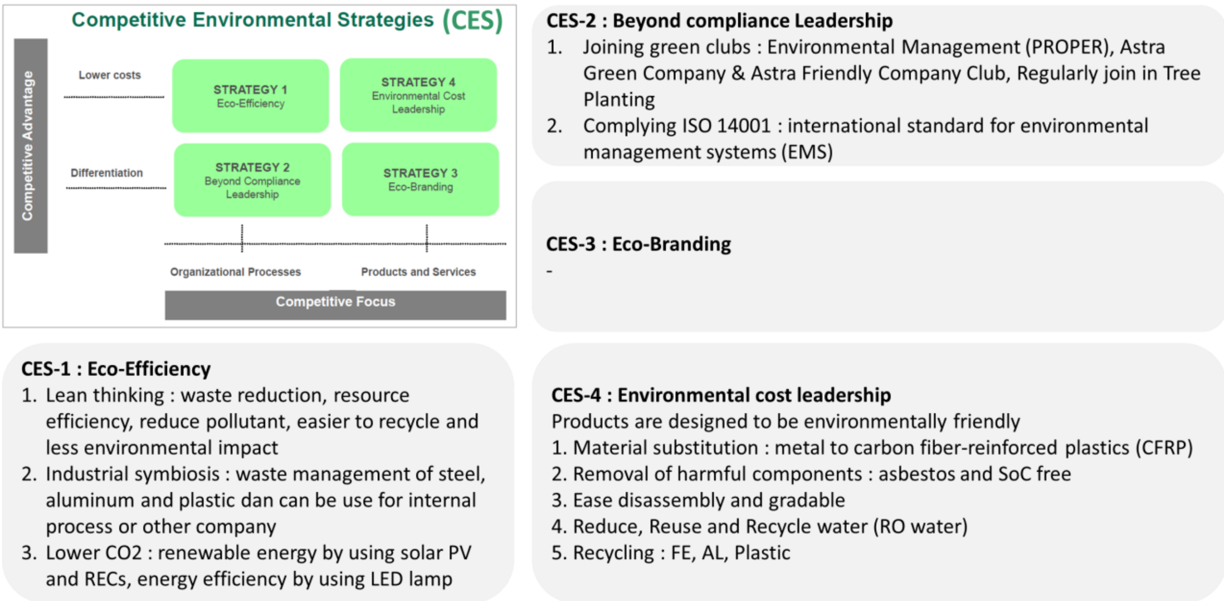
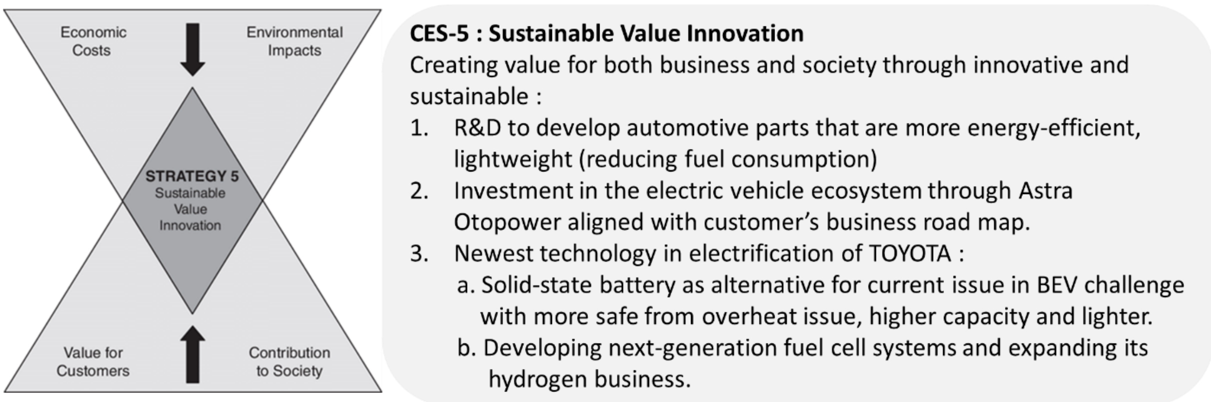


Figure 13: CES-5 Implementation at PT Astra Otoparts



5. CONCLUSION AND RECOMMENDATION

The results of this study support several previous studies on corporate responses to the threat of climate change. With strong commitment, these companies strive to reduce greenhouse gas emissions as part of their strategies to mitigate impacts on business. The questionnaire survey in this study shows that executives have a clear understanding of climate change issues and their impacts. This understanding has a positive effect on all employees by motivating them and increasing their awareness of current relevant issues.

An important point is that 61.9% of respondents have a strong understanding of the impact of climate change, viewing it not only as a threat but also as a business opportunity. This thoughtful and wise perspective can foster forward-thinking and a commitment to adapt to government regulations and changing consumer demands. Ultimately, companies can see this issue as a challenge that brings innovation opportunities, such as developing efficient and environmentally friendly manufacturing processes.

Further research is needed to identify concrete forms of corporate responses, both in terms of mitigation and opportunity utilization, that can contribute to greenhouse gas emission reductions and enhance competitiveness through sustainable business strategies. Of course, there are potential constraints, including knowledge, innovation, and financial limitations for investment. It is hoped that future research can provide alternative, practical, and effective solutions.

REFERENCE

Giampieri , A., Ling-Chin, J., Ma, Z., Smallbone , A., & Roskilly , A. P. (2020). A review of the current automotive manufacturing practice from an energy perspective. *Applied Energy, 261*, 114074. https://doi.org/10.1016/j.apenergy.2019.114074

Government of Indonesia. (2019). *Presidential Regulation no. 55 of 2019 on the Acceleration of the Battery Electric Vehicle Program for Road Transportation.*

Government of Indonesia. (2009). *Law No. 32 of 2009 on the Protection and Management of the Environment.*

Government of Indonesia. (2011). *Government Regulation no. 61 of 2011 on the National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK).*

Government of Indonesia. (2014). *Government Regulation no. 79 of 2014 on the National Energy Policy.*

Government of Indonesia. (2016). *Law No. 16 of 2016 on the Ratification of the Paris Agreement.*

Government of Indonesia. (2019). *Presidential Regulation no. 55 of 2019 on the Acceleration of the Battery Electric Vehicle Program for Road Transportation (Battery Electric Vehicles)*.

Government of Indonesia. (2011). *National Action Plan for Greenhouse Gas Emission Reduction (RAN-GRK).*

International Energy Agency. (2024, November 14). *CO_2 emissions in 2023: A new record high, but is there light at the end of the tunnel?* IEA. Retrieved from https://www.iea.org/reports/co2-emissions-in-2023-a-new-record-high-but-is-there-light-at-the-end-of-the-tunnel

New Climate Institute. (2019). *Indonesia's climate policies and action: Current status and future outlook*. New Climate Institute, https://climateactiontracker.org/documents/658/CAT_2019-10-10_ScalingUp_INDONESIA_FullReport_ENG.pdf .

Orsato, R. J. (2009). *Sustainability strategies: When does it pay to be green?* Palgrave Macmillan.

PT Astra Otoparts. (2023). *Sustainability report*. Retrieved from https://www.astra-otoparts.com/sustainability

United Nations Framework Convention on Climate Change. (2015). *Paris Agreement*. Retrieved from https://unfccc.int/

CHAPTER 6

A Comparative Study Between Before and After Refinancing of PT Celebes Railway Indonesia

Endy Gunawan TURKİ
Institut IPMI, Indonesia
endy.turki@ipmi.ac.id
Orcid: 009-0003-1327-7674

Roy SEMBEL
Institut IPMI, Indonesia
roy.sembel@ipmi.ac.id
Orcid: 0000-0002-9023-9976

ABSTRACT

This study examines the comparison before and after refinancing decisions on investment feasibility, capital structure, and financial performance of companies, focusing on PT Celebes Railway Indonesia. By analyzing the refinancing activities of companies, the study also highlights how securing more favorable loan terms can improve investment viability through reduced interest costs and loan maturity extensions. The research was carried out with a qualitative approach through data collection with interviews and the collection of financial statement documents and refinancing reports which were then analyzed. The findings show that refinancing can optimize the capital structure, reduce capital costs, and increase financial stability, in this case, being able to manage cash in the form of ECA by 30%, get interest rate reductions, and also accelerate debt payments. The study explores the broader implications of refinancing on a company's financial performance, including improved cash flow. The object of this study, namely PT Celebes Railway Indonesia as a public-private partnership (PPP) railway infrastructure operator with an availability payment scheme, shows the potential benefits and risks associated with refinancing, providing valuable insights for policymakers and corporate decision-makers who aim to utilize refinancing as a tool for financial optimization and growth. The study comprehensively explains how refinancing decisions affect key financial metrics. This study contributes to the understanding of refinancing and emphasizes the importance of careful planning and execution in achieving desired financial and operational outcomes.
Keywords: Refinancing, Investment Feasibility, Capital Structure, Corporate Financial Performance, Public-Private Partnership

1. Introduction

As a railway infrastructure operator company, PT Celebes Railway Indonesia (PT CRI) plays an important role in its operations and maintenance. In many countries, including Indonesia, railway infrastructure is one of the vital components in the national transportation system that not only supports the mobility of goods and passengers but also has a significant economic impact, both at the local and national levels (Dwiatmoko et al., 2020). In this case, PT CRI, a railway infrastructure operator, relies on one of the funding instruments, namely long-term debt, to finance related to the operation and maintenance of railway infrastructure in Makassar-Parepare. One of the strategies widely used by companies in managing their debt is refinancing, which is replacing old debt with new, more profitable debt, either in terms of lower interest rates, longer tenure, or more flexible payment conditions (Amromin et al., 2020). This refinancing is becoming increasingly relevant for PT CRI to optimize its capital structure and become an alternative to improve the company's financial structure, reduce debt burden, and improve its ability to face unexpected economic challenges.

Refinancing at PT. Celebes Railway Indonesia is the first refinancing in railway investment in Indonesia for the Public-Private Partnership scheme (Adam et al., 2023). The idea of refinancing is an important factor to consider in determining debt maturity and has received a lot of attention in recent years (Chala, 2017). Refinancing allows companies to restructure their debt and restructure financing to lower debt costs through lowering interest rates, extending payment periods, or adjusting to more favorable market conditions. Therefore, effective refinancing can lead to increased operational efficiency and reduced financial risk for the company, which in turn increases the company's value in the market (Hou & Wang, 2022). Several previous studies have discussed the topic of refinancing, both in the context of companies in general and specific sectors. For example, research by Dewi et al., (2020) that by replacing existing loans with lower interest rates, it can reduce the total cost of debt, thereby alleviating the financial pressure that has been felt so far. On the other hand, research by Danis et al., (2014) revealed that refinancing helps when the company strives to achieve an optimal capital structure. However, refinancing research in the context of railway infrastructure operator companies is still limited. Hence, this research is important to fill the literature gap and significantly contribute to understanding financial dynamics in the public transportation sector, especially railways. This study analyzes the first refinancing carried out by a railway infrastructure operator company and explores the motivation and reasons behind the decision, as well as the impact it has on the company's financial and operational performance. As a case study, this research is also expected to provide examples of successful refinancing and can be a pilot for other companies.

Thus, this study is also expected to provide deeper insights into how PT CRI companies as railway infrastructure operators use refinancing as a tool to improve their financial structure, how it affects the continuity of operations and maintenance carried out, as well as what are the differences from before and after refinancing.

2. Theoretical Framework

In the first research on refinancing by PT Celebes Railway Indonesia as a railway infrastructure operator, several financial theories will be used to analyze the decisions and impacts of the refinancing. These theories will provide a conceptual framework for understanding the refinancing process and its implications for the company's capital structure, financial performance, and operations. Here are some relevant theories for this study:

2.1 Capital Structure Theory

The theory of capital structure, first proposed by Modigliani and Miller (1958), states that in a perfect market, a company's debt and equity structure does not affect the company's value. However, in reality, companies are often in an imperfect market, with taxes, bankruptcy costs, and other risks. Therefore, companies need to determine an optimal capital structure, the ratio between debt and equity that minimizes the cost of capital and increases the company's value. In the context of refinancing, companies can change their capital structure by replacing expensive old debt with new, more profitable debt (e.g., lower interest rates or longer terms). In the context of refinancing, the theory of capital structure provides a relevant foundation. Companies often decide to refinance to optimize their capital structure by replacing old debt with new, more profitable debt. With refinancing, companies can take advantage of lower interest rates or extend the payment term. Refinancing also improves the company's financial efficiency. By reducing interest expenses or extending debt tenure, companies can manage cash flow and investments more flexibly. However, it is important to note that refinancing decisions must be made carefully. If companies do not carefully consider the risk and benefit factors, refinancing can create new problems, such as increased default risk or increased exposure to changes in interest rates. Therefore, companies must conduct a thorough analysis to determine whether refinancing will increase the company's value (Abeywardhana, 2017; Khan, 2021; Paul & Zhou, 2018).

2.2 Agency Theory

Agency theory examines the relationship between principals (shareholders) and agents (company managers), who are often faced with conflicts of interest. Shareholders want to maximize the value of the company, while managers may focus more on personal interests or risk avoiding decisions that could potentially harm them (Hendrastuti & Harahap, 2023; Jensen & Meckling, 1976; Panda & Leepsa, 2017). In the context of refinancing, agency theory is relevant because different considerations between shareholders and creditors may influence the decision to refinance. Shareholders may prioritize reducing their debt burden and improving liquidity to increase the company's value, while creditors tend to be more cautious because they are exposed to default risk. Therefore, there is often a difference between shareholders and creditors when a company considers refinancing. This difference in interests results in agency costs, which are costs incurred to reduce or manage conflicts between principals and agents (Green, 2018). This fee can be in the form of supervision fees carried out by shareholders to ensure management makes refinancing decisions that are in accordance with the company's interests. These agency costs create additional friction in the company's financial decision-making and can be an obstacle in reaching an optimal refinancing agreement. In practice, agency theory also shows the importance of control mechanisms to ensure that the interests of shareholders and the company are more aligned. Refinancing, if carried out by considering agency theory, can help companies balance the interests of shareholders and companies. For example, a company can design a fair refinancing deal to both parties by giving creditors certain priorities to reduce the risk of default or by guaranteeing better liquidity to shareholders. This approach will help the company maintain good relationships with all stakeholders. In conclusion, agency theory provides valuable insights into how companies can manage conflicts of interest in refinancing decisions. By understanding the differences in interests between shareholders, managers, and creditors, companies can design refinancing strategies that increase the company's value and minimize agency conflicts. This approach helps companies maintain financial stability and credibility in the market (Ji, 2020; Kouiri, 2023).

3. Method

This study uses a descriptive qualitative approach. Descriptive qualitative research is a research method that aims to describe or describe a certain phenomenon or condition systematically (Sugiyono, 2019). The focus of descriptive qualitative research is on research, to present clear information about what happened to the object of the study, namely PT Celebes Railway Indonesia, with the purpose of the research to describe the differences before and after the refinancing carried out by PT Celebes Railway Indonesia and how it affects the continuity of the operation and maintenance of railway infrastructure managed by PT CRI in Makassar-Parepare. The research data collected through interviews and data collection is in the form of financial statements from 2019 to 2023, as well as PT Celebes Railway Indonesia's refinancing report. The data obtained was then analyzed, and the differences between before and after the refinancing of PT CRI were described. This research is expected to provide an overview of the benefits received from refinancing activities in increasing the value seen from financial performance, providing added value for shareholders and also for the government and also adding academic insight into refinancing in Public-Private Partnership (PPP) infrastructure project investment activities.

4. Findings and Discussion

Based on the results of the research by analyzing the data of financial statements and refinancing reports of PT Celebes Railway Indonesia, the following information was obtained:

4.1 Results

4.1.1 Before Refinancing

Table 1 shows PT Celebes Railway Indonesia's cash waterfall before refinancing.

Table 1. Cash Waterfall Before Refinancing

YEAR	2022	2023	2024	2025	2026	2027	2028	JUMLAH
Revenue	45.954	236.162	236.162	218.360	218.360	218.360	218.360	1.391.718
Operation Cost	5.316	24.979	39.803	42.330	44.045	48.378	50.410	255.260
Permium IIGF	2600	2.600	2.600	2.600	2.600	2.600	2.600	18.200
Principal Installment	1	30.887	61.649	61.649	61.649	61.649	345.235	622.719
Interest	-	70.928	56.935	50.616	44.459	38.303	16.804	278.045
Debt Service Reverse	16.359	13.785	-	-	-	-	-	30.144
Excess Account	**21.677,92**	**92.982,65**	**75.175,28**	**61.165,20**	**65.606,04**	**67.430,75**	**-**	**384.037,84**

The feasibility information of PT CRI before refinancing is shown in Table 2.

Table 2. Feasibility Before Refinancing

1	VAT (PPN)	438.072	Juta Rp
2	Investment	988.520	Juta Rp
3	Overhead & Maintenance	971.521	Juta Rp
4	Corporate Tax	342.359	Juta Rp
5	Financial Cost	365.718	Juta Rp
6	Margin (EAT)	1.027.078	Juta Rp
7	**AP Revenue**	**4.133.267**	**Juta Rp**

Then, the following is information on PT CRI's project feasibility before refinancing, starting from the value of WACC, NPV project, IRR project, and also payback.

Table 3. Project Feasibility

WACC	10,59%	
Project NPV	51.096	
Project IRR	**11,76%**	
Payback	7,0	Since Operation

4.1.2 After Refinancing

PT CRI refinanced starting in December 2022 and completed in September 2023. The following is Table 4 about PT CRI's cash waterfall after refinancing.

Table 4. Cash Waterfall After Refinancing

YEAR	2023	2024	2025	2026	2027	2028	JUMLAH
Revenue	118.081	236.162	218.360	218.360	218.360	218.360	1.227.683
Operation Cost	34.345	39.803	42.330	44.045	48.378	50.410	259.311
Premium IIGF	1300	2600	2600	2600	2600	2600	14300
Principal Installment	30.015	91.571	129.858	123.938	129.835	126.046	631.264
Accelerated Payment	-	-	1.849	2.659	2.556	2.673	9.736
Interest	16.731	46.304	35.621	25.481	14.877	3.930	142.943
Debt Service Reverse	-	35.690	-	-	-	-	35.690
Excess Account	35.690	236.887	214.303	218.333	219.006	231.988	1.156.207
70% for Accelerated Payment	-	38.286	32.367	38.264	42.654	72.787	224.358
30% for Business Entity	-	16.408	13.871	16.399	18.280	31.195	96.153

Table 5 shows the feasibility of PT CRI after refinancing.

Table 5. Feasibility After Refinancing

VAT (PPN)	438.128	Juta Rp
Investment	988.520	Juta Rp
Overhead & Maintenance	987.979	Juta Rp
Corporate Tax	312.398	Juta Rp
Financial Cost	298.649	Juta Rp
Margin (EAT)	1.107.593	Juta Rp
AP Revenue	**4.133.267**	**Juta Rp**

Table 6 shows PT CRI's project feasibility after the refinancing.

Table 6. Project Feasibility

WACC	8,86%	
Project NPV	147.779	
Project IRR	**11,76%**	
Payback	7,2	Since Operation

4.2 Discussion

The following is a discussion of some of the factors that PT Celebes Railway Indonesia (PT CRI) considers in making refinancing decisions. This analysis involves strategic aspects such as cash management, interest rates, loan payment periods, and acceleration of debt payments.

4.2.1 Cash Management Influenced The Decision For Refinance

One of the main reasons for PT CRI to refinance is cash management, especially related to "Excess Account". Based on the results shown in Table 1, before the refinancing was carried out, PT CRI did not have control over funds of Rp384,037.84 million from the "Excess Account" which was fully managed (100%) by the lender according to the initial agreement. This has a direct impact on PT CRI's flexibility in managing the funds for other strategic purposes. In the refinancing decision, PT CRI chose a new lender that provides a more flexible policy, which allows PT CRI to manage 30% (Rp96,153 million) of the total Excess Account costs while the remaining 70% (Rp224,358 million) is still managed by the new lender for loan payment. This step provides financial maneuverability space for PT CRI, reduces dependence on lenders, and increases the company's capacity to respond to operational needs. With this refinancing, PT CRI can optimize internal liquidity while balancing its debt payment obligations.

4.2.2 Rate Influenced The Decision For Refinance

The interest rate factor is also the main consideration in the refinancing decision. Prior to the refinancing, PT CRI was charged an interest rate of 9.85%, which was relatively high and burdened the company's financial structure. In the refinancing process, PT CRI successfully negotiated interest rate reductions with old and new lenders. As a result, the new lenders offered a more competitive interest rate of 7.9%, a significant reduction over the previous interest rate. This interest rate reduction provides several benefits for PT CRI, including a decrease in interest expense that must be paid each period, an increase in operating cash flow, and efficiency in long-term borrowing costs. In addition, the decline in interest rates also has a positive impact on financial ratios, which is an important indicator for the company's financial stability.

4.2.3 Payment Period Influenced The Decision For Refinance and Debt Payment Accelerated Influenced The Decision For Refinance

Other factors that also affect the refinancing decision are the loan payment period and the acceleration of debt payments. Before refinancing, PT CRI's loan payment tenor was 7 years, while new lenders offered a shorter tenor, which was 6 years. Although the payment period is shorter, this provides a positive signal for the company's financial stability in the long term, as the loan can be repaid faster, thereby reducing the risk of accumulated interest. In addition, PT CRI also accelerates loan payments after refinancing. This move reflects PT CRI's efforts to reduce its debt burden faster, which not only improves the company's financial position but also increases the confidence of new lenders in the company's commitment to managing its financial obligations.

From the three explanations above, it is also known that several financial indicators show the efficiency and feasibility of the project that still need improvement based on the conditions before refinancing. Then, from the perspective of project feasibility in Table 3, the Weighted Average Cost of Capital (WACC) is at the level of 10.59%, which is relatively high and has an impact on the high cost of funding. In addition, the project's Net Present Value (NPV) only reached Rp 51,096 million, with an Internal Rate of Return (IRR) of 11.76% and a project payback period of 7 years since the start of operations. After the refinancing was carried out, several significant changes were seen, as shown in Table 5 and Table 6, which contributed directly to the Expertise, Authoritativeness, and Trustworthiness (EAT) net profit margin, which increased from Rp 1,027,078 million to Rp 1,107,593 million. Furthermore, from the feasibility aspect of the project, the WACC decreased to 8.86%, which reflects the decrease in capital costs due to refinancing. This decrease has implications for an increase in the project's NPV to Rp 147,779 million, almost three times the value before refinancing. In addition, the return on investment (IRR) remained at 11.76%.

Based on the above, the refinancing carried out has a positive impact on PT CRI because it is as expressed by Amromin et al., (2020), where PT CRI can obtain a reduction in interest rates, more flexible financial management, and can also accelerate debt payments, and can achieve an optimal capital structure (Danis et al., 2014). In addition, the refinancing carried out by PT CRI is the first refinancing carried out in the Public-Private Partnership (PPP) railway sector with the Availability Payment scheme in Indonesia (Adam et al., 2023).

5. Conclusions and Recommendations

The refinancing decision made by PT Celebes Railway Indonesia is based on thorough considerations to improve financial efficiency. With refinancing, PT CRI has gained greater flexibility in cash management (ECA), reduced interest rates, reduced tenors, and accelerated loan payment. These measures not only strengthen the company's financial stability but also support long-term growth through more strategic and efficient debt management. Overall, refinancing has a positive impact on PT CRI's financial condition. Reducing financial burden and more efficient capital management have improved profit margins, strengthened project viability, and made the company's financial structure more competitive in the long term. This shows the success of the refinancing strategy in supporting the growth and sustainability of PT CRI's projects. Then, other companies in the railway sector and other sectors can consider this carefully before refinancing. For researchers in the future they can also analyze other refinancing processes carried out by a company to find out more deeply whether each refinancing process carried out by various companies can be successful and have a positive impact on the company.

References

Abeywardhana, D. K. . (2017). Capital Structure Theory: An Overview. *Accounting and Finance Research*, *6*(1), 133–138. https://doi.org/10.5430/afr.v6n1p133

Adam, H., Manurung, A. H., Sembel, R., & Murdiono, J. (2023). The First Refinancing Of Railway Infrastructure In Indonesia: A Part of Public-Private Partnerships (PPP). *Journal of Accounting and Finance Management*, *4*(5), 332–342. https://doi.org/10.38035/jafm.v4i5.270

Amromin, G., Bhutta, N., & Keys, B. J. (2020). Refinancing, Monetary Policy, and the Credit Cycle. *Annual Review of Financial Economics*, *12*(1), 67–93. https://doi.org/10.1146/annurev-financial-012720-120430

Chala, A. T. (2017). *Refinancing Risk and Debt maturity Choice During a Financial Crisis* (Issue November).

https://www.annualreviews.org/doi/10.1146/annurev-financial-012720-120430

Danis, A., Rettl, D. A., & Whited, T. M. (2014). Refinancing, profitability, and capital structure. *Journal of Financial Economics*, *114*(3), 424–443. https://doi.org/10.1016/j.jfineco.2014.07.010

Dewi, D. P. N., Sudana, I. P., Dwirandra, A. A. N. B., & Wirajaya, I. G. A. (2020). Debt Refinancing Decision Making: A Phenomenological Study In A Not-For-Profit Organization. *Russian Journal of Agricultural and Socio-Economic Sciences*, *104*(8), 3–14. https://doi.org/10.18551/rjoas.2020-08.01

Dwiatmoko, H., Supriyatno, D., & Mudjanarko, S. W. (2020). The Role of Railway Infrastructure Development on the Regional Economic Growth. *International Journal of Sustainable Construction Engineering and Technology*, *11*(1), 125–135. https://doi.org/https://doi.org/10.30880/ijscet.2020.11.01.013

Green, D. (2018). Corporate Refinancing, Covenants, and the Agency Cost of Debt. *SSRN Electronic Journal*, 1–75. https://doi.org/10.2139/ssrn.3424053

Hendrastuti, R., & Harahap, R. F. (2023). Agency theory: Review of the theory and current research. *Jurnal Akuntansi Aktual*, *10*(1), 85. https://doi.org/10.17977/um004v10i12023p085

Hou, W., & Wang, L. (2022). Research on the refinancing capital structure of highway PPP projects based on dynamic capital demand. *Engineering, Construction and Architectural Management*, *29*(5), 2047–2072. https://doi.org/10.1108/ECAM-05-2020-0321

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Ji, J. (2020). The Effect of Stock Refinancing on Company Performance of Listed Companies-Evidence from China. *4th International Conference on Economics, Management Engineering and Education Technology*, 708–712. https://doi.org/10.25236/icemeet.2020.142

Khan, M. A. (2021). Capital Structure Theories: A Comprehensive Review. *Revista Gestão Inovação e Tecnologias*, *11*(3), 1562–1574. https://doi.org/10.47059/revistageintec.v11i3.2031

Kouiri, K. El. (2023). Exploring the Development of Agency Theory: Review of theory. *Ibn Khaldoun Journal for Studies and Researches*, *3*(10), 365–380. https://doi.org/10.56989/benkj.v3i10.698

Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, *48*(2), 261–297. https://doi.org/10.1136/bmj.2.3594.952

Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of Theory and Evidence on Problems and Perspectives. *Indian Journal of Corporate Governance*, *10*(1), 74–95. https://doi.org/10.1177/0974686217701467

Paul, T., & Zhou, F. (2018). Refinancing Risk and Disclosure of Corporate Investment. *SSRN Electronic Journal*, *1*(November), 1–45. https://doi.org/10.2139/ssrn.3292659

Sugiyono, S. (2019). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Alfabeta.

CHAPTER 7

The Effect of Work-Life Balance, Career Development Support and Pay Satisfaction on Employee Turnover Intention

Irfan Pratama
Institut IPMI, Indonesia
irfan.pratama@ipmi.ac.id
Orcid: 0009-0009-1515-5877

Amelia Naim Indrajaya
Institut IPMI, Indonesia
irfan.pratama@ipmi.ac.id
Orcid: 0000-0001-9021-902X

ABSTRACT

Coal commodity Industries is facing hard times. The increased awareness of environmental issues had forced corporates to deal with green and clean energy. The coal industry is often susceptible to economic fluctuations and market demands. Employees may experience job insecurity due to factors such as declining demand for coal, market competition from alternative energy sources, or regulatory changes.

This paper will be focusing on the mining industry as seen in the evidence of XYZ mining company. There is sufficient previous research on this topic. However, research on employee turnover intention in mining industry is still limited. Therefore, this study aims to learn the effect of work-life balance, career development support, and pay satisfaction on employee turnover intention.

This is a descriptive conceptual paper analyzing to propose the impact of work-life balance and pay satisfaction on employee turnover intention.

The proposition shows that work-life balance, career development support, and pay satisfaction positively impact employee turnover intention. This paper is a conceptual paper. The limitation of this paper lies in the absence of empirical data. The future research should be conducted quantitatively to test further the proposition and hypothesis.

Keywords: Employee Turnover Intention, Coal Mining Industry, Work-Life Balance, Pay Satisfaction

INTRODUCTION

The global push toward environmental sustainability has placed a significant spotlight on green and clean energy. Nations worldwide are committing to reduce greenhouse gas emissions, transitioning away from fossil energy like coal, and investing heavily in renewable energy sources. This shift is not merely an environmental necessity but also a strategic economic decision, as renewable energy technologies become increasingly cost-effective and efficient.

Coal commodities limited availability is also a challenge. Coal quantity decreases due to extensive mining in the countries. This non-renewable resource pushes industries to shift and think about long-term plan and prepare for going concern where dependence on coal is no longer a sustainable plan. This limited source of coal concerns the employee in coal industry about its going concern.

Technological advancements in coal industry may result in reducing employee workforce quantity. Technology also becomes a threat to employee’s job security due to increased automation. Which have impact to seek new employment opportunities that are less threatening to technological disruptions.

As an example, Huawei’s approach to advanced mining using automation and AI using 5G connectivity, cloud computing, and advanced machine learning algorithms being proof that employment is possible to be reduced. MineHarmony OS also provides real-time data collection and analysis, optimizing resource allocation and providing efficient mining operations.

The idea of work-life balance has become increasingly popular. Workers in the mining and energy industries deal with particular difficulties, such as long working hours, isolated work sites, and elevated stress levels. The harmony between one's personal and professional obligations is known as work-life balance, and it has grown to be a crucial component of both employee retention and job satisfaction. Particularly in sectors with historically high turnover rates, companies that place a high priority on supportive management practices, mental health programs, and flexible work schedules have a better chance of luring and keeping talent.

TURNOVER INTENTION

An employee's deliberate choice to quit their current position is known as turnover intention, and it is a crucial notion in organizational behavior. Numerous elements, including as work environment, organizational dedication, and job happiness, might have an impact on this goal. Organizations hoping to keep a steady workforce and reduce the expenses related to high turnover rates must comprehend turnover intention. Beyond only affecting specific workers, turnover intention can have a big impact on the efficiency and performance of a company as a whole.

An individual’s intention to leave is influenced by a number of things. One of the most important predictors is job happiness; workers who are unhappy in their positions are more prone to think about quitting the company. According to Robbins and Judge (2011), factors including compensation, working environment, and connections with coworkers can all have an impact on an employee's emotional reaction to their employment. Additionally, organizational commitment is important; workers who have a strong sense of belonging to their company are less inclined to quit. Because they feel a sense of attachment and loyalty to their employment, people with high levels of organizational commitment are less likely to plan to leave (Ahmed & Nawaz, 2015).

High turnover intention has significant financial ramifications. Every time an established employee departs, organizations incur higher expenses for recruiting, hiring, and training new hires. Setyanto and Hermawan (2018) point out that when seasoned personnel leave, the loss of institutional knowledge and expertise might make these costs much higher. High turnover can also affect team chemistry and lower morale among surviving employees, which can further reduce productivity. For businesses looking to grow and stabilize, this cycle creates a difficult situation.

Organizations must put initiatives in place that improve work satisfaction and organizational commitment in order to successfully address turnover intention. Creating a positive work atmosphere where staff members feel appreciated and acknowledged for their efforts is part of this. In this process, leadership is essential. By encouraging open communication, offering chances for professional growth, and guaranteeing equitable remuneration policies, good leaders can have a significant impact on employee engagement (Li & Sawhney, 2019). Addressing work-life balance concerns can also greatly lower the likelihood that employees who feel overburdened by their duties will intend to leave.

WORK-LIFE BALANCE

The importance of work-life balance (WLB) in influencing employee turnover intentions is becoming more widely acknowledged. It includes the balance people try to strike between their personal and professional commitments, which is crucial for general wellbeing. According to Greenhaus and Allen (2011), WLB entails fostering synergy between work and family responsibilities by being equally interested and content with both. This balance is essential because workers who feel that their personal and professional lives are complementary are more likely to be satisfied, which raises job engagement and decreases intentions to leave. According to research, companies that assist workers in striking a healthy work-life balance not only increase job satisfaction but also cultivate loyalty to the company, which lowers the risk of turnover.

Work-life balance has ramifications that go beyond personal fulfillment; it has a big influence on organizational effectiveness. A study on Indonesian workers, for example, found that a high degree of work-life balance led to low turnover intentions, indicating that workers are less likely to think about quitting their employment when they feel supported in juggling their personal and professional lives. Additionally, job satisfaction's mediating function in this relationship emphasizes how crucial it is to establish an atmosphere that allows workers to flourish on both a personal and professional level. By addressing the crucial elements of work-life balance, companies that adopt efficient policies—like flexible working hours and sufficient support systems—can greatly improve employee retention.

CAREER DEVELOPMENT SUPPORT

Support for career growth is essential in determining how workers view their employer and has a big impact on their intentions to leave. An engaged and contented workforce is typically fostered by organizations that invest in professional development activities, such as training programs, mentorship, and clear growth tracks. Employees are more likely to feel appreciated and dedicated to their company when they believe they have room to grow and advance. When workers feel their career goals can be achieved at their current company, they are less likely to look for work elsewhere, which can result in decreased turnover intentions (Allen et al., 2019). Turnover intention and career development support are strongly correlated, according to research. For example, research indicates that employees are far more likely to plan to leave the company if they believe there are little prospects for career growth (Lee et al., 2019; Nouri & Parker, 2013). Furthermore, research indicates that certain aspects of career development, like the rate of promotion and advancement toward professional objectives, have a significant impact on the intentions of employees to leave their jobs (Solihat et al., 2022). Establishing strong career development frameworks that not only improve employee satisfaction but also complement their long-term career goals should therefore be a top priority for firms looking to lower turnover. Businesses can reduce the expenses related to high turnover rates and develop a more stable staff by doing the proper treatment to employees.

PAY SATISFACTION

As a major factor in determining an employee's total job happiness and loyalty to the company, pay satisfaction has an effect on their intentions to change. A person's degree of happiness or discontent with their pay is known as pay satisfaction, and it includes a number of factors such base pay, pay increases, and benefits. According to research, turnover intentions are strongly impacted by how fair compensation methods are considered to be. For example, Allen and Griffeth point out that companies that support fair and open compensation practices typically see reduced employee turnover rates. Because workers who believe they are being fairly compensated for their efforts are more likely to stay with their company and have less plans to leave, this relationship emphasizes the significance of fair compensation.

Furthermore, empirical research continuously shows a negative relationship between turnover intentions and pay satisfaction. Employees show greater levels of job satisfaction and organizational commitment when they believe their pay is fair and in line with their performance and industry norms. On the other hand, employees who are unhappy with their compensation may be more likely to leave as they look for better chances elsewhere. Organizations must prioritize competitive compensation packages to boost employee retention, as evidenced by a study that indicated improvements in pay satisfaction were positively correlated with decreased intentions to leave. According to the research, resolving pay-related issues not only promotes a productive workplace but also reduces the likelihood of employee attrition, which eventually helps a business remain stable and succeed.

METHODS

In order to gain a greater knowledge of the subject, this work employs a conceptual descriptive technique, which entails evaluating and combining previous studies. When examining intricate ideas or hypotheses that call for a thorough analysis of the body of existing literature, this method is especially helpful.

DISCUSSIONS

Researcher collected prior findings related to work-life balance, pay satisfaction, and career development support. The first paper is by A.T. Salsabilla (2020) concluded that work-life balance and pay satisfaction has negative influence on turnover intention. The research was conducted to millennial employees with the age range of 18-37 years old and working in financial services companies located in Jakarta. The second research was by Putri (2024) with relevant variables of work-life balance and career development support. The research concluded that work-life balance has negative influence over turnover intention. While, career development support has positive influence on turnover intention. The third paper by Saleem et al (2024) showed that work-life balance has negative influence over turnover intention. The fourth paper by Esthi and Panjaitan (2023) also showed that work-life balance has negative influence over turnover intention. The last paper by Perkasa (2023) showed that pay satisfaction has negative influence over turnover intention.

CONCLUSION

From the prior researches, we can conclude that work-life balance and pay satisfaction has negative influence over turnover intention. While career development support has positive influence over turnover intention.

The coal mining industry must address turnover intention by prioritizing work-life balance, career development support, and pay satisfaction. As a conceptual paper, this work outlines the theoretical underpinnings and relationships between these factors. However, the absence of empirical data limits its applicability. Future studies should conduct quantitative research to validate these propositions, offering actionable insights for industry stakeholders.

REFERENCES

Ahmed, I., & Nawaz, M. M. (2015). Antecedents and outcomes of perceived organizational support: A literature survey approach. *Journal of Management Development*, *34*(7), 867-880.

Allen, D. G., & Griffeth, R. W. (1999). Job performance and turnover: A review and integrative multi-route model. *Human Resource Management Review*, *9*(4), 525-548.

Esthi, R. B., & Panjaitan, S. (2023). The Effect of Work-Life Balance on Turnover Intention Mediated by Burnout. *ProBisnis: Jurnal Manajemen*, *14*(1), 29-34.

Hom, P. W., Allen, D. G., & Griffeth, R. W. (2019). *Employee retention and turnover: Why employees stay or leave*. Routledge.

Lee, J., Kim, S. B., Chae, C., & Lee, J. (2019). Career Growth Opportunity on Turnover Intention: The Mediating Role of Organizational Commitment in Multinational Corporations. *International Journal of Human Resource Studies*, *9*(4).

Li, Y., Sawhney, R., & Tortorella, G. L. (2019). Empirical analysis of factors impacting turnover intention among manufacturing workers. *International Journal of Business and Management*, *14*(4), 1-18.

Minal Saleem, Iqra Ashraf, & Saman Shahzad. (2024). The Impact of Work Life Balance on Turnover Intention: The Mediating Role of Job Engagement Among Employees. *International Journal of Contemporary Issues in Social Sciences, 3*(3), 1649–1661. Retrieved from https://ijciss.org/index.php/ijciss/article/view/1329

Nouri, H., & Parker, R. J. (2013). Career growth opportunities and employee turnover intentions in public accounting firms. *The British accounting review*, *45*(2), 138-148.

Perkasa, D. H., Parashakti, R. D., Affini, D. N., Wuryandari, N. E. R., & Deswindi, L. (2023). Analysis of Factors Influencing Turnover Intention of Go Online's Employees. *Dinasti International Journal of Education Management And Social Science*, *4*(3), 362-373.

Putri, I. N. K., & Games, D. (2024). Pengaruh Pengembangan Karir dan Work Life Balance terhadap Turnover Intention dengan Retensi Karyawan sebagai Variabel Mediasi. *Jurnal Informatika Ekonomi Bisnis*, 575-584.

Robbins, S. P., & Judge, T. A. (2011). Organizational behaviour.

Salsabila, A. T., Bhinekawati, R., & Pratama, S. (2020). Factors Influencing Turnover Intention of Millenial Employees: A Study with in The Financial Services Sector in Jakarta. *Language*, *10*(73p), 30cm.

Setyanto, S. H., & Hermawan, P. (2018). Analisa pengaruh stres kerja terhadap turnover intention karyawan hotel X Surabaya. *Jurnal Hospitality Dan Manajemen Jasa*, *6*(2015).

Solihat, W. S., & Salendu, A. (2023). The relationship between career growth opportunity and turnover intentions in employees in startup companies x: career planning coaching program designed as an intervention. *Gema Wiralodra*, *14*(2). https://doi.org/10.31943/gw.v14i2.480

CHAPTER 8

Transforming Business through Carbon Management Strategies in the Energy-Intensive Pulp and Paper Industry at PT BMS

Richard CHANDRA
IPMI Institute
richard.chandra@ipmi.ac.id
Orcid: 0009-0008-8883-710X

Amelia Naim INDRAJAYA
IPMI Institute
amelia.naim@ipmi.ac.id
Orcid: 0000-0001-9021-902X

ABSTRACT

Climate change become concerning issue for the world, for at least the last 20 years. As 1 of 196 nations who adopted the Paris Agreement, Indonesia has net zero emission target on 2060. Energy usage is one of the largest contributors to carbon emission in Indonesia, and industry is one of largest energy consumer in Indonesia. This research paper will be focusing on transforming business through carbon management strategies in Pulp and Paper Industry as 4th largest energy consumer in industry, which PT BMS chosen as the subject of research. Carbon management was very, and there were many previous research for this subject. However, it concentrated on the pulp and paper industry of developed countries only, while mitigation strategies in green energy are region specific. This research used descriptive and qualitative methods to analyze current environmental performance and find the abatement opportunities at PT BMS. Main objective of this research is to develop practical, applicable and cost-effective abatement strategies for carbon management in PT BMS. This research paper is a conceptual paper, hence the values of abatement opportunities are based on estimation approach. Future research should be conducted quantitatively to test further the effectiveness of the abatement strategies.
Keywords: Business Transformation, Carbon Management, Renewable Energy, Pulp and Paper Industry, Emissions, Green House Gasses.

INTRODUCTION

One of the world's biggest crises is climate change. Paris Agreement was adopted by 196 countries, including Indonesia, to combat the global climate change (UNFCCC, 2024). Indonesia committed to reduce Green House Gases (GHG) Emissions by 31.89% in unconditional mitigation scenario in 2030 and to reach Net Zero Emission (NZE) by 2060 (Pusat Industri Hijau Kementerian Perindustrian, 2024). In 2019, energy usage contributes 65% of GHGs emissions. In 2022, the industrial sector takes 45% of final energy consumers in Indonesia and contribute to 29.6% or 206.4 million tons of total 696.75 million tons of Indonesia CO_2 emissions (Dewan Energi Nasional, 2024). The pulp and paper industry are energy intensive industry. It is at the fourth largest industrial energy user (APKI, 2023).

GHG reduction is mandatory to combat climate change and comply to Paris Agreement. As many research has mitigation and strategy to reduce GHG within pulp and paper industry, it limited in the developed country (Shabbir et al., 2022). Mitigation strategies need a better understanding of region-specific conditions (Madlool et al., 2013; Panjaitan et al., 2021). This research will provide contributions for the study of carbon management strategies of pulp and paper industry in developing country, specifically at company in Indonesia.

PT BMS as one from 79 pulp and paper industry in Indonesia (Direktorat Jenderal Industri Argo Kementerian Perindustrian Republik Indonesia, 2024), have to comply to Indonesia's target to achieve 31.89% emission reduction in 2030 and Net Zero Emission in 2060. It requires carbon management strategy which comply company's vision and mission, from business and environment perspectives. Thus, the research problem is how to develop practical, applicable and cost-effective abatement strategies for carbon management in PT BMS.

Research questions in this research are: 1. What is the current environmental performance in PT BMS? 2. What are the abatement opportunities in PT BMS? While the research objectives are 1. To measure and analyse total GHG emissions and GHG intensity in PT BMS 2. To define abatement actions along with the amount of potential reduction of GHG emissions and industry cost.

GREEN HOUSE GASES AND CARBON FOOTPRINT

Gases that trap heat in the atmosphere are called greenhouse gases (EPA, 2024). The greenhouse effect keeps the Earth's temperature warmer. Greenhouse gas emissions contribute to accelerating climate change. GHG emission reduction can be achieved by reduce the source of carbon emission.

The carbon footprint is an internationally recognised method that takes measurements of resource consumption and emissions to the environment during the product life cycle (Wright et al., 2011). The process helps to clarify environmental hazard sources, such as GHG emissions within the product manufacturing process (Huntzinger & Eatmont, 2009). GHG emission sources can be differentiated into direct, indirect, and other indirect emissions.

This classification can also generally be centred into three parts of coverage (Ranganathan et al., 2004). Scope One, direct emissions originating from sources that are under the control of the company; Scope Two, indirect emissions arising from offsite such as from the purchase of electricity; and Scope Three, indirect emissions arising from outside but within the supply chain of the company or products sold (outside the control of the company). These 3 scopes needed to calculate carbon footprint.

Carbon footprint calculated by multiply fuel consumption and Global Warming Potential (GWP) of each scope. Meanwhile, GHG intensity can be calculated by dividing GHG total emissions on carbon footprint and total production. All calculation based on Intergovernmental Panel on Climate Change (IPCC) Guide 2006.

METHODS

This paper uses a conceptual descriptive and qualitative approach. To case study took place in PT BMS, East Java, Indonesia. This research uses documents review, observation and interview for the data collection and analysis. The research framework consists of two phases. First phase is to measure current environmental performance of the company or the carbon footprint. Data collection spanned from 2019 until 2023, including all industrial processes that impact on GHG emission, highlighting the scope 1,2 and 3 based on IPCC Guidelines 2006. GHG emissions and GHG intensity calculated for each year from 2019 until 2023. This will show the carbon footprint of the company during 5 years.
Second phase is to develop the abatement opportunities. Abatement opportunities developed from literature review, observation and interview, to ensure compatibility with the company condition and operational. Abatement opportunities then will be analyzed based on business perspective. GHG reduction and cost reduction calculated for potential abatement action. The result of the analysis will be potential abatement actions along with potential reduction of GHG emissions and potential reduction of operational cost.

FINDINGS AND DISCUSSION

Data from scope 1 were from coal usage, fuel consumption and waste water evaporation process. Highest total GHG emissions from scope 1 was from 2021 with GHG emissions 192,384.59 tCO_2e, while the lowest GHG emissions was from 2019 with GHG emissions 122,140.00 tCO_2e. Data from scope 2 was from electricity usage, where the highest total GHG emissions of scope 2 was from 2023 with GHG emissions 102,021.54 tCO_2e and the lowest was from 2019 with GHG emissions 46,233.46 tCO_2e. Scope 3 data were from raw material logistic, finished goods logistic and waste logistic. The highest total GHG emissions of scope 3 was from 2023 with GHG emissions 346.30 tCO_2e and the lowest was from 2019 with GHG emissions 224.50 tCO_2e. Total GHG emissions for each year comes from total GHG emissions of scope 1, 2 and 3 can be seen in Table 1.

Table 1. Total GHG Emissions of PT BMS from 2019 until 2023

Year	Total GHG Emissions ($t.CO_2e$)	Total Production (ton paper = tp)	GHG Intensity ($t.CO_2e$)
2019	168,597.96	103,908	1.62
2020	188,526.98	131,777	1.43
2021	282,426.26	160,445	1.76
2022	279,217.11	162,210	1.72
2023	289,941.48	176,666	1.64

While the total GHG emissions in 2023 was the highest, but from GHG intensity point of view, 2023 was not the highest, due to high total production in that year. The highest GHG intensity was 1.76 in 2021 while the lowest was 1.43 in 2020. Comparing with benchmark from other company in the same industry, which was 1.2 tCO_2e/tp, all the GHG intensity of PT BMS from 2019 until 2023 still higher. In 2023, the GHG intensity of PT BMS was 1.64 tCO_2e/tp, higher 36.77% from benchmark. This gap can be reduced by appropriate carbon management.
From the analysis, it can be concluded that from 2019 until 2023, the highest portion from GHG emissions comes from scope 1, with range 65% until 73% of total GHG emissions, followed by scope 2, with range 24% until 35%. Scope 3 only contribute 0.11% until 0.13% each year. The potential abatement focuses on the scope 1 and 2, which contribute 99% of the total GHG

emissions. Further analysis concludes that from scope 1 and 2, the 2 factor with most contribution to total GHG emissions was coal usage for boiler and electricity usage, which were for average 67% and 31% respectively. The focus can be narrowed to coal and electricity usage. For coal consumption, the potential abatement was to substitute coal usage for existing boiler, CFB boiler and incinerator boiler. Coal can be substitute with plastic, sludge, wood chip, rice husk or rubber. It can reduce coal usage to only 20% from existing usage. The result shows this abatement can reduce GHG emissions by 36,000 tCO_2e per year. From business perspective, calculation result shows savings from coal substitution is IDR 26,280,000,000 per year or USD 146,000 per month. For electricity, the potential abatement can be 1. Simplify the production process, 2. Invest in renewable energy such as, solar panel and anaerob WWTP, 3. Adopt new technology for servo motor, magnetic motor and inverter. These abatements can reduce 3,200 tCO_2e per year and savings IDR 4,628,000,000 per year or equivalent to USD 30,000 per month.

CONCLUSIONS AND RECOMMENDATIONS

Total GHG Intensity of PT BMS was 36.77% higher than other PPI GHG Intensity and it can be reduced by appropriate abatement in carbon management. Total GHG emissions of PT BMS caused by two main factors, which were coal usage and electricity usage, which contribute 67% and 31% in average, respectively. The substitution of coal can reduce GHG emissions by 36,000 tCO_2e per year and operational cost by USD 146,000 per year. The production process simplification, renewable energy investment and new technology adoption in electricity can reduce GHG emissions by 3,200 tCO_2e per year and operational cost by USD 30,000 per month. This research limited only in PT BMS and shows the emissions and cost reduction from each potential abatement. Further research can be conducted to generate more abatement and analyze the most suitable abatement for the company. Marginal Abatement Cost Curve (MACC) approach can be used to show the relation of emissions and cost reduction, while serve as solid basis for the company to choose the most appropriate abatement action. It does not rule out the possibility to conduct similar research in another sector of energy intensive industry in Indonesia, as the similar research in developing country industry still scarce.

REFERENCES

APKI. (2023). Inventarisasi Emisi GRK Non-Land Based Sector. APKI.

Ditjen Industri Argo Kementerian Perindustrian Republik Indonesia. (2024). CEO Meeting APKI Wilayah Jawa Timur. Kementerian Perindustrian Republik Indonesia.

Huntzinger, D. N., & Eatmon, T. D. (2009). A life-cycle assessment of Portland cement manufacturing: comparing the traditional process with alternative technologies. Journal of Cleaner Production, 17(7), 668-675.

IPCC. (2014). Climate Change 2014: Synthesis Report. In Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)] (pp. 151). Geneva, Switzerland: the Intergovernmental Panel on Climate Change.

Kementerian Perindustrian. (2024). CEO Meeting APKI Wilayah Jawa Timur. Kementerian Perindustrian Republik Indonesia.

Madlool, N., Rahman, S., Rahim, N. A., & Kamalisarvestani, M. (2013). An overview of energy savings measures for cement industries. Renewable and Sustainable Energy Reviews.

National Energy Council Republic of Indonesia. (2023). Indonesia Energy Outlook. National Energy Council Republic of Indonesia.

Panjaitan, T. W. S., Dargusch, P., Wadley, D., & Aziz, A. A. (2021). Meeting international standards of cleaner production in developing countries: Challenges and financial realities facing the Indonesian cement industry. Journal of Cleaner Production, Volume 318.

Pusat Industri Hijau Kementerian Perindustrian. (2019). Kebijakan Dekarbonisasi di Sektor Industri Pulp dan Kertas. Kementerian Perindustrian Republik Indonesia.

Ranganathan, J., Corbier, L., Bhatia, P., Schmitz, S., Gage, P., & Oren, K. (2004). The greenhouse gas protocol: A corporate accounting and reporting standard (revised edition). *Washington, DC: World Resources Institute and World Business Council for Sustainable Development*.

Republic of Indonesia. (2022). Enhanced Nationally Determined Contribution Republic of Indonesia. UNFCCC.

Shabbir, I., Mirzaeian, M., Sher, F. (2022). Energy efficiency improvement potentials through energy benchmarking in pulp and paper industry. Cleaner Chemical Engineering 3.

United Nations. (2024). Causes and Effects of Climate Change. United Nations.

United Nations Climate Change. (2015). The Paris Agreement. UNFCC.

United States Environmental Protection Agency. Overview of Green House Gases.

Wright, L. A., Coello, J., Kemp, S., & Williams, I. (2011). Carbon footprinting for climate change management in cities. Carbon Management.

CHAPTER 9

How Marketing Mix Strategy Can Influence the Purchasing Decision of Prospective Household Customers For PT PGN in Jakarta

Sonny Rahmawan Abdi
IPMI Institute
sonny.rahmawan@ipmi.ac.id
Orcid: 0009-0007-3928-3836

Yulita Fairina Susanti
IPMI Institute
yulita.susanti@ipmi.ac.id
Orcid: 0000-0001-9631-6074

ABSTRACT

As a state-owned company, PT Perusahaan Gas Negara (Persero) or PGN was assigned to build a household gas network or called Jargas in the National Strategic Program in accordance with Presidential Decree number 58 of 2017. The demand for high gas network growth every year requires the company to be able to increase its capabilities in the retail business in order to complete assignments by improving consumer purchasing decisions. This can be done by implementing marketing strategies, one of which is through implementing a Marketing Mix strategy. The aim of this research is to determine the influence of the marketing mix consisting of 4Ps, namely product, price, place and promotion on Jargas purchasing decisions. The research method used in this research is a quantitative approach. The population used in this research was 384 PGN consumers in the Jakarta area who were taken using purposive sampling techniques. Data collection in this research was carried out by distributing questionnaires. The data analysis technique used in this research is regression analysis using SPSS.
The results of this study show that the product variable has a partially significant influence on purchasing decisions, the price variable has a partially significant influence on purchasing decisions, the place variable has a partially significant influence on purchasing decisions, and the promotion variable has a partially significant influence on purchasing decisions Jargas products. Based on the results of this research, product, price, place, promotion partially have a significant influence on purchasing decisions. So, to improve Jargas purchasing decisions, PT Perusahaan Gas Negara (Persero) must be able to implement the Marketing Mix in its marketing strategy for Jargas products.
Keywords: Marketing Strategy, Marketing Mix, Purchasing Decisions

INTRODUCTION

The current situation of energy needs in Indonesia has not been met optimally due to several factors, including limited production capacity and inadequate and integrated infrastructure. The increasing of the energy needs, while the supply of energy capacity is limited, increased imports of fuel oil (BBM) types of gasoline and Liquified Petroleum Gas (LPG), decreased crude oil production, depressed coal exports and gas and electricity infrastructure that has not been integrated (Ministry of Energy and Mineral Resources, 2021). As a result of the lack of production capacity and infrastructure that has not been integrated, the government imports several fuel to meet the domestic needs. As a result, the Indonesian government has to reserve quite a bit of foreign exchange and provide subsidies to the public and this is very burdensome for the country. Increasing LPG consumption will increase the annual subsidy burden. Apart from that, it is important to carry out control, because more than 70 percent of National LPG needs are met through imported sources (Laode Sulaeman, 2023). Currently, Indonesia spends significant foreign exchange on LPG imports, around IDR 450 trillion goes out every year to buy oil and gas, including LPG (Bahlil. 2024).

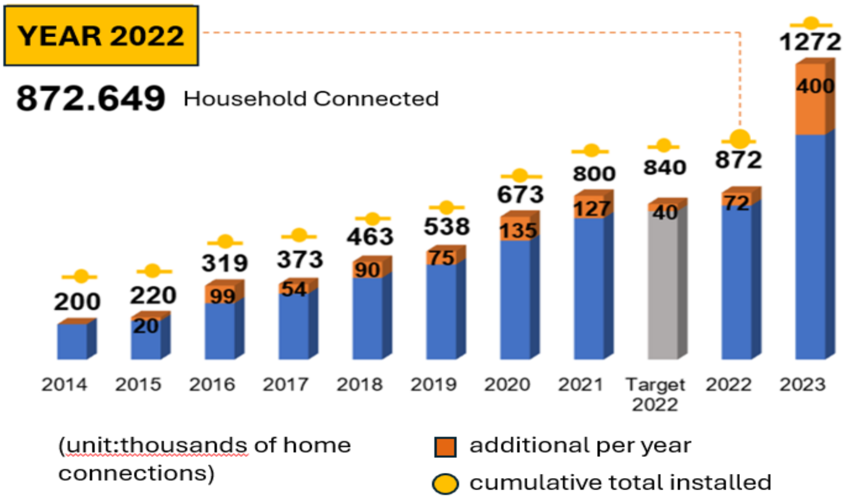
To reduce the dependency on imports and fuel subsidies, especially LPG, the government is implementing policies and strategies, namely developing a gas network for households which is currently managed by PT Perusahaan Gas Negara (PGN). The government will improve household gas network connections (jargas) to reduce the use of liquefied petroleum gas (LPG) (Airlangga Hartarto, 2023). The construction of the gas network to households began in 2015 with state funding with a program plan until 2019. Through the Directorate General of Oil and Gas, the gas network to households program is aimed at reducing the use of subsidized 3 kg LPG. Gas network construction activities are part of the 2015-2019 RPJMN because they can meet the need for clean, cheap, environmentally friendly and efficient energy (Ego Syahrial, 2017).

BACKGROUND OF HOUSEHOLD GAS NETWORK AT PGN

PT Perusahaan Gas Negara Tbk (PGN), a government controlled enterprise, is Indonesia's largest natural gas transportation and distribution company. The household gas network is one of PGN's market segments. Due to the assignment from the government regarding the construction of a household gas network, PGN is enthusiastic and has the confidence to make it happen. PGN wants the gas network to be built for the benefit of the community while supporting the sustainability of the company's business. PGN believes that by maximizing the gas network it can have an impact on core business growth (Ratih Esti, 2024).

The government's seriousness in the household gas network installation program is targeting quite significant numbers. To achieve the target of meeting the final energy needs of the household sector in accordance with the energy mix, activities carried out include building a gas network for 4.7 million household connections by 2025 (Ministry of Energy and Mineral Resources, 2017). Even though in 2024, the number of existing household gas networks that have been successfully built by PGN will still not be sufficient to meet this target. Currently the number of gas lines managed by PGN is 820 thousand household connections (SR) or the equivalent of 84 thousand metric tons of LPG (Rosa Permata, 2024).

Table 1.
Development of the Household Natural Gas Network
(Ministry of Energy and Mineral Resources, 2023)



Looking at the realization data according to table 1 above, several problems with the progress of building a household gas network by PGN might encounter are: 1. The products offered by PGN may not meet market expectations so they still choose to use LPG products 2. The gas prices applied for gas households may not meet market expectations or too expensive 3. The selection of locations for the development of household gas networks may experience many obstacles 4. The promotional methods used by PGN to offer this gas product are not in line with the expectations of the target market. Stavros Kalogiannidis and Stelios Mavratzas (2020), explain that "Market mix as a strategy in developing products for any MNCs or retail business can help in the thriving of an organization in the market and drive the performance".
There is sufficient previous research that discusses how several marketing mix attributes influence purchasing decisions for PGN household gas, however, more research is needed to be able to analyze how to increase purchasing decisions for PGN household gas network products so that the amount is in line with government targets . However, this government program through PGN has not been realized according to the target untill today. Especially if the plan to install gas networks is in big cities like Jakarta. Jakarta, with a fairly high population and the 5th largest LPG user in Indonesia, has quite good market potential for PGN's household segment products.Looking at the demographics of Jakarta, which has quite a large number of residents with varying ages, it is the capital of the country where construction permits require special communication methods, which may affect the timeline of the subscription process. Timeliness, communication, quality of work, have the potential to influence the decision to purchase products from PGN. And all of this may require choosing the right location and form of promotion, not just quality and price. Using the Four marketing mix attributes as a marketing strategy may have a significant influence on purchasing decisions. Therefore this becomes the gap to be filled.

METHODS

This research uses a qualitative type of research approach. Fraenkel and Wallen in Suharsaputra (2012, p. 181) explain that research that examines all types of activities, situations, relationships is called qualitative research, by including a thorough description in describing all the details about something that happens in a particular activity or situation. The nature of this research is descriptive, where the researcher sees the aim of this research is to describe systematically, factually and accurately the facts and characteristics of a particular population or object

(Kriyantono, 2009, p. 188). A qualitative approach was carried out by conducting a survey using a questionnaire distributed to existing PGN household segment customers. The questions in the questionnaire include product quality, safety and comfort, The efficiency compared to the fuel used previously, the construction carried out by PGN according to the design and timeline. And also what is the subscription process at PGN, does it require quite a long waiting time? Detailed descriptions are shared to provide complete information so that readers can understand and assess whether this case study at PGN, especially for the Jakarta area, can be replicated in other similar case studies.

RESULTS AND DISCUSSION

Even though this article is still a concept, several things will be the focus in the writing, including the research gap, detailed discussion of the results from SPSS regarding how marketing mix strategies can influence household gas purchasing decisions in Jakarta. The discussion will also contain the results of a survey via a questionnaire regarding the opinions of existing customers in the Jakarta area regarding the gas subscription process and the benefits they experience when using gas. This is expected to represent several factors that influence purchasing decisions regarding household gas

CONCLUSIONS AND RECOMMENDATIONS

Jakarta, with a fairly high population and the 5th largest LPG user in Indonesia, has quite good market potential for PGN's household segment products. Looking at the demographics of Jakarta, which has quite a large number of residents with varying ages, it is the capital of the country where construction permits require special communication methods, which may affect the timeline of the subscription process. Timeliness, communication, quality of work, have the potential to influence the decision to purchase products from PGN. And all of this may require choosing the right location and form of promotion, not just quality and price.

By looking at the urgency of the government to reduce LPG imports and subsidies through developing the gas network to households, PGN has the opportunity to develop the network and increase the number of household customers. In terms of the potential market situation in Jakarta, the marketing mix consisting of product, price, place, promotion (4Ps) has the potential to influence the purchasing decisions in Jakarta's area. So if the 4Ps are implemented, it is hoped that the government and PGN's goals can be achieved

REFERENCES

Ministry of Energy and Mineral Resources. (2021). Government Maps Meeting Energy Needs Until 2040

Ministry of Energy and Mineral Resources. (2017:22). General National Energy Plan

Stavros, K. & Stelios, M. (2020). Impact of marketing mix strategies effective product development issues in MNCs/Retail

Sri, suparni. (2021). Product Quality and Prices Affect Consumers In Installing Household Gas Networks In Wonosari Village, North Prabumulih Sub-District, Prabumulih City

Yusuf, M. & Matiin N., (2022). Analysis of The Effect of The Marketing Mix on a Purchashing Decision

CHAPTER 10

Interpersonal Service Quality and Its Influence on Self-Service Technology Adoption in Dine-in Restaurants

Teddy Darmadi Suwadji
IPMI Institute
teddy.suwadji@ipmi.ac.id
Orcid: 0009-0006-8882-0493

Dedi Fardiaz
IPMI Institute
dedi.fardiaz@ipmi.ac.id
Orcid: 0000-0003-4381-8980

ABSTRACT

This study aims to examine the effect of interpersonal service quality on the acceptance of self-service technology (SST) in dine-in restaurants as seen in the evidence from the greater area of Jakarta.
Despite the fact that self-ordering systems are increasingly becoming popular worldwide, they have not been embraced in Indonesia's dine-in sector especially when compared to app-based food delivery platforms that have experienced high demand. There is still limited research focusing on this topic. The objective of this study is to fill this gap by looking at how interactions' quality with wait-staff impacts consumers' readiness to adopt SSTs.
The methodology used is Unified Theory of Acceptance and Use of Technology (UTAUT) framework, factors such as performance expectancy, effort expectancy, social influence, facilitating conditions will be analyzed together with moderating variables like gender, age, experience and voluntariness of use.
This is a descriptive conceptual paper looking to propose the effect of interpersonal service quality on the acceptance of self-service technology (SST) in the dine-in restaurants experience.
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: Dine In Restaurant, UTAUT, Self Service Technology, Self Ordering System, Interpersonal Service Quality

INTRODUCTION

The food and beverage (F&B) industry has witnessed significant transformations in service delivery due to the adoption of innovative technologies. This paper discuss specifically about self-service technologies (SSTs) such as self-ordering kiosks and tablet-based ordering systems have emerged as pivotal tools in enhancing operational efficiency, reducing labor costs, and improving customer experiences. While these technologies have gained substantial traction in countries like Japan since the 1980s, their adoption in Indonesia has been comparatively sluggish, particularly in dine-in restaurants. The limited uptake contrasts starkly with the rapid growth of app-based food delivery platforms, which in COVID-19 pandemic, despite higher costs and delivery fees, are widely embraced by Indonesian consumers.

In Indonesia, self-ordering kiosks first appeared in 2006, predominantly in quick-service restaurant (QSR) settings. Despite being available for nearly two decades, the adoption of these systems in dine-in restaurants remains marginal. Unlike QSRs, which often eliminate human interaction to enforce the use of SSTs, dine-in establishments still prioritize traditional service methods, including waitstaff interactions.

Problem Statement

In the Indonesian context, diners often face a choice between traditional ordering methods and SSTs. Observational evidence indicates that a significant proportion of customers continue to prefer interacting with waitstaff over using self-ordering devices. This trend raises critical questions: Does the competence and quality of waitstaff service discourage customers from adopting SSTs? Do demographic factors such as age, gender, and prior experience further influence this behavior? Previous studies, such as those by Kincaid and Baloğlu (2005) and Leung, Josiam, and Moody (2020), present conflicting evidence regarding the role of interpersonal service quality in technology adoption. Some suggests that the existence of very good human service and interaction could actually reduces the likelihood of SST adoption, while others argue that cultural and technological advancements may mitigate these effects over time.

The unique cultural and operational characteristics of Indonesia's F&B sector make this an ideal case for studying these phenomena. Fast-food environments focuses on speed and efficiency, while dine-in restaurants prioritize creating an atmosphere of comfort and personalized attention. This difference make a compelling opportunity to examine how interpersonal service quality influences the adoption of SSTs in a market where human interaction remains a core component of the dining experience.

Research Gap

Even though substantial research has been conducted on the adoption of SSTs in QSRs, studies focusing on dine-in restaurants remain limited. Existing literature observed in this paper often examines factors such as perceived ease of use, performance expectancy, and social influence but neglects the role of interpersonal service quality. The human element of service, characterized by attentiveness, responsiveness, and empathy from waitstaff, plays a significant role in shaping customer experiences in dine-in settings. However, this element is often overlooked in discussions about technology adoption.

Furthermore, recent studies in other service sectors suggest that high-quality interpersonal service can either complement or compete with SSTs, depending on the context. While some customers appreciate the efficiency of SSTs, others might perceive these technologies as a threat to the personal attention they expect from service providers. This paradox could be explored as a phenomenon that interconnect how interpersonal service quality interacts with SST adoption, particularly in culturally nuanced settings like Indonesia.

Research Objectives

This study aims to bridge the identified research gap by exploring the interplay between interpersonal service quality and SST adoption in dine-in restaurants. Specifically, it seeks to:

1. Analyze the effect of UTAUT variables—performance expectancy, effort expectancy, social influence, and facilitating conditions—on the intention and actual use of SSTs.
2. Investigate the moderating role of interpersonal service quality and demographic factors such as gender, age, and prior experience.
3. Provide theoretical and practical insights to help restaurants design and implement SSTs that align with customer expectations and cultural preferences.

Significance of the Study

The findings of this study have both theoretical and practical implications. By integrating interpersonal service quality into the UTAUT framework, this research is expected to contribute to a more comprehensive understanding of technology adoption in service-oriented industries. Practically, the study offers actionable recommendations for dine-in restaurants seeking to balance traditional service methods with technological innovation. For policymakers and technology providers, the insights generated could inform strategies to promote SST adoption in ways that respect and enhance existing service dynamics.

LITERATURE REVIEW

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), is widely recognized as a comprehensive model for understanding technology acceptance. UTAUT identifies four primary determinants, that is performance expectancy, effort expectancy, social influence, and facilitating conditions, which shape users' intention and actual use of technology. This study integrates these determinants with interpersonal service quality to address the unique context of SST adoption in dine-in restaurants.

In addition to UTAUT, related theories such as the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) provide insights into how perceived usefulness, ease of use, and social factors influence technology adoption. These frameworks emphasize that both functional and psychological factors contribute to users' decision-making processes. However, their application to service-intensive environments, where human interaction plays a significant role, remains underexplored.

Self-Service Technology in Food and Beverage

SSTs have been adopted in lots of various segments of the F&B industry, with quick-service restaurants (QSRs) leading the way. Previous researches explains that QSRs prioritize efficiency and convenience, often replacing traditional service entirely with SSTs. In contrast, dine-in restaurants maintain a hybrid approach, offering SSTs alongside traditional waiter services. This differences generate unique challenges for technology adoption, as customers may prefer human interaction over technological efficiency in dine-in settings.

For example, Kincaid and Baloğlu (2005) found that younger customers are more likely to adopt SSTs in QSRs due to their preference for speed and autonomy. However, Leung, Josiam, and Moody (2020) demonstrated that in dine-in settings, customers often value the attentiveness and personalized service provided by waitstaff, which can negatively impact their willingness to use SSTs.

Interpersonal Service Quality and Customer Experience

Interpersonal service quality is a critical component of the dining experience, particularly in service-oriented cultures like Indonesia. Lee and Yang (2013) define interpersonal service quality as the quality of interactions between service providers (e.g., waitstaff) and customers. Key attributes include responsiveness, politeness, empathy, and attentiveness. These elements contribute to customer satisfaction and loyalty, forming an essential part of the overall dining experience.

Studies suggest that high interpersonal service quality can either complement or compete with SSTs. For instance, Ham, Kim, and Forsythe (2008) found that superior waitstaff service reduces customers' perceived need for self-service options, particularly in task-oriented settings. Conversely, interpersonal service can facilitate SST adoption by providing guidance and support during initial interactions with the technology. This dual effect underscores the complexity of integrating technology into human-centric service environments.

Key Determinants of Technology Acceptance

The UTAUT model provides a robust framework for analyzing the factors influencing SST adoption. The following constructs are particularly relevant to the dine-in restaurant context:

Performance Expectancy: Defined as the degree to which using SSTs enhances a customer's dining experience. Research by Jeon, Sung, and Kim (2020) confirms that performance expectancy is a critical determinant of SST adoption, as customers value features that improve efficiency and accuracy.

Effort Expectancy: Refers to the ease of use associated with SSTs. While this factor is significant during initial adoption, its influence diminishes as users gain familiarity with the technology (Gupta, Dasgupta, & Gupta, 2008).

Social Influence: Indicates the impact of societal and peer expectations on technology use. Social influence is particularly strong in collectivist cultures like Indonesia, where recommendations from family and friends heavily influence decision-making (Venkatesh et al., 2003).

Facilitating Conditions: Encompasses the technical and organizational infrastructure supporting SST use. Studies by Chong (2021) show that clear information and reliable technical support are essential for fostering customer confidence in SSTs.

Moderating Factors in SST Adoption

Several demographic and experiential factors moderate the relationship between UTAUT constructs and SST adoption:

Gender and Age: Younger customers are generally more open to adopting technology, while older customers may require additional support. However, Leung et al. (2020) challenge this stereotype, suggesting that generational differences in technology adoption are diminishing over time.

Experience: Prior experience with SSTs in other contexts, such as QSRs, positively influences adoption in dine-in settings. Rastegar (2018) found that self-efficacy, or confidence in using technology, plays a pivotal role in shaping customer attitudes.

Voluntariness of Use: Customers are more likely to adopt SSTs when their use is optional rather than mandatory. Quite particularly relevant in dine-in restaurants, where customers expect flexibility in their ordering experience.

Interplay Between Interpersonal Service and SSTs

As noted by Lee and Yang (2013), the coexistence of human and technological elements can enhance the overall dining experience when implemented thoughtfully. As example, waitstaff can act as facilitators, helping customers navigate SSTs during their first use. This collaborative approach reduces technology anxiety and fosters positive perceptions of the system.

However, the study also highlights potential conflicts, which defines high-quality interpersonal service may inadvertently discourage SST adoption by fulfilling customers' needs for personalized attention.

CONCEPTUAL FRAMEWORK AND PROPOSITIONS

The conceptual framework of this study integrates the UTAUT with the unique variable of interpersonal service quality (ISQ) to examine its influence on the adoption of SST in dine-in restaurants. This model is designed to capture both the technological and human dimensions of service interactions, providing a holistic understanding of the factors influencing SST adoption. While UTAUT serves as the theoretical foundation, the addition of ISQ addresses a critical gap in existing research by exploring how the quality of human interactions moderates technology adoption behaviors.

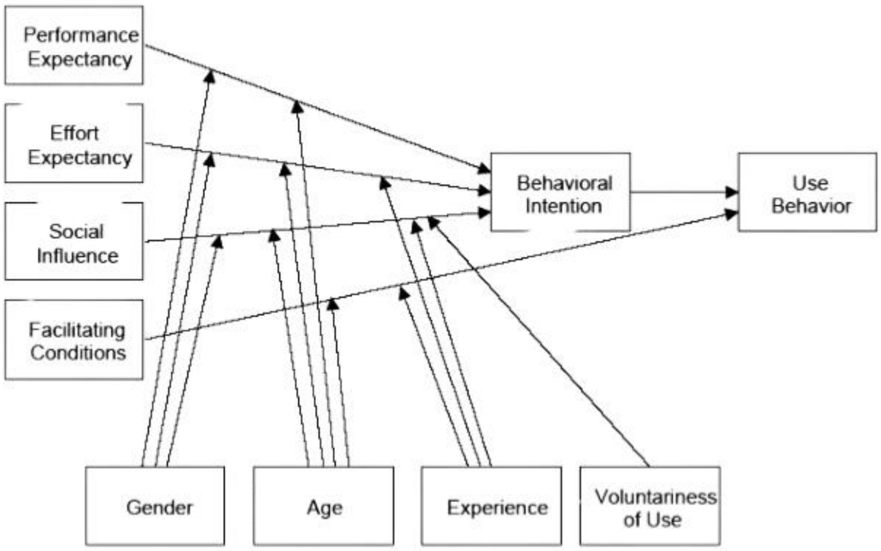


Figure 1. UTAUT Framework, Venkatesh (2003)

The framework emphasizes the relationships between key UTAUT variables (performance expectancy, effort expectancy, social influence, and facilitating conditions) and their influence on customers' intention to use and actual use of SSTs. It also accounts for moderating factors such as gender, age, prior experience, voluntariness of use (VU), and the interplay between ISQ and customers' adoption decisions.

Core Components of the Framework

<u>Unified Theory of Acceptance and Use of Technology (UTAUT)</u>:
The UTAUT model identifies four key constructs that directly influence the intention to use and the actual use of technology:

- Performance Expectancy (PE) - The belief that using SST will improve the dining experience (e.g., faster service, greater convenience).
- Effort Expectancy (EE) - The perceived ease of using SST, which affects customers' willingness to adopt it.
- Social Influence (SI) - The degree to which customers feel influenced by the opinions and behaviors of peers, family, and cultural norms.
- Facilitating Conditions (FC) - The availability of technical and organizational support to ensure smooth adoption and use of SST.

<u>Interpersonal Service Quality (ISQ)</u>:
ISQ focuses on the quality of interactions between waitstaff and customers, encompassing dimensions such as responsiveness, empathy, politeness, and attentiveness. ISQ plays a dual role in the framework:

- <u>As a potential barrier</u>: High ISQ may discourage SST adoption as customers prefer human interactions over technology.
- <u>As a facilitator</u>: ISQ can complement SSTs by reducing customer anxiety and increasing trust during the initial adoption phase.

<u>Moderating Variables</u>:
The framework includes demographic and contextual factors that influence the strength of the relationships between UTAUT constructs and SST adoption:

- Gender and Age: These variables influence how customers perceive and respond to technology. For instance, younger, more tech-savvy individuals may exhibit higher PE and lower EE than older customers.
- Experience: Prior exposure to SSTs in other settings (e.g., QSRs) positively influences the likelihood of adoption in dine-in contexts.
- Voluntariness of Use (VU): Customers' willingness to use SSTs may depend on whether its use is optional or mandatory within the restaurant environment.

Dependent Variables:
- Intention to Use SST: The degree to which customers plan to adopt SSTs based on their perceptions and external influences.
- Actual Use of SST: The observable behavior of customers engaging with SSTs during their dining experience.

Proposed Hypotheses

The conceptual framework generates several hypotheses to explore the relationships among these variables:

1. PE have an effect on Intention of using SST
2. EE have an effect on Intention of using SST
3. SI have an effect on Intention of using SST
4. FC have an effect on Actual Use of SST
5. Intention of using SST have an effect on Actual Use of SST
6. Gender moderate the effects of PE on Intention of using SST
7. Gender moderate the effects of EE on Intention of using SST
8. Gender moderate the effects of SI on Intention of using SST
9. Age moderate the effects of PE on Intention of using SST
10. Age moderate the effects of EE on Intention of using SST
11. Age moderate the effects of SI on Intention of using SST
12. Age moderate the effects of FC on Actual Use of SST
13. Experience moderate the effects of EE on Intention of using SST
14. Experience moderate the effects of SI on Intention of using SST
15. Experience moderate the effects of FC on Actual Use of SST
16. VU moderate the effects of SI on Intention of using SST
17. ISQ moderate the effects of Intention of using SST on Actual Use of SST

PROPOSED METHODOLOGY

In this case, the methodology has been deductive in nature and used cross sectional survey design which helps in gathering data from a large population sample during a particular period. The collected data will be subjected to various advanced statistical techniques such as Structural Equation Modeling (SEM) for hypothesis testing and empirical validation of the proposed conceptual framework.

Research Design

Type of Study	Descriptive, hypothesis-driven study focusing on the relationships between variables in dine-in restaurant contexts.
Approach	Positivist philosophy; deductive reasoning based on existing theories.
Time Horizon	Cross-sectional design; data collected over three months.
Analytical Tools	SPSS for descriptive statistics; PLS-SEM (Smart PLS) for hypothesis testing and path analysis.

Data Collection Methodology

Data Collection	Online survey via Google Forms; distributed through restaurant forums and professional networks.
Survey Design	Questionnaire based on validated scales (e.g., Venkatesh et al., Lee & Yang).
	Five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).
	Sections: Demographics, UTAUT variables, ISQ, Intention and Actual Use of SST.
Incentives	Prize draw for respondents to encourage participation.

Population and Sampling

Target Population	Indonesian diners aged 20+ who have dined in seated-table restaurants (excluding QSRs), located in Greater Jakarta Area only.
Sample Size	Minimum 105 observations (based on Cohen's guidelines for a power level of 80%, significance level of 5%, and 17 predictors); target size 150 for robustness.
Sampling Method	Convenience sampling; responses from restaurant communities and professional networks.
Demographics Considered	Age: Expected spread in younger and older groups to assess generational differences.
	Gender: To explore variations in technology perceptions.
	Experience: Prior exposure to SST in other contexts.

Measurement and Scaling

Measurement Items	27 items for variables such as PE, EE, SI, FC, ISQ, Intention, and Actual Use.
	Examples: PE ("Using SST improves my dining experience"), ISQ ("Waitstaff are attentive and polite").
Scaling	Five-point Likert scale.

Data Analysis

Descriptive Analysis	Compute mean, standard deviation, skewness, kurtosis.
Reliability Testing	Cronbach's alpha for internal consistency.
Construct Validity	Convergent and discriminant validity using factor analysis.
Hypothesis Testing	Path analysis with SEM; two-tailed t-tests for statistical significance.
Ethical Considerations	Informed consent: Participants informed of the study purpose and assured of confidentiality.
	Voluntary participation: Participants can withdraw at any time.
Limitations	Sampling bias: Convenience sampling may limit generalizability.
	Self-reported data: Risk of social desirability bias.
	Cross-sectional design: Does not capture changes over time.

RESULT AND DISCUSSION

Although this paper is conceptual and lacks empirical data, the results will be derived from a robust theoretical foundation grounded in the UTAUT and previous studies. The conceptual propositions presented provide a framework for understanding the interplay between ISQ and SST adoption in dine-in restaurants. The discussion evaluates these theoretical results in the context of the proposed framework, addressing both theoretical and practical implications.

Practical Implications

The insights derived from the framework have actionable implications for restaurant operators, policy makers, and technology providers:

- SSTs should complement, not compete with, interpersonal service. For instance, restaurants can use SSTs for transactional tasks like ordering and payments while reserving waitstaff for personalized services.
- Waiter/waitress should be trained to support customers in using SSTs, making themselves as facilitators rather than replacements. This approach can build trust and encourage adoption.
- Marketing strategies must focus how SSTs enhance the dining experience without diminishing the human touch. The strategy could change to focus on reducing wait times and enabling staff to deliver more personalized attention.
- SST design and implementation should account for demographic variations. Customers of younger age probably require less support than older customers, while first-time users may benefit from guided tutorials.

CONCLUSION

Even though this study is limited by the absence of empirical data and the theoretical framework and propositions are grounded in existing literature, there are some limitations, which include:

- While the study focuses on Indonesia, specifically in the Greater Jakarta Area, its insights may not be directly applicable to markets with different cultural or operational dynamics.
- The study does not account for how customer attitudes toward SSTs and ISQ evolve over time or in response to changing industry trends, which is not yet known as of this time.

Future Research Ideas

The study could lay the groundwork for future empirical research. For example:

1. Conducting surveys or experiments to test the proposed hypotheses, focusing on the interactions between UTAUT variables, ISQ, and demographic factors.
2. Examining how ISQ influences SST adoption in other cultural contexts, providing insights into universal versus region-specific dynamics.
3. Investigating the role of trust, empathy, and emotional intelligence in shaping customer perceptions of SSTs.
4. Assessing how SST adoption evolves over time, particularly as customers become more familiar with the technology.
5. Exploring the impact of emerging technologies, such as AI-powered SSTs and voice-activated systems, how the SSTs might complement and aid human work entirely.

REFERENCES

Chong, K. (2021). Factors affecting the consumers' embracement of manual self-ordering system (order chit) in restaurants. Journal of Foodservice Business Research, 25, 33 - 56. https://doi.org/10.1080/15378020.2021.1911565

Gupta, B., Dasgupta, S., & Gupta, A. (2008). Adoption of ICT in a government organization in a developing country: An empirical study. The Journal of Strategic Information Systems, 17(2), 140–154. https://doi.org/10.1016/j.jsis.2007.12.004

Ham, S., Kim, W., & Forsythe, H. (2008). Restaurant Employees' Technology Use Intention: Validating Technology Acceptance Model with External Factors. Journal of Hospitality & Leisure Marketing, 17, 78 - 98. https://doi.org/10.1080/10507050801978422

Jeon, H., Sung, H., & Kim, H. (2020). Customers' acceptance intention of self-service technology of restaurant industry: expanding UTAUT with perceived risk and innovativeness. Service Business, 14, 533 - 551. https://doi.org/10.1007/s11628-020-00425-6

Kim, J., Christodoulidou, N., & Choo, Y. (2013). Factors influencing customer acceptance of kiosks at quick service restaurants. Journal of Hospitality and Tourism Technology, 4, 40-63. https://doi.org/10.1108/17579881311302347

Kincaid, C., & Baloğlu, Ş. (2005). An Exploratory Study on the Impact of Self-Service Technology on Restaurant Operations. Journal of Foodservice Business Research, 8, 55 - 65. https://doi.org/10.1300/J369v08n03_05

Lee, H., & Yang, K. (2013). Interpersonal service quality, self-service technology (SST) service quality, and retail patronage. Journal of Retailing and Consumer Services, 20, 51-57. https://doi.org/10.1016/J.JRETCONSER.2012.10.005

Leung, X., Josiam, B., & Moody, B. (2020). "I'd like to order with a server." an experimental study of restaurant menu performance. Asia Pacific Journal of Tourism Research, 25, 766 - 779. https://doi.org/10.1080/10941665.2019.1696381

Rastegar, N. (2018). The adoption of self-service kiosks in quick-service restaurants. European Journal of Tourism Research. https://doi.org/10.54055/ejtr.v27i.2139

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425–478. https://doi.org/10.2307/30036540

CHAPTER 11

The Effect of Work-Life Balance and Work Discipline on Employee Performance through Job Satisfaction as Intervening Variables at PT Tri Mustika Cocominaesa (TMC) South Minahasa

Paulman Stevanus Runtuwene
IPMI Institute
paulman.runtuwene@ipmi.ac.id
Orcid: 0009-0002-3686-142X

Yulita Fairina Susanti
IPMI Institute
yulita.susanti@ipmi.ac.id
Orcid: 0000-0001-9631-6074

ABSTRACT

The recent employee performance evaluation at PT Tri Mustika Cocominaesa (TMC) shows a decline in key performance indicators from 2021 to 2023, particularly in areas of work discipline, absenteeism, and sick leave rates. Absenteeism increased sharply from 4% in 2021 to 35% in 2023, and work-related illness rates fluctuated, rising from 29% in 2021 to 38% in 2022 before a slight decrease in 2023. These trends suggest potential issues in work-life balance and work discipline, possibly contributing to lower employee performance. This study examines the influence of work-life balance and work discipline on employee performance, with job satisfaction as an intervening variable, at TMC in South Minahasa. Specifically, the research aims to analyze (1) the effects of work-life balance on job satisfaction and employee performance, (2) the impact of work discipline on job satisfaction and employee performance, and (3) the mediating role of job satisfaction in these relationships. Data will be collected from all employees at PT. Tri Mustika Cocominaesa (TMC) South Minahasa in North Sulawesi has 246 employees, consisting of 76 monthly (permanent) employees and 170 daily employees (laborers), using structured questionnaires to capture insights into work-life balance, discipline, job satisfaction, and performance outcomes. The analysis will employ Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate both direct and indirect effects among the variables. The findings are expected to provide valuable insights into the critical role of these factors in influencing employee productivity, offering recommendations for enhancing workplace policies that support employee well-being, satisfaction, and overall organizational performance.
Keywords: Worl-Life Balance, Work Discipline, Job Satisfaction, Employee Performance

1. INTRODUCTION

1.1. Background of the Research

Employee performance is a vital determinant of an organization's success, directly influencing productivity, operational efficiency, and overall workplace harmony. At PT Tri Mustika Cocominaesa (TMC), various factors have been identified as critical in shaping employee performance, including work discipline, workplace safety, and work-life balance. Furthermore, while workplace safety incidents have remained minimal, ensuring a consistently safe work environment is an ongoing priority to uphold employee confidence and operational continuity. Work-life balance has also emerged as a significant area of concern, with fluctuations in indicators such as employee well-being and health-related absences. This points to possible stressors or imbalances in workload management that may affect employee satisfaction and productivity.

The more attention to these aspects, the greater the company's sustainable growth and development opportunity. PT Tri Mustika Cocominaesa (TMC), located in South Minahasa, is a company that has recognized these factors as critical to maintaining high productivity levels and retaining talented employees. As stated (Maharani, 2019) ccompetency-based Human Resource Management is an approach to managing human resources that links an organization's HR activities with improving prioritized basic competencies.

Work-life balance refers to the equilibrium between professional responsibilities and personal life. In recent years, the increasing demands of both work and personal commitments have led to challenges in maintaining this balance. Research suggests that employees who can manage their work-life balance effectively are generally more satisfied, motivated, and productive. However, when this balance is disrupted, it can lead to stress, burnout, and decreased job performance. Work-life balance, which ensures that employees have adequate time and energy for both personal and professional activities, directly impacts their overall satisfaction and well-being.

Work Discipline is another important element that affects employee performance. It involves adherence to rules, punctuality, and consistency in meeting organizational expectations. High levels of work discipline typically result in better individual performance and contribute to the overall efficiency of the company. Conversely, poor discipline can lead to reduced productivity, inefficiencies, and a lack of accountability among employees. When employees experience a harmonious work-life balance and exhibit disciplined work behaviors, their job satisfaction levels tend to rise, leading to enhanced motivation, commitment, and productivity.

Thus, job satisfaction acts as an intervening variable that mediates the relationship between work-life balance, work discipline, and employee performance, making it a key focal point for organizations aiming to improve both employee well-being and performance outcomes. It is well-established that employees who are satisfied with their jobs are more likely to be engaged, motivated, and committed to their work and they are more likely to exhibit higher performance levels.

Every company needs effective management because, with good management, the company can achieve the desired targets and improve overall performance. The success of a company not only depends on proper system management but is also greatly influenced by efficient human resource management. By having integrated management and focusing on these two aspects, companies can optimize their operations and achieve success in achieving company goals.

Optimal performance is not only influenced by individual abilities, but also by factors such as balance between work and life, job satisfaction, and work discipline.Based on the above, this study aims to further explore the topic, which will be presented in a thesis titled "The Effect of Work-Life Balance and Work Discipline on Employee Performance through Job Satisfaction as Intervening Variables at PT Tri Mustika Cocominaesa (TMC) South Minahasa".

1.2. Research Problem and Previous Research

Integrating and managing these factors effectively can positively contribute to achieving the company's goals and sustainable growth. This research takes the object of the company PT Tri Mustika Cocominaesa South Minahasa is one of them which has been producing Indonesian desiccated coconut since 1998. The population in this study was 246 employees, consisting of 76 monthly employees (permanent) and 170 daily employees (laborers).

Tabl-1: Performance Evaluation Percentage for TMC Employees 2021-2023

No.	Performance Evaluation Factors	Performance Assessment Percentage		
		2021	2022	2023
1.	Discipline (Attendance)			
	- Absenteeism (Unexcused)	4%	12%	35%
	- Leave (Permission)	33%	31%	22%
2	Workplace Safety			
	- Workplace Accident	1%	2%	2%
3	Work-Life Balance			
	- Employee Sick	29%	38%	27%

Sources: PT. Tri Mustika Cocominaesa South Minahasa

Based on Table 1 above which contains a summary of the company's assessment or data, will be the background to the problem in this research. The percentage of employee performance through discipline factors was quite good in 2021 but decreased in 2022 by 0.33%. Furthermore, in 2023 work discipline will decrease again by 0.34%. Another factor is that employee permits are considered to be quite good in 2021, and experienced an increase of 1.06% in 2022 and 1.41% in 2023. Employee performance as measured through work accidents has a good assessment in 2021, however, it experienced a slight increase of 0.50% in 2022 and 1.00% in 2023. Another performance assessment factor is the presence of data on sick employees which occurred quite a bit but experienced an increase in 2022 of 0.76%, however, there was a decline again in 2023 of 1.41%. This assessment was taken from PT data. Tri Mustika Cocominaesa is carried out by Human Resource Development. Based on analysis of performance assessment percentage data at PT. Tri Mustika Cocominaesa in carrying out work activities still requires increased work discipline, work safety, and effective work-life balance so that employee performance increases. Good discipline, guaranteed work safety, and a balanced work-life balance can improve employee performance in carrying out their work.

In the context of this research, it refers to previous research and is crucial to use as a strong basis. Several previous studies relevant to the impact of work-life balance, job satisfaction, and work discipline on employee performance can provide a basis for supporting and opposing the findings that this research may produce. In research conducted by (Asari, 2022) it is stated that work-life balance has a significant effect on employee performance also affects job satisfaction. However, these results contradict research from (Mundung et al., 2022) which states that work-life balance has a negative and insignificant effect on increasing employee performance. Different opinions were also expressed by two researchers (Safitri & Soleh, 2022) and (Sulystyawati et al., 2023) where work-life balance had a positive but not significant effect on employee performance.

Based on the background of the problem and inconsistencies in the results of previous research, it shows the author's interest in researching human resources and employee performance which have an important role in achieving the desired goals. The influence of work-life balance, job satisfaction, and work discipline can determine the success of employees in the company. From the description above, the author wants to research entitled: "The Effect of Work-Life Balance and Work Discipline on Employee Performance through Job Satisfaction as Intervening Variables at PT Tri Mustika Cocominaesa (TMC) South Minahasa".

1.3. Research Questions

In today's demanding work environment of PT Tri Mustika Cocominaesa (TMC) in South Minahasa, balancing professional responsibilities with personal life has become increasingly complex. Many employees find themselves managing extended work hours and demanding tasks, which can disrupt personal time and lead to stress or burnout. This phenomenon of work-life balance is crucial, as it affects not only the well-being of employees but also their overall satisfaction with their jobs.

Referring to the previous background, which discusses work-life balance, and work discipline on employee performance through job satisfaction at PT Tri Mustika Cocominaesa (TMC) South Minahasa, the following five research questions can be formulated:

1. Does the work-life balance affect job satisfaction at PT Tri Mustika Cocominaesa (TMC) South Minahasa?
2. Does the work-life balance affect employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa?
3. Does the work discipline affect job satisfaction at PT Tri Mustika Cocominaesa (TMC) South Minahasa?
4. Does the work discipline affect employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa?
5. Does job satisfaction affect employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa?

1.4. Research Objectives

Understanding the factors that drive employee performance is essential for fostering a productive and positive work environment. Theory suggests that elements such as work-life balance and work discipline are crucial determinants of job satisfaction and performance, as they directly influence how employees engage with their roles.

Based on the proposed problem statement in this research, it can be concluded that the objectives of the research are as follows:

1. To analyze the work-life balance effect on job satisfaction at PT Tri Mustika Cocominaesa (TMC) South Minahasa.
2. To analyze the work-life balance effect on employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa.
3. To analyze the work discipline effect on job satisfaction at PT Tri Mustika Cocominaesa (TMC) South Minahasa.
4. To analyze the work discipline effect on employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa.
5. To analyze the job satisfaction effect on employee performance at PT Tri Mustika Cocominaesa (TMC) South Minahasa.

2. LITERATURE REVIEW

2.1. Work-Life Balance

Work-life balance, or balance between work and life, is an effort to achieve harmony between work responsibilities and personal needs or life outside of work. This involves trying to manage time, energy, and attention so as not to focus so much on work that it neglects important aspects of personal life, such as family, health, recreation, and self-development. (Mundung et al., 2022) states that work-life balance is a concept for achieving a balance between work responsibilities and employees' personal lives. The program includes support for family care, employee health, relocation, and more, to improve employees' overall quality of life. Another opinion by (Putri & Setia, 2023) states that work-life balance is a worker who feels very satisfied and can give his best effort with all his abilities to complete work tasks. The balance between time in a professional environment and personal time outside the workplace reflects a person's ability to manage their time effectively.

Meanwhile, according to (Natakusumah et al., 2022), balance between career and personal life refers to a situation where a person succeeds in maintaining a balanced proportion between work obligations and responsibilities in family or daily life. This reflects the ability to engage in balance in work and personal life without giving excessive priority to any one aspect, enabling a person to manage work tasks and contribute adequately in the sphere of family or personal life. The indicators of work-life balance according to (Arifin & Muharto, 2022) and (Natakusumah et al., 2022) are as follows:

1. Time Balance, involves paying attention to the proportion between time spent on work and activities outside of work. This includes effectiveness in managing time to achieve a balance between work tasks and rest time.
2. Balance of Engagement, refers to balanced psychological involvement in work and roles outside of work, allowing employees to enjoy their time and participate physically and emotionally in social activities.
3. Balance of Satisfaction, includes a balanced level of a person's satisfaction in the work environment and personal life.

2.1.1. Work-Life Balance Dimensions

Achieving work-life balance involves managing multiple dimensions that collectively impact both personal well-being and professional productivity. These dimensions provide a framework for understanding how individuals navigate the demands of work alongside the needs of their personal lives according to (Marmol & Marmol, 2019). Here’s a detailed explanation of each:

1. Efficiency and Effectiveness at work - indicate how well employees can complete their tasks within a reasonable time frame while meeting high standards.
2. Workloads - involves the quantity and intensity of tasks assigned to an employee, including deadlines and expected output.
3. Personal and Self-Care Being - refers to an individual’s ability to take time for themselves, engage in self-care practices, and pursue personal interests or hobbies.
4. Family Relationships and Support - emphasizes the importance of positive, supportive relationships with family members and close friends.
5. Health and Wellness Initiatives - refer to the practices or programs, often provided by employers, that support employees’ physical and mental health.

2.2. Work Discipline

Work discipline in a company refers to employee compliance with the norms, rules, and procedures established by the company. According to research from (Indriani et al., 2023), work discipline reflects the condition or compliance of employees with company regulations and policies. It can also be interpreted as the extent to which employees comply with the rules and are willing to accept the consequences if they violate them. Another opinion by (Wonua et al., 2023) states that employees who have a high level of discipline show that they must comply with all applicable regulations in the company, both written and unwritten. They do not avoid

punishment if they violate the duties and responsibilities that have been given to them. Furthermore, other research by (Wibisono et al., 2023) states that discipline in the workplace includes a person's understanding and readiness to comply with the norms and traditions that have been enforced in the work environment. The indicators of work discipline according to (Nur et al., 2023) are as follows:
The indicators of work discipline according to (Nur et al., 2023) are as follows:

1. Determining goals and capabilities - must be carried out in a comprehensive, detailed manner and include challenges that are appropriate to the skills possessed by the employee.
2. Leadership examples- including good, disciplined, honest, and fair behavior, which is used as an example by subordinates as a guide.
3. Justice - involving fair treatment and an even view of all things.
4. Attached supervision (waskat) - is a concrete action taken by the leadership to develop a disciplined attitude among employees.
5. Punishment sanctions - function as consequences that are accepted if there is a disciplinary violation in certain actions.
6. Assertiveness - involves giving clear and firm instructions in various contexts.
7. Humane relations - kind towards each other, harmonious and full of respect between individuals, also play an important role in maintaining employee discipline.

2.3. Job Satisfaction

Job satisfaction refers to the level of contentment and fulfillment that employees feel towards their jobs, encompassing various factors such as work conditions, roles, responsibilities, and relationships with colleagues. Recent research continues to explore the nuances of job satisfaction, emphasizing its significance for employee engagement, retention, and overall organizational performance. Locke, a pioneer in job satisfaction research, defines it as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences. He emphasizes that job satisfaction is influenced by the degree to which individuals perceive their work as fulfilling their needs and expectations (Dhanapal et al., 2013). Another is to define job satisfaction as a multifaceted construct that is not only related to the work itself but also to external factors such as organizational culture, management practices, and individual personality traits. They highlight that a satisfied employee is more likely to exhibit higher levels of commitment and productivity (Ravari A et al., 2011).

Job satisfaction arises when employees feel supported by their organizations and can access the resources necessary to perform their jobs effectively. The research underscores the importance of a positive work environment in fostering job satisfaction (Mohamed & Ali, 2016) The dynamic nature of job satisfaction, noting that it can fluctuate based on daily experiences and interactions at work. They argue that job satisfaction is not static; rather, it is shaped by ongoing feedback, recognition, and the quality of interpersonal relationships within the workplace (Singh & Jain, 2013).

2.4. Employee Performance

Performance is the extent to which individuals succeed in achieving the goals or performance standards set by the company. Employee performance can cover various aspects, including productivity, efficiency, work quality, creativity, initiative, teamwork, and compliance with company policies.

Employee performance or achievements are reflected in the achievements and actions shown while carrying out the tasks and obligations given within a certain period (Sarmijan et al., 2022). Performance can also be interpreted as a result that includes the goals of the institution, both in quantitative and qualitative form, and involves aspects such as creativity, flexibility, reliability, and other elements desired or expected by the institution (Arifin & Muharto, 2022). Another opinion was also put forward by (Putri & Frianto, 2023) who stated that employee performance is an evaluation system used in companies to assess the capabilities and work results of an employee. Employee performance not only functions as data needed for promotion or company salary determination but can also act as a source of motivation for employees and as a tool to improve declining performance and even prevent performance decline. The employee performance indicators according to (Sudarnaya & Adnyani, 2022) are as follows:

1. Quality refers to the level at which the process or result of an activity approaches the level of perfection.
2. Quantity is a parameter used to assess a person's performance, which can be measured by looking at the number of products produced by an employee.
3. Time (period) indicates that each task must be completed within the specified time limit.
4. Collaboration between employees, includes relationships between employees to build mutual respect and goodwill to achieve good cooperation.
5. Cost emphasis meaning that budgeted costs must be maintained so as not to exceed the limits set by the company.
6. Supervision is an important aspect implemented to speed up follow-up in overcoming deviations or errors that may occur during work.

2.5. The effect of work-life balance on job satisfaction

Previous research has consistently highlighted the positive impact of work-life balance on job satisfaction across various organizations in Indonesia. For example, (Yusnani & Prasetio, 2018) investigated the contribution of work-life balance to job satisfaction among employees of the Dinas Koperasi dan Usaha Kecil in Bandung, West Java. Similarly, (Nawarcono et al., 2021) explored this relationship confirming that work-life balance is a significant factor in enhancing employee satisfaction. Further expanding on these findings, (Sutrisno et al., 2022) examined work-life balance in relation to job satisfaction.
H1: Work-Life Balance has a positive effect on Job Satisfaction.

2.6. The effect of work-life balance on employee performance

Research consistently shows that work-life balance positively affects employee performance. (Lukmiati et al., 2020) examined this effect on employees at PT. Muara Tunggal in Sukabumi, West Java, finding that employees with a good work-life balance demonstrated higher performance levels.

In the same way, (Minarika et al., 2020) found that promoting work-life balance significantly improved employee performance, as employees could focus more effectively on their tasks. In a related study, (Asari, 2022) explored the role of work-life balance on employee performance showing that work-life arrangement reported higher satisfaction, which, in turn, positively influenced their performance.
H2: Work-Life Balance has a positive effect on Employee Performance.

2.7. The effect of work discipline on job satisfaction

Several studies provide valuable insights into how work discipline influences job satisfaction across various settings in Indonesia. (Azhar et al., 2020) investigated that higher work discipline, alongside fair compensation, significantly contributed to job satisfaction. (Haq et al., 2021) extended this research that disciplined work practices and a positive work

environment play a critical role in enhancing job satisfaction. Additionally, (Yumhi, 2021) explored the impact of work discipline on job satisfaction revealed that a disciplined work approach, coupled with skills and motivation, was crucial for increasing job satisfaction.
H3: Work Discipline has a positive effect on Job Satisfaction.

2.8. The effect of work discipline on employee performance

Research consistently supports the positive impact of work discipline on employee performance, with studies showing that disciplined work habits contribute to higher productivity and goal achievement. (Afianto et al., 2017 examined this effect that work discipline enhance job satisfaction and, in turn, employee performance.

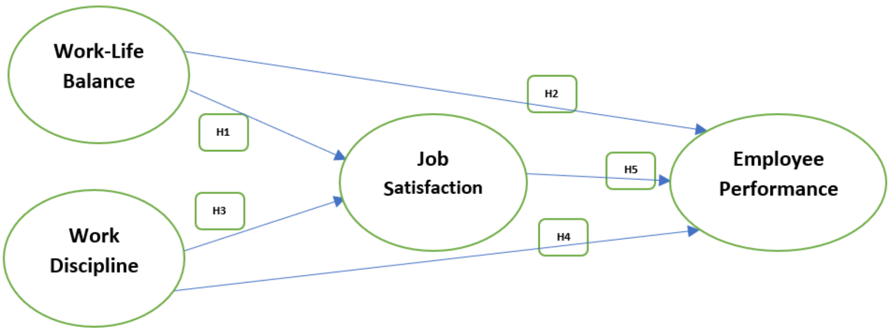
(Prasetyo & Marlina, 2019) found similar results in a study where disciplined work practices significantly boosted performance, especially when coupled with job satisfaction. (Dwiningtyas, 2018) further confirmed this relationship that disciplined work environment directly enhances employee performance. Collectively, these studies emphasize that a strong sense of discipline within the workplace is a key factor in improving employee performance, helping employees focus on tasks and meet organizational standards effectively.
H4: Work Discipline has a positive effect on Employee Performance.

2.9. The effect of job satisfaction on employee performance

Research demonstrates that job satisfaction is a crucial factor influencing employee performance, as it motivates employees to perform their tasks more effectively and efficiently. For instance, (Nurrohmat & Lestari, 2021) revealing that job satisfaction directly enhances employee performance by promoting positive attitudes toward work responsibilities. Other studies by (Salsabilla & Suryawan, 2022) found similar results where job satisfaction, along with work discipline, significantly impacted performance. Additionally, although (Lestari & Afifah, 2020) focused on work discipline and training highlighted the indirect role of satisfaction in boosting performance. These studies collectively underline the importance of job satisfaction in driving employees to excel in their roles, making it a fundamental component in achieving higher performance levels across various sectors.
H5: Job Satisfaction has a positive effect on Employee Performance.

2.10. Theoretical Framework

The theoretical framework of this research is mainly containing of four factors: Work-Life Balance in the company, Work Discipline, Job Satisfaction as mediating factor, and Employees Performance. Those four factors will be analyzed through questionnaire and the writer will define the relationship between them.



2.11. Hypothesis Development

H1: Work-Life Balance has a positive effect on Job Satisfaction.
H2: Work-Life Balance has a positive effect on Employee Performance.
H3: Work Discipline has a positive effect on Job Satisfaction.
H4: Work Discipline has a positive effect on Employee Performance.
H5: Job Satisfaction has a positive effect on Employee Performance.

3. RESEARCH METHODS

3.1. Research Design

The research utilized a quantitative approach, chosen because the data were analyzed using statistical calculations. According to (Sugiyono, 2018) this method is termed quantitative because the data, generally obtained through structured questions, are in the form of words. Data collection was carried out by distributing questionnaires to all employees at PT. Tri Mustika Cocominaesa (TMC) in South Minahasa, aiming to test the established hypotheses.

This type of research is associative research. Associative research refers to a type of scientific research that aims to discover relationships or associations between two or more variables and to understand the extent to which two variables are correlated or related to each other. The objectives can include determining whether changes in one variable are related to changes in other variables or the extent to which these variables are related to each other (Sugiyono, 2018).

This research looks for a relationship between the independent variables Work-Life Balance, Work Health and Safety, and Work Discipline, and the dependent variable Employee Performance (Y). The research will be carried out at PT. Tri Mustika Cocominaesa (TMC), Jalan Raya A.K.D Km 90, Teep village, West Amurang District, Kab. South Minahasa, North Sulawesi, Research will be conducted in August 2024.

3.2. Population and Sample

The population in this study is all employees at PT. Tri Mustika Cocominaesa (TMC) South Minahasa in North Sulawesi has 246 employees, consisting of 76 monthly (permanent) employees and 170 daily employees (laborers). The sample is part of the number and characteristics of the population. (Sugiyono et al., 2014) explains that the sample is part of the population that has appropriate characteristics.

Sampling techniques are divided into probability and nonprobability. In probability sampling, each member of the population has the same chance of being selected as a sample, whereas in nonprobability sampling, the opportunities are not evenly distributed. This research uses probability sampling with a convenience sampling method, which means selecting respondents who are easily accessible and willing to provide information.

3.3. Partial Least Square

The research model will be analyzed using the SmartPLS version 3.0 application. Partial Least Square (PLS) is a powerful analytical method, often referred to as soft modeling, because it eliminates the assumptions of Ordinary Least Squares (OLS) regression, such as multivariate normal distribution and no multicollinearity problems among exogenous variables (Hair et al., 2019).

Although PLS is used to explain the existence or absence of relationships between latent variables (prediction), it can also be used to confirm theories (Hair et al., 2019) explain that PLS-SEM analysis typically consists of two sub-models: the measurement model, or outer model, and the structural model, or inner model. The measurement model shows how manifest or observed variables represent latent variables to be measured, while the structural model indicates the strength of the estimates between latent variables or constructs.

CONCLUSION

This study highlights the critical importance of maintaining a work-life balance and enforcing work discipline to improve employee performance at PT Tri Mustika Cocominaesa. As job satisfaction serves as a key mediator, organizations should focus on policies that promote a harmonious work-life balance and encourage disciplined work behaviors to foster both employee well-being and productivity. Final conclusions will depend on further data collection and analysis.

REFERENCES

Afianto, I. D., Utami, H. N., & Hamidah, A. (2017). “Pengaruh Disiplin Kerja dan Komunikasi Organisasi Terhadap Kepuasan Kerja dam Kinerja Karyawan” (Studi pada Karyawan Divisi Marketing PT. Victory International Futures Kota Malang). **Jurnal Administrasi Bisnis** (JAB)|Vol, 50(6), 58–67.

Arifin, M., & Muharto, A. (2022). “Pengaruh Worklife Balance Terhadap Kinerja Karyawan” (Studi Pada PT. Livia Mandiri Sejati Pasuruan). **Jurnal Riset Ekonomi Dan Bisnis**, 15(1).

Asari, A. F. (2022). “Pengaruh Work-Life Balance Terhadap Kinerja Karyawan Melalui Kepuasan Kerja Pada Karyawan BPJS Ketenagakerjaan”. In **Jurnal Ilmu Manajemen** (Vol. 10).

Azhar, M. E., Nurdin, D. U., & Siswadi, Y. (2020). “Pengaruh Disiplin Kerja dan Kompensasi Terhadap Kepuasan Kerja Karyawan” (Vol. 4, Issue 1).

Dhanapal, S., Binti, S., Alwie, M., Subramaniam, T., & Vashu, D. (2013). “Although extensive researc”. In **International Journal of Management** (Vol. 2, Issue 1).

Dwiningtyas, R. (2018). **Pengaruh Disiplin Kerja dan Lingkungan Kerja Terhadap Kinerja Karyawan** (Studi Pada Karyawan PT. Pertamina (Persero) Refinery Unit IV Cilacap).

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. **In European Business Review** (Vol. 31, Issue 1, pp. 2–24).

Haq, S., Mutttaqijn, I., & Soeparto. (2021). **Pengaruh Disiplin Kerja dan Lingkungan Kerja Terhadap Kepuasan Kerja Dosen**.

Indriani, Y., Joesyiana, K., & Lussianda, E. O. (2023). “Pengaruh Disiplin Kerja dan Beban Kerja Terhadap Kinerja Karyawan Divisi Perkreditan PT. Bank Negara Indonesia (Persero) Kantor Kas Hangtuah”. **Jurnal Ekonomi Utama**, *2*(3), 287–297.

Lestari, S., & Afifah, D. (2020). “Pengaruh Disiplin Kerja dan Pelatian Kerja Terhadap Kinerja Karyawan (Studi kasus pada PT Ardena Artha Mulia bagian produksi)”. **Kinerja Jurnal Ekonomi Dan Bisnis**, 3(1), 2020.

Lukmiati, R., Samsudin, A., & Jhoansyah, D. (2020). “Pengaruh Work Life Balance Terhadap Kinerja Karyawan Pada Karyawan Staff Produksi PT. Muara Tunggal Cibadak-Sukabumi”. In **Jurnal Ekobis Dewantara** (Vol. 3, Issue 3).

Maharani, D. (2019). “”engaruh Manajemen Sumber Daya Manusia dan Budaya Organisasi Terhadap Kualitas Kinerja Pegawai Pada Kantor Kecamatan Cikijang Kabupaten Majalengka”. **Jurnal Ilmu Administrasi Negara,** *9*(2), 101–110.

Marmol, A. D., & Marmol, A. D. (2019). “Dimensions of Teachers’ Work-Life Balance and School Commitment: Basis For Policy Review”. In **International Multidisciplinary Research Journal** (Vol. 110, Issue 1).

Minarika, A., Purwanti, R. S., Muhidin, A., Ekonomi, F., & Galuh, U. (2020). "Pengaruh Work Family Conflict dan Work-Life Balance Terhadap Kinerja Karyawan" (Suatu Studi pada PT. Pacific Eastern Coconut Utama Pangandaran). **Business Management And Entrepreneurship Journal,** *2*(1), 1–11.

Mohamed, S. A., & Ali, M. (2016). "Effects of Perceived Organizational Support on Employees' Job Satisfaction". **International Journal of Research & Review** (Www.Gkpublication.In), *3*, 3.

Mundung, M. S., Trang, I., & Lumintang, G. (2022). "The Effect of Work-Life Balance, Leadership And Work Motivation on Performance of Employees at the Ministry of Religion in Minahasa". In **Jurnal EMBA** (Vol. 10, Issue 3).

Natakusumah, M. O., Hidayatullah, S., Ekonomi, F., Universitas, B., Malang, M., & Sudibyo, P. (2022). "Pengaruh Work-Life Balance, Lingkungan Kerja Dan Keterikatan Kerja Terhadap Kinerja Karyawan Coffeeshop Di Perumahan Kota Wisata Cibubur, Kabupaten Bogor". **Jurnal Ilmu Manajemen**, *7*(1).

Nawarcono, W., Setiono, A., & Manajemen,). (2021). "Analisis Pengaruh Work-Life Balance Terhadap Kepuasan Kerja". **Jurnal Solusi**, 16(2), 1907–2376
.

Nur, M. R. W., Makkasau, S., & Bachri, S. (2023). "Pengaruh Keselamatan, Kesehatan Kerja (K3) Dan Disiplin Kerja Terhadap Kinerja Karyawan Pasca Pandemi Covid-19". **Jurnal Ekonomi & Ekonomi Syariah**, 6(2).

Nurrohmat, A., & Lestari, R. (2021). "Pengaruh Kepuasan Kerja terhadap Kinerja Karyawan". **Jurnal Riset Akuntansi**, 1(2), 82–85.

Prasetyo, E. T., & Marlina, P. (2019). "Pengaruh Disiplin Kerja dan Kepuasan Kerja Terhadap Kinerja Karyawan". **Jurnal Inspirasi Bisnis Dan Manajemen**, 3(1), 29–34.

Putri, S. W., & Frianto, A. (2023). "Pengaruh work-life balance terhadap kinerja karyawan melalui komitmen organisasi". **Jurnal Ilmu Manajemen**, 11(2), 293–305.

Putri, T. A., & Setia, S. (2023). "The effect of Work-Life Balance, Work Motivation and Work Discipline on Employee Performance at pt Star Concord Indonesia Branch Surabaya". **Journal of Economic, Business and Accounting**, 6(2), 313–320.

Ravari A, Mirzaei T, Kazemi M, & Jamalizadeh A. (2011). "Job satisfaction as a multidimensional concept: A systematic review study" **JOHE**, 1(2), 95–102.

Safitri, N. A., & Soleh, M. (2022). Pengaruh Work Life Balance, Employee Engagement Dan Lingkungan Kerja Islami Terhadap Kinerja Karyawan Dengan Kepuasan Kerja Sebagai Variabel Intervening Pada Karyawan Kopontren Baitul Muamalat Al Hikmah Blora. **Jurnal of Sharia Management and Business**, 2(2), 88–98.

Salsabilla, A., & Suryawan, I. N. (2022). "Pengaruh Kepuasan Kerja, Disiplin Kerja Dan Motivasi Kerja Terhadap Kinerja Karyawan". **Aksara: Jurnal Ilmu Pendidikan Nonformal,** 8(1), 137.

Sarmijan, Tiarapuspa, & Ikhwan. (2022). "Peran Gender Sebagai Variabel Moderasi Pengaruh Work From Home, Work Life Balance dan Kompensasi Terhadap Kinerja Pegawai Pada Masa Pandemi Covid-19". **Jurnal Ilmu Sosial Dan Pendidikan (JISIP**), 6(3).

Singh, J. K., & Jain, M. (2013). "A Study of Employees' Job Satisfaction and its Impact on Their Performance". **Journal of Indian Research**, 1(4), 105–111.

Sirohi, A., & Sharma, A. K. (2013). "A Study of Job Satisfaction and its Dimentions Among Librarians". In **Library Progress(International***). '* (Vol. 33).

Sudarnaya, K., & Adnyani, K. D. P. (2022). "Pengaruh Kesehatan Keselamatan Kerja (K3) Dan Disiplin Kerja Terhadap Kinerja Pegawai Pada Masa Pandemi COVID - 19 di Bank Pembangunan Daerah Bali Cabang Singaraja". **Jurnal Daya Saing**, 8(3).

Sugiyono. (2018). **Metode Penelitian Kuantitatif, Kualitatif dan R&D** (22nd ed.). ALFABETA, CV.

Sugiyono, Hadi, S., & Mahmud. (2014). **Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D**. 49–173.

Sulystyawati, K. E., Kasran, M., Pengaruh, S. S., Life…, W., Sulystyawati, K. E., Kasran, M., Sampetan, S., Kunci, K., Keseimbangan, :, Kerja, K., Kerja, S., & Karyawan, K. (2023). "Pengaruh Work-Life Balance Dan Stres Kerja Terhadap Kinerja Karyawan Pda Pabrik Beras Rice Ika Putra Luwu Timur". **Jurnal Ilmiah Manajemen Bisnis Dan Inovasi Universitas Sam Ratulangi**, 10(1), 269–282.

Sutrisno, Alatas, R., Saputra, E. K., Cakranegara, P. A., & Nugroho, B. S. (2022). "Analisis Pengaruh Komitmen Organisasi Dan Work-Life Balance Terhadap Kepuasan Kerja Pegawai Biro Organisasi Dan Ketatalaksanaan Sekretariat Jenderal Kementerian Keuangan". **Management Studies and Entrepreneurship Journal,** 3(6), 4083–4088.

Wibisono, I., Astuti, A., Rahayu, W., Sihombing, B. M., Buana, U., & Karawang, P. (2023). "Analisis Pengaruh Disiplin Kerja, Motivasi Kerja, dan Lingkungan Kerja Terhadap Kinerja Karyawan CV Jaya Clean Mandiri"" **Jurnal Mirai Management, 8**(2), 219–228.

Wonua, A. R., Hendrik, H., & Rahmadani, A. S. M. (2023). "Pengaruh Disiplin Kerja dan Beban Kerja terhdap Kinerja Karyawan" (Studi pada Buruh Panen Kelapa Sawit PT. Damai Jaya Lestari Afdeling IX Kecamatan Tanggetada, Kab. Kolaka). **Jurnal Ilmiah Mahasiswa,** 1(6)**,** 153–165.

Yumhi. (2021). "Pengaruh Disiplin Kerja, Kompetensi Dan Motivasi Kerja Terhadap Kepuasan Kerja". **The Asia Pacific Journal of Management Studies,** 8(2), 71–78.

Yusnani, E., & Prasetio, A. P. (2018). "Kontribusi Work Life Balance Terhadap Job Satisfaction pada Karyawan Dinas Koperasi dan Usaha Kecil". **Jurnal Penelitian Pendidikan,** 18(2), 135–143.

CHAPTER 12

Financial Performance, Market Return, and Macro Economy: Study of Consumer Cyclical Industry in Indonesia Period 2016-2023

Christine Ariani KOSNANDAR
IPMI Institute
besttine11@gmail.com
Orcid: 0009-0004-4533-4837

Roy SEMBEL
IPMI Institute
roy.sembel@ipmi.ac.id
Orcid: 0000-0002-9023-9976

Melinda MALAU
melinda.malau@uki.ac.id
Orcid: 0000-0002-6576-3063

ABSTRACT

This study aimed to determine the relationship and effect of financial performance (profitability, liquidity, asset efficiency, financial leverage), market return, and macroeconomic factors (foreign exchange rate and interest rate) on the stock return of the consumer cyclical industry in Indonesia for the period 2016-2023. The cyclical consumer industry is important to support the country's economic development and create job opportunities, helping the country escape from the middle-income trap. This study used a sample of cyclical consumer companies listed on the Indonesia Stock Exchange from 2016 to 2023 which have ESG Scores. The purposive sampling technique was utilized, consisting of 10 cyclical consumer companies. Unbalanced panel data regression methods were utilized in this study. This study indicated that liquidity have a positive and significant effect on stock return, while asset efficiency, financial leverage, profitability, market return, exchange rate, and interest rate have positive and not significant effect on stock return.
Keywords: Cyclical Consumer, Macroeconomic, Market Return, Financial Performance, Stock Return.

INTRODUCTION

The cyclical consumer industry encompasses sectors of the economy susceptible to the economic cycle, resulting in fluctuations in their performance that are influenced by changes in the broader economic environment. This encompasses sectors such as retail, automobile, media and entertainment. The cyclical consumer industry in Indonesia has several key characteristics such as sensitivity to economic fluctuations, seasonal demand patterns, consumer behavior impact, dependence on disposable income, marketing investment, inventory management challenge, and regulatory environment. This industry is important to support the country's economic development and create job opportunities, helping the country escape from the middle-income trap in which a country swiftly expands to the middle-income level before stagnating and failing to move to the high-income position. A strong cyclical consumer industry can encourage investment in infrastructure and services. If middle-income countries fail to invest in these areas, they may struggle to support long-term growth, resulting in stagnation.
These industries' cyclical nature has the potential to generate major employment possibilities. However, if jobs are predominantly low-skilled and low-wage, they may not provide the necessary upward mobility to avoid the middle-income trap.

RESEARCH OBJECTIVE

This study aimed to analyze the impact of Financial Performance. Market Return, and Macro Economy on the Stock Return of the Cyclical Consumer Industry in Indonesia.

1. LITERATURE REVIEW

1.1. Random Walk Theory

The theory of random walks in stock market prices implies that price changes are independent and unreliable, causing it impossible to predict future stock price movements based on history (Fama, 2005). A study by Datar (1998) revealed that liquidity significantly affected stock return with a persisting effect even after controlling for well-known determinants like firm size, book-to-market ratio, and firm beta.

1.2. Signaling Theory

Spence (1973) developed signaling theory which states that when quality cannot be directly observed, the market relies on an observable replacement (a signal) to function.. The signal is similar to the stoplight, green indicates go and red indicates stop. The signal sorts the combined low- and high-quality cars into different markets. Signaling theory explains why corporations have the urge to communicate financial statement information to external parties. The corporation wants to share information with outsiders due to information asymmetry, as they have a better understanding of the company's prospects than investors and creditors.
Outsiders lack information about the company, so they protect themselves by offering a low price. Firms can boost firm value by minimizing information asymmetry. One way to reduce information asymmetry is to give signals to outsiders (Trisnowati et al, 2022).

1.3. Financial Ratio Analysis

Financial ratio analysis is an important tool for understanding the financial position of the company which is useful for decision-making purposes and for identifying problem areas and opportunities within a company (Saigeetha, 2024).

1.4. Hypothesis

H1: Asset efficiency positively affects the stock return of the cyclical consumer industry in Indonesia.

H2: Liquidity positively affects the stock return of the cyclical consumer industry in Indonesia.

H3: Financial leverage positively affects the stock return of Indonesia's cyclical consumer industry.

H4: Profitability positively affects the stock return of the cyclical consumer industry in Indonesia.

H5: Market return positively affects the stock return of the cyclical consumer industry in Indonesia.

H6: The exchange rate positively affects the stock return of the cyclical consumer industry in Indonesia.

H7: Interest rate positively affects the stock return of the cyclical consumer industry in Indonesia.

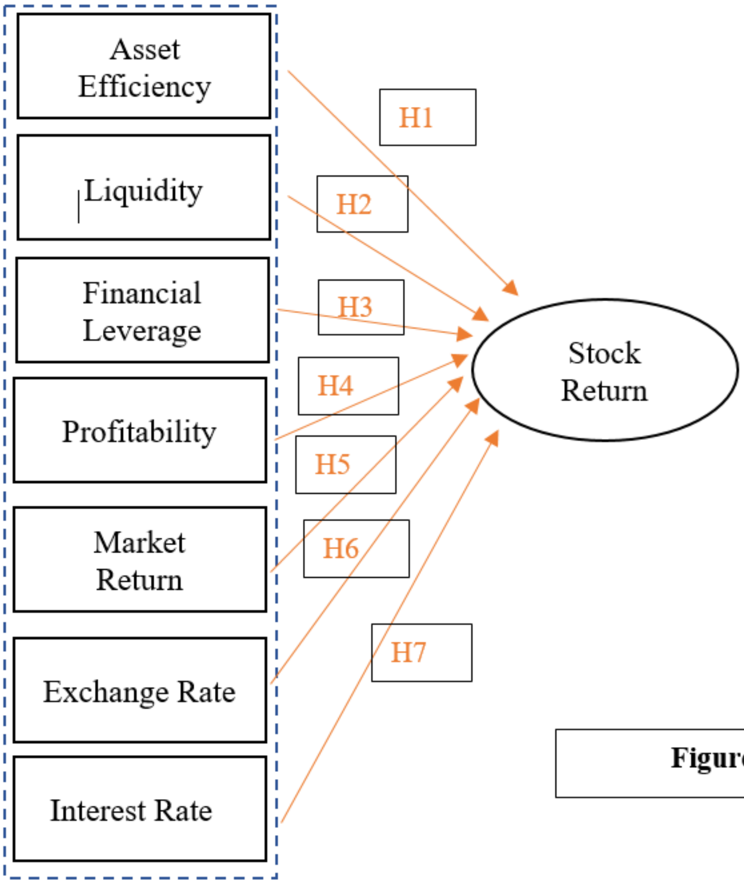


Figure 1 Research Framework

2. METHODOLOGY

The design study adopted a quantitative method with a purposive sampling technique to collect the required sample data consisting of 10 companies of cyclical industry in Indonesia in the period 2016-2023 which is processed through unbalanced data panel regression.

Table-1: List of Variables

Dependent Variables	Variables description	Source
Stock Return = $Ln\left(\frac{Pt}{Pt-1}\right)$	Indicator of return of a stock. Pt is the close price at the period (eg. period t) and Pt-1 is the close price one period before period t.	Miskolczi, 2017

Independent Variables	Variables description	Source
Asset Efficiency = Total Asset Turnover = $\frac{\text{Net Sales}}{\text{Average Total Assets}}$	Indicator of how efficient the company's operations are in leveraging its assets to create income.	Munawar, 2019
Liquidity = Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Indicator of the company's capacity to cover its short-term liabilities with its short-term assets.	Adawiyah & Setiyawati, 2019
Financial Leverage = Equity Multiplier = $\frac{\text{Assets}}{\text{Equity}}$	Measurement of debt that was being used to undertake an investment.	Ramadhanty, et al., 2020
Profitability = Net Margin = $\frac{\text{Net Margin}}{\text{Sales}}$	Measurement of how effective management is in generating profit.	Brigham & Daves, 2014
Market Return = $Ln\left(\frac{Pt}{Pt-1}\right)$	Measurement of stock market return. Pt is the close price at the period (eg. period t) and Pt-1 is the close price one period before period t.	Miskolczi, 2017
Exchange Rate Return = $Ln\left(\frac{Pt}{Pt-1}\right)$	Measurement of return of a foreign exchange rate. Pt is the close price at the period (eg. period t) and Pt-1 is the close price one period before period t.	Miskolczi, 2017
Interest rate	Measurement of interest rate at the period.	Mensah et al., 2020

3. RESULT AND DISCUSSION

Model Interpretation

Dependent Variable: STOCK_RETURN
Method: Panel Least Squares
Date: 12/06/24 Time: 21:03
Sample (adjusted): 3/01/2016 12/01/2023
Periods included: 29
Cross-sections included: 10
Total panel (unbalanced) observations: 204

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.416091	0.095156	4.372721	0.0000
ASSET_EFFICIENCY	-0.009137	0.075235	-0.121445	0.9035
LIQUIDITY	-0.021278	0.008224	-2.587231	0.0104
FINANCIAL_LEVERAGE	0.005195	0.018589	0.279496	0.7802
PROFITABILITY	0.000500	0.018946	0.026385	0.9790
MARKET_RETURN	0.395312	0.277277	1.425694	0.1555
EXCHRATE	-0.565591	0.374666	-1.509587	0.1328
INTERESTRATE	0.501160	0.950641	0.527181	0.5987

R-squared	0.101584	Mean dependent var	0.390500
Adjusted R-squared	0.069498	S.D. dependent var	0.118005
S.E. of regression	0.113830	Akaike info criterion	-1.469792
Sum squared resid	2.539634	Schwarz criterion	-1.339669
Log likelihood	157.9188	Hannan-Quinn criter.	-1.417155
F-statistic	3.165970	Durbin-Watson stat	1.759112
Prob(F-statistic)	0.003403		

Figure 2 Common Effect Model

Based on the Chow Test and Lagrange Multiplier Test (Prob. > 0.05), the model chosen is a common effect model.
The regression coefficient of the independent variables suggests the following:

- Asset efficiency positively affects the stock return, the effect is statistically not as significant as the Prob. > 0.05.
- Liquidity positively affects the stock return, the effect is statistically significant as the Prob. < 0.05.
- Financial leverage positively affects the stock return, the effect is statistically not significant as the Prob. > 0.05.
- Profitability positively affects the stock return, the effect is statistically not as significant as the Prob. > 0.05.
- Market return positively affected the stock return, the effect is statistically not significant as the Prob. > 0.05.
- Exchange rate positively affects the stock return, the effect is statistically not significant as the Prob. > 0.05.
- Interest rate positively affects the stock return, the effect is statistically not significant as the Prob. > 0.05.

Prob (F-Statistic) = 0.0034 < 0.05 showing that variable asset efficiency, liquidity, financial leverage, profitability, market return, exchange rate, and interest rate simultaneously statistically significantly affected stock return.

Adjusted R-squared value = 0.0694 showing that the model can be explained by variable asset efficiency, liquidity, financial leverage, profitability, market return, exchange rate, and interest rate by 7%, The remaining 93% of variance was explained by other variables not observed in the model.

Classical Assumption Test

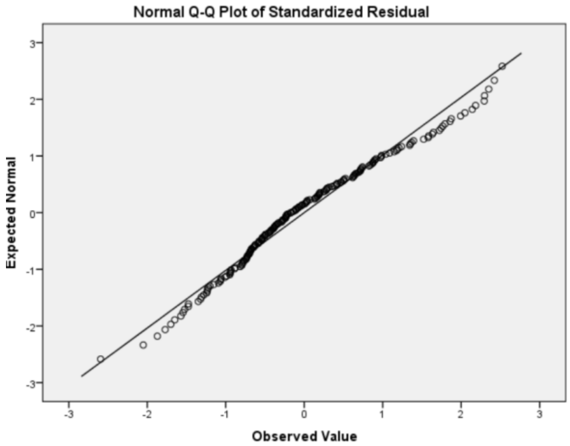


Figure 3 Normality Test SPSS

A normal Q-Q plot visualizing the data distribution against the expected normal distribution showed that most of the dots fall approximately along the reference line, which implied that the normality test was assumed to be fulfilled.

	ASSET_EFFICIENCY	LIQUIDITY	FINANCIAL_LEVERAGE	PROFITABILITY	MARKET_RETURN	EXCHRATE	INTERESTRATE
ASSET_EFFICIENCY	1.000000	-0.510601	0.356916	-0.282365	-0.051352	-0.047670	0.248131
LIQUIDITY	-0.510601	1.000000	-0.512619	0.501886	-0.077805	-0.012148	0.059205
FINANCIAL_LEVERAGE	0.356916	-0.512619	1.000000	-0.428255	0.076892	0.048063	-0.031897
PROFITABILITY	-0.282365	0.501886	-0.428255	1.000000	0.001077	-0.030491	0.034176
MARKET_RETURN	-0.051352	-0.077805	0.076892	0.001077	1.000000	-0.371904	-0.117424
EXCHRATE	-0.047670	-0.012148	0.048063	-0.030491	-0.371904	1.000000	-0.264449
INTERESTRATE	0.248131	0.059205	-0.031897	0.034176	-0.117424	-0.264449	1.000000

Table-3: Multicollinearity Test Eviews

Table-2 showing that correlation value between independent variable < 0.90, which can be concluded that there is no multicollinearity problem.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.603417	Prob. F(2,194)	0.2039
Obs*R-squared	3.317300	Prob. Chi-Square(2)	0.1904

Figure 4 Autocorrelation Test Eviews

Autocorrelation test showing that Prob.Chi-Square(2) > 0.05, implies that there is no autocorrelation issue.

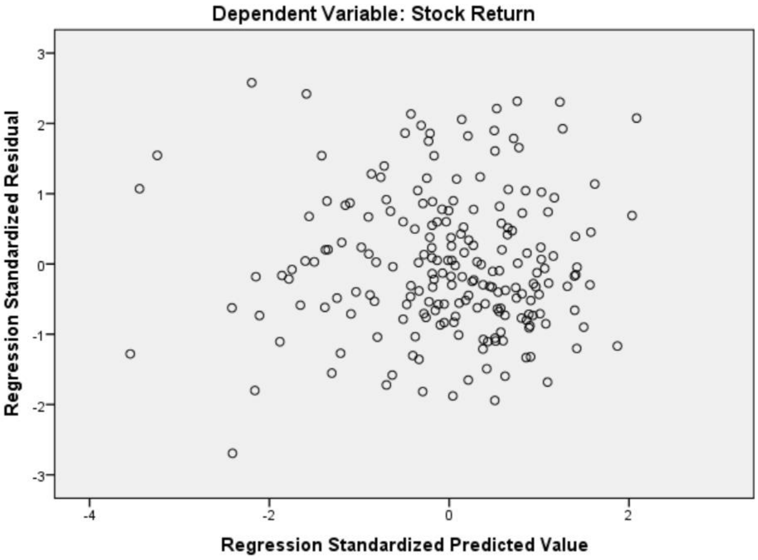


Figure 5 Heteroskedasticity Test SPSS version 22

The heteroscedasticity test implies that there is no heteroscedasticity issue.

CONCLUSION

This study shows that liquidity has a positive and significant effect to the stock return of cyclical consumer industry in Indonesia period 2016-2023. Simultaneously, asset efficiency, financial leverage, profitability, market return, exchange rate, and interest rate statistically significantly affected the stock return of the cyclical consumer industry in Indonesia period 2016-2023.

Investors should consider the liquidity of a company because it proved to have a positive and significant effect on the stock return of the consumer cyclical industry.

Investors also should pay attention to financial performance, market return, and macroeconomy because it is proven that simultaneously, asset efficiency, financial leverage, profitability, market return, exchange rate, and interest rate statistically significantly affect the stock return of the cyclical consumer industry.

REFERENCES

Adawiyah, N. R., & Setiyawati, H. (2019). The Effect of Current Ratio, Return on Equity, And Firm Size on Stock Return (Study of Manufacturing Sector Food and Beverage in Indonesia Stock Exchange). Scholars Bulletin, 5(09), 513–520.

Brigham, Eugene F. and P.R. Daves. 2007. Intermediate Financial Management 9th edition. Mason:Thompson/South-Western

Chen, Y. (2022). Random walk: statistical data analysis and application in finance. , 12259, 122590E - 122590E9.

Datar, V., Naik, N., & Radcliffe, R. (1998). Liquidity and stock returns: An alternative test. Journal of Financial Markets, 1, 203-219.

Fama, E. (2005). Random Walks in Stock Market Prices. Financial Analysts Journal.

Frydman, R., & Mangee, N. (2020). How Market Sentiment Drives Forecasts of Stock Returns. Journal of Behavioral Finance, 22, 351 - 367.

Hamzah, Valeriani, and Yusfany (2021). Pengaruh Variabel Makro Ekonomi terhadap Indeks Harga Saham LQ-45 di Bursa Efek Indonesia. Sorot.

Mensah and Werekoh. (2020). The Impact of Exchange Rate and Interest Rate Volatility on Stock Market Returns. Journal of Applied Business and Economics.

Miskolczi, P. (2017). Note on Simple and Logarithmic Return. Applied Studies in Agribusiness and Commerce, 11.

Munawar, A. (2019). The Effect of Liquidity, Leverage and Total Asset Turnover on Profitability: Empirical Study of Manufacturing Companies in Indonesia Stock Exchange 2012-2017. International Journal of Economics and Management Studies, www. internationaljournalssrg.org.

Ramadhanty, N. S., & Budiasih, N. I. G. A. (2020). The Effect of Financial Leverage on Stock Returns with Corporate Social Responsibility Disclosure as Moderating Variable (Empirical Study on Mining Companies Listed on Indonesia Stock Exchange in 2016-2018). American Journal of Humanities and Social Sciences Research (AJHSSR), 4(6), 48-53.

Saigeetha, S., & Surulivel, D. (2024). A Study On Financial Performance Using Ratio Analysis. International Journal of Progressive Research in Engineering Management and Science.

Silver, Y., Setyorini, C., & Pratiwi, U. (2023). The effect of profitability, liquidity, and capital structure toward stock returns: A study on plantation companies listed in IDX. Journal of Contemporary Accounting.

Spence, M. (1973). Job Market Signaling. The Quarterly Journal of Economics, Vol. 87, No. 3 (1973), pp. 355–374.

Trisnowati, Yanuar, et al. "The effect of ESG score, financial performance, and macroeconomics on stock returns during the pandemic era in Indonesia." International Journal of Energy Economics and Policy 12.4 (2022): 166-172.

CHAPTER 13

The Effectiveness Implementation of Robotic Process Automation in Financial Operations: Challenges & Opportunities in Indonesia

Syahrul RAMADHAN
IPMI Institute
syahrul.ramadhan@ipmi.ac.id
Orcid: 0009-0001-2378-0797

Yulita F.SUSANTI
IPMI Institute
yulita.susanti@ipmi.ac.id
Orcid: 0000-0001-9631-6074

ABSTRACT

This study aims to determine and assess the effectiveness implementation of Robotic Process Automation (RPA) in Financial Operations Companies in Indonesia. This research also explains the challenges and opportunities of Robotic Process Automation in Indonesia. The data analysis method used in this research is descriptive qualitative. The results of this study explain that the effectiveness of implementing Robotic Process Automation is able to reduce operational costs by 70% and increase process speed and efficiency. These results are able to make employees more efficient in carrying out their duties and more focused on more strategic tasks. However, the successful integration of RPA is influenced by several factors, including technical complexity, organizational resistance, and the essential role of cross-functional collaboration. The study emphasizes the need for an organizational mindset open to digital transformation, supporting RPA adoption through change management and employee upskilling.

Keywords: Robotic Process Automation, Financial Operation, Effectiveness, Challenges, Opportunities

1. INTRODUCTION

Financial operations are crucial for ensuring the smooth and stable functioning of a company, covering activities such as cash management, payments and receipts, inventory control, and short-term financing. However, manual process managing financial operations presents a major challenge. Manual processes are often prone to human error, time-consuming and inefficient, especially when it comes to handling large volumes of data and repetitive tasks (Alvindi et al., 2022). These challenges can result in delays in financial reporting, errors in transaction processing, and reduced productivity (Mokoginta et al., 2024). This situation is made even more complex by the growing trend of remote working, where employees can now work from anywhere and are no longer confined to traditional offices (Srivastava & Gopal, 2020). These changes demand a flexible and efficient system that can operate smoothly regardless of employee location.

One promising solution to this problem is the implementation of *Robotic Process Automation* (RPA), which offers a way to automate repetitive and rule-based tasks in financial operations. RPA is a software-based technology capable of mimicking human work in performing routine and repetitive operational tasks, such as processing transactions, managing data, and generating reports (Otaru et al., 2020). Unlike physical robots, RPA operates through a user interface to perform structured tasks quickly, accurately, and consistently without requiring continuous human intervention (Mokoginta et al., 2024). Several studies have shown that RPA has great potential to improve operational efficiency and reduce the risk of human error, as well as allowing human resources to be allocated to more strategic tasks (Harrast, 2020; Rane et al., 2024). Thus, RPA enables companies to improve efficiency, reduce the risk of human error, and maximize the utilization of human resources on more strategically valuable tasks.

The implementation of RPA in financial operations within Indonesian companies holds significant potential to enhance accuracy, accelerate processing times, and streamline workflows, especially for teams spread across various locations (Alvindi et al., 2022). This research aims to explore how implementing RPA in financial operations in Indonesia can provide solutions to efficiency and accuracy issues, and to evaluate its effectiveness compared to previous manual processes. In addition, this research also addresses the challenges that may arise during the RPA implementation process, such as the need for technology integration and HR adaptation, as well as the significant opportunities that companies can leverage to improve their competitiveness and efficiency in this digital era. To achieve these objectives, the research used a descriptive qualitative approach through interviews with employees of several companies in Indonesia.

2. LITERATURE REVIEW

Financial Operations

Financial operations are an essential part of corporate management that includes cash management, payments, receipts, and management of short-term assets such as inventory and receivables(Brigham & Ehrhardt, 2008). These operations maintain a balance of liquidity, ensure the availability of operational funds, and maximize the efficient use of capital. The main objective of financial operations is to ensure the company has sufficient cash flow to fund day-to-day activities, maintain cash flow stability, and support sustainable growth. Effective management of financial operations not only helps avoid liquidity crises, but also provides the foundation for the company's overall financial health (Thuy, 2023).

However, managing financial operations often faces challenges, especially in companies with complex processes or high transaction volumes. Manual processes are still often used in financial operations, which makes these activities prone to human error, slow, and less efficient in the face of repetitive task loads (Thuy, 2023). As a result, manual processes can slow down the completion of transactions, lead to recording errors, and cause delays in financial reporting that can be detrimental to the company (Alvindi et al., 2022). With the increasing need for efficiency and accuracy in the management of financial operations, many companies have begun to consider automation solutions to improve performance, reduce errors, and optimize the use of resources.

Robotic Process Automation

Robotic Process Automation (RPA) often referred to as 'robotics' or 'robots,' is a rule-based automation process that uses software to interact with a user interface and can operate on different types of programs, including web-based applications, enterprise resource planning (ERP) systems, and mainframe systems (Candratio et al., 2023). RPA enables the automation of tasks that are usually performed manually, thus supporting the transformation of many traditional enterprise processes. RPA is becoming an essential element in operations, helping to reduce time-consuming, laborious, and error-prone work (Rane et al., 2024).
RPA works by taking structured data, processing it, and producing deterministic outputs based on certain rules (Pramod, 2022). Its ability to handle these tasks automatically makes RPA highly effective in reducing errors that often occur in manual processes. Through this application, RPA not only improves efficiency and speeds up processes, but also reduces labour costs and improves accuracy and adherence to operational standards (Oyeniyi et al., 2024).
The environment created by RPA enables automation of repetitive and error-prone manual tasks, mimicking a virtual workforce to complete the work (Hidayanti et al., 2022). Understanding the suitability of processes for automation and prioritizing activities that are easy to automate is important for companies. Software applications with visualization capabilities can assist managers in deciding the right steps for RPA adoption across the organization (Geyer-Klingeberg et al., 2018).
Through the implementation of RPA, tasks typically performed by humans are executed by robots, which contributes to increased efficiency, productivity, data security, reduced processing time, and improved accuracy, as experienced in the banking sector (Mokoginta et al., 2024). RPA can be either light or heavy IT automation, depending on the needs of the organization. The RPA lifecycle starts from the analysis phase, where a detailed understanding of the process documentation is performed, followed by the bot development and testing phases. Continuous monitoring is done in the support and maintenance phase to ensure the automation process is running optimally (Naidu & Vedavathi, 2019).

3. RESEARCH METHOD

The research methodology used in this study is a qualitative descriptive approach. This approach aims to provide a clear picture of the application of Robotic Process Automation (RPA) in financial operations in Indonesia, highlighting the challenges faced and opportunities that can be utilized. This research does not focus on testing hypotheses or relationships between variables quantitatively, but rather explores in-depth understanding of the phenomena that occur through interviews, observations, and analysis of related documents. The research informants consisted of employees of several employees in Indonesia who had direct experience with RPA implementation. The data obtained was analyzed qualitatively to identify patterns, trends, and factors that influence the effectiveness of RPA implementation, so as to provide a richer and more comprehensive insight into the topic.

Table 1. List of Research Informants

No	Informant	Position	Company
1.	Informant 1	Head of Finance	Company A
2.	Informant 2	Credit Control Manager	Company B
3.	Informant 3	Credit Control Manager	Company C
4.	Informant 4	Head of Operation	Company D
5.	Informant 5	Head of Finance	Company E

4. RESULT AND DISCUSSION

Implementation of *Robotic Process Automation* (RPA) in *Financial Operations* in Indonesia

The implementation of Robotic Process Automation (RPA) in financial operations within Indonesian companies has been initiated in several organizations, though not all have adopted it yet. Some companies still have not planned for RPA implementation even though they have realized the potential benefits offered by the implementation of this technology. This is due to the company's decision to focus on development in other areas, while the implementation of RPA is planned to be explored in the future. This was conveyed by informant 1.
"Currently, we haven't begun planning for RPA. Although we're aware of the benefits it could bring, it hasn't been a focus yet. Our current initiatives are aimed elsewhere, and RPA is something we may explore later" Informant 1

This is also in line with the interview results revealed by Informant 3, who stated that their company has not yet started planning for RPA implementation. Although the topic of RPA has been discussed, a formal plan has not been developed as the company is still considering the various options available.
"We have not yet started planning for RPA. While it's a topic of discussion, formal plans haven't been made. We're currently considering our options." Informant 3

In contrast to these companies, some companies are already implementing RPA. Some companies have started to improve standardization in preparation for RPA. Companies believe that by standardizing processes, future RPA implementations will be smooth and effective. This is in line with the interview results submitted by informant 5.
"We're currently in the stage of increasing standardization. This will lay a foundation for RPA, making it easier to implement when the time comes." Informant 5

The leaders of RPA initiatives in companies in Indonesia vary, based on the interviews, RPA initiatives can be led by the Finance Team, specialized RPA Team and Information Technology Team. Furthermore, based on the interviews, informants see great potential in the implementation of RPA to automate several processes in the accounting and finance functions. The processes considered to have the potential to be automated include journal entry processing, reconciliation, and invoicing.
"I see high potential in automating journal entry processing, reconciliations, and invoicing. These tasks are repetitive and labor-intensive, which makes them suitable for RPA." Informant 1

Based on the results of the interview, the informant explained that tasks such as journal entry processing, reconciliation, and invoicing are repetitive and take a lot of time and effort, so it is

suitable to be optimized by using RPA, which can increase efficiency and reduce manual workload. This is in line with the interview results submitted by informant 2.
"For us, invoice processing and accounts receivable are ideal candidates for RPA. They are essential processes that can be streamlined significantly with automation" Informant 2

Based on the interview, when asked about processes in the accounting and finance function that have the potential to be automated through Robotic Process Automation (RPA), the informant identified invoice processing and accounts receivable as ideal candidates. According to him, these two processes are important parts of financial operations that can be significantly simplified and optimized through automation, which is expected to improve work efficiency and reduce operational burden in the company's financial management.

Effectiveness of RPA Implementation in Financial Operations in Indonesia

The effectiveness of RPA implementation in financial operations can be seen from several aspects, one of which is the operational cost. The implementation of RPA is able to automate routine and repetitive tasks, thus reducing the need for manual labor for these jobs. This is in line with the interview results conveyed by the informants.
"So far, we've achieved minimal savings of 10-30%. Since we're still in the early stages, we expect these savings to increase as we refine our use of RPA" Informant 2

The results of the interview with Informant 2 show that although the company is only in the early stages of implementing Robotic Process Automation (RPA), they have managed to achieve minimum savings of 10-30%.This shows that RPA is starting to have a positive impact on operational efficiency, although the results obtained are still limited because it is still in its early stages.The informant also expressed the hope that as the implementation and refinement of RPA matures, the savings obtained will increase. Automation is projected to potentially save up to 70% of costs, as it can replace human labor in high-frequency, repetitive tasks, while also accelerating processing times and reducing the likelihood of errors.
In addition, RPA contributes to the optimization of financial processes by moving the processing of roboticized tasks from the critical path to low operation time. In the interview, informant 1 also said that the implementation of RPA has had a significant impact on the accuracy and quality of data in the company's financial statements and transactions.
"The accuracy of our financial reports has significantly improved, reducing the incidence of human errors. RPA has increased data reliability" Informant 1

With the implementation of RPA, the accuracy of financial reports has improved significantly, effectively reducing the risk of errors caused by human factors. Additionally, RPA helps enhance data reliability, providing greater confidence in the accuracy of the resulting financial reports. This aligns with what other informants have stated.
"We've noticed moderate improvements in accuracy and data quality since implementing RPA. It's been a positive change overall" Informant 4

As a result of these interviews, informants also explained that the implementation of RPA has had a positive impact on the accuracy and quality of data in the company's financial statements and transactions. Since RPA was implemented, they have seen a moderate improvement in this aspect. Although the improvement has not been fully significant, it is still considered a positive step that contributes to the overall reliability of the company's financial information. Furthermore, the effectiveness of RPA implementation can also be seen in terms of time. The

implementation of RPA is able to help complete financial processes faster than the manual method.
"We've seen a time reduction of around 10-30%. It's a positive change, although there's still potential for further optimization" Informant 2
"With RPA, our processing time has been cut by 30-50%, which has been a significant benefit in our daily operations" Informant 1

Based on the interviews with the informants, it is known that the implementation of RPA can reduce the time needed to complete financial processes compared to the manual method by 10%-50%. With automation, processes that previously took a long time, such as data processing, reconciliation, and transaction verification, can now be completed more quickly and accurately. This not only improves operational efficiency, but also allows the finance team to focus on more strategic and value-added tasks.

Challenges and Opportunities for RPA Implementation in Financial Operations in Indonesia

a. Challenges of RPA Implementation in Financial Operations in Indonesia

The application of Robotic Process Automation (RPA) in financial operations offers great potential to improve efficiency, accuracy and productivity, but also presents key challenges that need to be overcome for effective implementation. RPA can bring about significant changes in business processes by automating routine and repetitive tasks, but its implementation does not always go smoothly. These challenges involve various aspects, such as human resource readiness, significant investment costs, and technical complexities that require specialized approaches and expertise. This was conveyed by several informants in this study.
"*Organizational resistance has been a major challenge. Not everyone is open to the changes that RPA brings, especially in terms of job roles." Informant 1*
"A lack of skilled talent has been our main challenge. Finding employees with both financial and technical expertise has been difficult" Informant 2
"The high initial costs of implementing RPA have been a barrier, as it requires significant upfront investment" Informant 3
"Technical complexity is our primary challenge. Our processes are intricate, making RPA implementation more challenging" Informan 4
"We face a mix of challenges, including technical complexity and initial costs, which complicates the RPA implementation process." Informant 5

From the interviews with the informants above, it was identified that the implementation of RPA in financial operations in Indonesia faces some significant challenges. One of the main challenges is resistance from within the organization, where not all employees are ready to accept the changes brought by RPA. The automation of routine tasks by this technology may affect the roles and responsibilities of employees, leading to concerns that their jobs will be replaced. As a result, internal resistance is a major obstacle in the successful implementation of RPA in a number of companies.
In addition, the shortage of workers with sufficient technical and financial skills is also a major challenge. Companies need individuals with expertise in managing and maintaining RPA systems, but the number of workers with this competency is limited in Indonesia. This limitation means that companies need to provide additional training, which can slow down the technology adoption process and increase costs.
The initial cost of implementing RPA is also a major obstacle, especially since the investment required is considerable. Implementing this technology requires funds for software, hardware,

and training for employees. For companies with limited budgets, this high cost could hamper RPA implementation plans and require a re-evaluation of the allocation of funds or even delay the implementation.

In addition, the technical complexity of existing financial processes often makes it difficult to implement RPA. Complicated financial processes require special customization, thus requiring time and high technical expertise to optimally integrate RPA. This complexity increases implementation challenges, especially if existing processes are not easily automated.

The combination of technical complexity and high investment costs complicates RPA implementation efforts at these companies. These challenges show that, while RPA has the potential to improve operational efficiency, its successful implementation depends largely on an organization's readiness to overcome these barriers. Companies need a well-thought-out strategy to maximize the benefits of RPA while overcoming various obstacles in its implementation. One of the efforts in overcoming these challenges is as stated by informant 2 and informant 4 below: *"Our approach has focused on upskilling and training programs. This is helping us bridge the skill gap and manage" Informant 2*

"We're addressing challenges through training programs to build the necessary skills within our team" Informant 4

Informant 2 said that their company has focused on training and skills development programs. This program is designed to bridge the skills gap and ensure that employees have the expertise needed to support RPA implementation. With this upskilling, the company hopes that employees will not only be able to understand the new technology but also be ready to adapt to the changes in work processes that occur.

In line with this, Informant 4 added that their company has also addressed the challenges of RPA implementation through intensive training tailored to the needs of the team. By providing the necessary knowledge and skills, the company aims to strengthen the internal capabilities needed for RPA to be implemented optimally. This training not only helps employees understand the technology, but also increases their confidence in using RPA to complete financial tasks more effectively.

Through this upskilling approach, these companies demonstrate the importance of investing in human capital development as one of the keys to successful RPA implementation. By focusing on training programs, companies can create an adaptive and collaborative work environment, where RPA technology can be well integrated into financial processes.

b. Opportunities for RPA Implementation in Financial Operations in Indonesia

The application of RPA to financial operations in Indonesia opens up strategic opportunities to improve the efficiency and effectiveness of financial processes. Accurate and fast financial management is crucial to maintain healthy cash flow, minimize delays, and maximize profitability. With RPA, companies can automate repetitive and time-consuming financial tasks, such as invoice processing, bank reconciliation, and payment management, which are usually prone to manual errors. These opportunities are in line with the explanations of the following informants:

"RPA has the potential to enhance operational efficiency, which could make our processes leaner and more productive" Informant 1

"We see RPA as a tool to improve data accuracy, making our financial reports more reliable" Informant 2

Given this strategic opportunity, some companies plan to expand the use of RPA to other processes in the finance function. After the initial implementation of RPA stabilizes, some

companies see the potential to apply RPA to procurement and vendor management processes, hoping that this expansion will further streamline overall financial operations. In addition, expense management is also an area being considered for RPA expansion, where automation is expected to improve the accuracy and speed of processes, and help companies manage resources more effectively. By implementing RPA in these areas, the company hopes to achieve greater efficiency, reduce manual errors, and allow the finance team to focus on strategic roles that support business growth. This is in line with the following interview results:
"*We see potential in expanding RPA into procurement and vendor management once we stabilize the current implementations. This expansion could further streamline our finance operations*" *Informant 4*
"Expense management is another area we're considering for RPA expansion. Automating this process could improve accuracy and speed, helping us manage our resources more effectively" Informant 5

The implementation of RPA is expected to provide the greatest benefit in improving the company's operational efficiency. By automating various routine tasks, RPA enables companies to reduce processing time and minimize manual errors that often occur in financial operations. The efficiency achieved through RPA not only supports smooth work processes, but also provides space for teams to focus more on value-added activities and strategic decision-making. This is in accordance with the statements of several informants, namely:
"Operational efficiency is the area where we expect to see the most benefits. By automating repetitive tasks, we can free up resources and focus on more strategic initiatives that add value to the business" Informant 1
"Operational efficiency stands out as the primary area of benefit. RPA will enable us to reduce manual work, speed up processes, and allow our team to work more" Informant 3
"The biggest impact we expect is in operational efficiency. Automating routine tasks will allow our team to focus on higher-level analysis and decision-making, which is more beneficial for our long-term goals" Informant 5

Based on the interviews, Informant 1 and Informant 3 emphasized that operational efficiency is the main benefit expected from implementing RPA. By automating repetitive tasks, companies can allocate resources from manual work to initiatives that are more strategic and valuable to the business. This not only saves time and costs but also increases productivity and speeds up processes, thus improving responsiveness to business needs.
Meanwhile, Informant 5 highlighted that the biggest impact of RPA is the ability for teams to be free from routine tasks and focus on more strategic analysis and decision-making. This automation allows the team to engage in high-value activities that support the company's long-term goals and competitiveness in the market.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

This research found that the application of RPA to Indonesian financial operations shows great potential to improve efficiency and accuracy in processes such as invoice processing, data reconciliation, and financial reporting. These RPA implementations allow companies to automate tasks that are time-consuming and prone to human error, leading to increased productivity and reduced operational costs.
The effectiveness of RPA implementation in financial operations in Indonesia can be seen from the comparison between the process before and after RPA implementation. Previously, manual

processes performed by finance staff were time-consuming and error-prone. With the implementation of RPA, the speed and accuracy in performing work increased significantly, which in turn increased efficiency and reduced the cost of errors, which is even predicted to reduce operational costs by up to 30%. The automated processes performed by RPA also enable more timely and transparent financial reports.

However, in its implementation, there are challenges that need to be overcome. One of the main challenges is resistance to change from employees who are worried about losing their jobs or not being able to adapt to the new technology. In addition, companies also face difficulties in standardizing and simplifying existing financial processes before RPA can be effectively implemented. On the other hand, great opportunities present themselves in the form of cost savings, reduced manual workload, and the potential to improve accuracy in financial reporting. Companies that can manage change well and involve employees in the technology adoption process will be better able to capitalize on the full potential of RPA.

Recommendations

Based on the results of this study, to maximize the implementation of RPA in the finance sector in Indonesia, companies need to focus on improving employees' technical and financial skills through structured training. This training should include an understanding of RPA and how to manage changes in business processes that will be automated. In addition, companies need to involve employees in the planning and implementation of RPA to manage resistance to change and increase adoption of new technologies.

Companies should also conduct a rigorous evaluation of costs and benefits to ensure RPA investments provide long-term returns. Given the high cost of implementation, RPA implementation should be done in stages, starting with the areas that have the greatest potential for savings. In addition, it is important to simplify and standardize existing business processes before adopting RPA, so that this technology can be applied effectively and provide optimal results in improving operational efficiency and financial report quality.

REFERENCES

Alvindi, V., Dewi, F. K. S., & Julianto, E. (2022). Pembangunan Robotic Process Automation pada Sistem AOL (Studi Kasus: Astra Credit Companies). *Jurnal Informatika Atma Jogja*, *3*(1), 1–8. https://doi.org/10.24002/jiaj.v3i1.5733

Brigham, E. F., & Ehrhardt, M. C. (2008). *Financial Management Theory and Practice* (12th ed.). Thomson Higher Education.

Candratio, E., Puti Harita, M., Hartanto, A. D., & Sebira Hermawan, M. (2023). Adoption of Robotic Process Automation in Auditing Process in Metropolitan Indonesia: A Qualitative Approach. *Jurnal Teknik Informatika Dan Sistem Informasi*, *10*(2), 21–28. http://jurnal.mdp.ac.id

Geyer-Klingeberg, J., Nakladal, J., Baldauf, F., & Veit, F. (2018). Process mining and Robotic process automation: A perfect match. *CEUR Workshop Proceedings*, *2196*, 124–131.

Harrast, S. A. (2020). Robotic process automation in accounting systems. *Journal of Corporate Accounting and Finance*, *31*(4), 209–213. https://doi.org/10.1002/jcaf.22457

Hidayanti, E., Kunrat, K. A., & Ikram, S. (2022). Implementation of Robotic Process Automation in Public Sector Goods and Services e-Procurement Audit. *Khazanah Sosial*, *4*(4), 662–677. https://doi.org/10.15575/ks.v4i3.20444

Lawrence Damilare Oyeniyi, Chinonye Esther Ugochukwu, & Noluthando Zamanjomane Mhlongo. (2024). Robotic process automation in routine accounting tasks: A review and efficiency analysis. *World Journal of Advanced Research and Reviews*, *22*(1), 695–711. https://doi.org/10.30574/wjarr.2024.22.1.1156

Naidu, C. V. A., & Vedavathi, K. (2019). Cognitive modeling: Role of artificial intelligence. *International Journal of Innovative Technology and Exploring Engineering*, *8*(6), 1624–1629.

Otaru, S., Zubairu, U., Bikefe, G., Mustapha, Y., Araga, S., & Ayorinde, A. (2020). Robotic Process Automation and effectiveness of financial decisions: A critical review. *Journal of Innovation in Business and Economics*, *4*(1), 21–30. http://ejournal.umm.ac.id/index.php/jibe

Pramod, D. (2022). Robotic process automation for industry: adoption status, benefits, challenges and research agenda. *Benchmarking*, *29*(5), 1562–1586. https://doi.org/10.1108/BIJ-01-2021-0033

Rane, N. L., Choudhary, S. P., & Rane, J. (2024). Artificial Intelligence-driven corporate finance: enhancing efficiency and decision-making through machine learning, natural language processing, and robotic process automation in corporate governance and sustainability. *Studies in Economics and Business Relations*, *5*(2), 1–22. https://doi.org/10.48185/sebr.v5i2.1050

Srivastava, N., & Gopal, V. (2020). *To Rebound from the Downturn, Finance Needs to Accelerate Its Automation Initiatives*. Tata Consultancy Services.

Syafarin Mokoginta, M. N., Juminawati, S., & Elisabeth, C. R. (2024). Analysis of the Role of RPA (Robotic Process Automation) Technology in Improving the Efficiency of Accounting Processes in Indonesia. *Jurnal Aktiva : Riset Akuntansi Dan Keuangan*, *6*(1), 17–24. https://doi.org/10.52005/aktiva.v6i1.220

Thi Thuy, D. (2023). Literature review on Factors Affecting Financial Performance of firms. *International Journal of Business and Management Invention (IJBMI) ISSN*, *12*(6), 181–188. https://doi.org/10.35629/8028-1206181188

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 choosen 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.

Prof. (Dr.) Pranav Mishra
Director
Lingaya's Lalita Devi Institute of Management & Sciences
(NAAC Accredited Grade "A+" College, Affiliated to GGSIP University, Govt of NCT of Delhi, Recognised by NCTE)

NCM Publishing House Certificate

Doğrulama Kodu : f70b63cb-4c05-4132-bec8-804f1f8a5950

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI

SERTİFİKA

FİRMA ADI : NCM MİMARLIK MÜHENDİSLİK İNŞ. SAN. TAAH. TİC. LTD. ŞTİ.

ADRESİ : ESENTEPE MAHALLESİ GÜVERCİN(160) SOKAK ŞENOCAK APARTMANI 2A NİLÜFER/BURSA NİLÜFER / BURSA

VERGİ DAİRESİ : NİLÜFER VERGİ DAİRESİ MÜD.

VERGİ NUMARASI : 6270313993

FAALİYET ALANI : DAĞITIM (KİTAP, MÜZİK VB), İTHALAT, SATIŞ, YAYINEVİ

VERİLİŞ NEDENİ - TARİHİ : Yeni Sertifika Başvurusu - 30.07.2021

İş bu sertifika açık unvan ve adresi yazılı olan işyeri, 5846 sayılı Fikir ve Sanat Eserleri kanunu uyarınca yukarıda belirlenen alan/alanlara ilişkin faaliyet gösterir.

e-imzalıdır

SERTİFİKA NO
51898

GEÇERLİLİK TARİHİ
30.07.2021 - 30.07.2025

Dr. Kamil ÖZER
Vali a.
İl Müdürü