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## Book

Sustainable Future: Trends, Strategies and Development: Proceedings of the 3rd Conference on Managing Digital Industry, Technology and Entrepreneurship, (CoMDITE 2022), Bandung, Indonesia, 24 May 2022

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# **SUSTAINABLE FUTURE: TRENDS, STRATEGIES AND DEVELOPMENT**

Edited by  
Siska Noviaristanti and Ong Hway Boon



## SUSTAINABLE FUTURE: TRENDS, STRATEGIES AND DEVELOPMENT

The book contains a selection of papers that were presented at the 3rd Conference in Managing Digital Industry, Technology and Entrepreneurship (3rd CoMDITE) with the theme: Sustainable Future: Trends, Strategies and Development. The Millennium Development Goals, continued as Sustainability Development Goals (SDGs), are effective instruments and have, in recent years, brought many positive changes in numerous countries around the world. Most notably, it has fundamentally changed our way of approaching the tangled set of challenges: States today undertake to achieve concrete development goals; transparency and accountability to citizens and the global public has become a matter of course; and cooperation between the political, economic and societal spheres is no longer questioned. However, in addition to the global pandemic situation it has challenged the business world to develop an outstanding strategy to face extreme uncertainty. Using digital technology and its advancement is believed to be one of the main keys for taking up this challenge.

The 3rd Conference in Managing Digital Industry, Technology and Entrepreneurship (the 3rd CoMDITE) has brought forward discussions on implementation of digital technology in strategic, operation, finance, marketing, human resources management, and entrepreneurship around sustainable future issues.



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BANDUNG, INDONESIA, 24 MAY 2022

# Sustainable Future: Trends, Strategies and Development

*Edited by*

Siska Noviaristanti

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## Preface from chair committee CoMDITE 2022

Assalamu'alaikum Wr. Wb.

Greetings from MM FEB Telkom University

As a World-Class University, Telkom University is contributing to knowledge development by conducting a conference with all papers published in the proceedings. This proceedings compiles papers from presenters at the Conference on Managing Digital Industry, Technology and Entrepreneurship 2022 (CoMDITE 2022) which was held on May 24th, 2022.

This conference had two main sessions, i.e. a plenary session and a parallel session with 82 presenters. The plenary session consisted of a keynote lecture that was delivered by Yana Mulyana, Mayor of Bandung, followed by a panel discussion which featured some experts such as the invited speakers, Dr. Rose Marie Azzopardi from the University of Malta, Prof. Ir. Dr. Hairul Azhar Bin Abdul Rashid from Multimedia University Malaysia, Dr. Ir. Ratna Lindawati Lubis and Dr. Shaista Wasiuzzaman from Universiti Teknologi Brunei.

The 77 papers are from various universities and higher educational institutions from Indonesia and Malaysia.

CoMDITE 2022 was successfully held in collaboration with Magister of Management Program Telkom University (MM Tel-U) and Multimedia University (MMU). This event is supported by Telkomsel, Angkasa Pura II, Telkom Indonesia, Edelweiss Hospital and MM Universitas Sriwijaya.

On behalf of the committee, I would like to express our gratitude to all distinguished speakers, authors, presenters, participants and sponsors for contributing to the successful event of CoMDITE 2022. I hope this proceeding will contribute to the development and improvement of digital industry knowledge & practices.

Best regards,

Siska Noviaristanti, Ph.D

*Head of Study Program, Telkom University, Bandung, Indonesia*



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## Editors

Siska Noviaristanti – Telkom University, Indonesia

Siska Noviaristanti is a lecturer at the Faculty of Economics and Business, Telkom University Indonesia. Since 2018 she is also the head of the Master of Management Program at Telkom University. Her research interest is in the innovation management area, especially digital transformation, start-up strategy, digital maturity models, scenario planning and innovation of ecosystems. She is experienced as editor in a number of proceedings published by CRC Press.

Ong Hway Boon – Multimedia University, Malaysia

Ong Hway Boon is an Associate Professor at the Faculty of Management, Multimedia University, Cyberjaya campus, Malaysia. Her research interests reflect her past working experience in the banking industry and how development in the financial system has affected households and businesses locally and internationally. She has published more than 30 internationally peer-reviewed journal articles. Her research is focused on applied research in payment systems, financial intermediation and their impact on households and businesses. She is also keen in studying how the change in population structure has affected households' payment patterns and lifestyles. Dr Ong is currently the Chairperson for the Research Centre of Business Excellence and the Chief Editor of the International Journal of Management, Finance and Accounting for MMU Press.



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## Background

CoMDITE is an annual conference organized by the Master in Management Program, School of Economic and Business, and jointly hosted by the Faculty of Management MMU Malaysia. The conference has taken place in Bandung on the 24th of May 2022. This conference reflects the achievements, challenges and developments of the field Managing Digital industry through academic paper presentations, industry engagement, academic keynotes, and discussions on key themes. The conference aims to provide all participants with opportunities to hear, think and contribute creatively to the continuing growth and expansion of the field and develop social networks among participants.

The 2022 conference theme is Sustainable Future: Trends, Strategies and Development and welcomes all authors that are interested in organization studies, marketing, management, digital technology, finance, human resources, creativity, art and design. This includes research on, but is not limited to, issues that are listed as the themes and areas for the conference below.

### Objectives

The CoMDITE 2022 conference aims to build relationships between academics, practitioners, and governments as well as being a platform for academics and researchers to present cutting-edge research findings and to exchange insightful perspectives with industry practitioners. In addition, CoMDITE 2022 also provides opportunities for undergraduate and postgraduate students to present their proposals so that they are modern-minded and uphold good values and culture, as well as opportunities for industry and policy makers to get feedback on research ideas, and findings to develop a business curriculum.



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## Acknowledgements

We would like to express our thanks to the conference committee for their work, all sponsors of this event, Telkomsel, Angkasa Pura II, Telkom Indonesia, Edelweiss Hospital and MM Universitas Sriwijaya.

We also acknowledge the authors for their contribution and we would like to address a warm appreciation to the members of the scientific committee for their participation and expertise in the preparation of the conference. We also thank all people who agreed to play the role of moderator and session chair. Without their support the conference could not have been the success that it was. Hopefully, the success of the conference will continue next year.



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# Analyzing the effect of business process management on business process performance and organizational performance at BPJS Kesehatan

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**ABSTRACT:** BPJS Kesehatan, an institution appointed by the Indonesian Government implementing National Health Insurance Program, needs to implement business process management to run effective business processes to achieve performance targets. This study aims to analyze the effect of business process management on business process performance and organizational performance by quantitatively distributing questionnaires to 71 BPJS Kesehatan Branch Offices spread over 29 provinces in Indonesia. The Partial Least Square-Structural Equation Modeling approach was employed to process the data, and the measurement items were adopted from previous studies. The results indicated that business process management had a significant and positive effect on organizational performance through the mediation of business process performance. This study is expected to help BPJS Kesehatan managers to better manage business process management, and recommend the insurance industry improve business process management to achieve higher firm performances.

**Keywords:** business process management, business process performance, organizational performance, BPJS Kesehatan.

## 1 INTRODUCTION

Business Process Management (BPM) is a management science discipline focusing on improving organizational performance via continuous improvement and control of the management process (Dallas & Wynn 2014). BPM is used in the service business to obtain a long-term competitive advantage (Harmon 2010; Sohail & Hoong 2003; Vergidis et al. 2008). Several studies have looked into the relationship between organizational performance and BPM. In addition, Wong et al. (2013) link BPM to improved organizational performance. Top management's commitment to regulating important procedures and empowering individuals to handle their work has been shown to boost organizational performance. Moreover, process alignment facilitates cross-company collaboration and helps achieve common goals.

According to Elbashir et al. (2008) in both service and non-service sectors, there is a considerable association between business process performance and organizational performance. However, the non-service sector shows a far stronger correlation between business process performance and organizational performance.

This study aims to analyze the effect of business process management on business process performance and organizational performance. BPJS Kesehatan (Social Security Administrator for Health) was chosen as the object of this study because BPJS Kesehatan as the appointed government agency to implement the National Health Insurance program needs to carry out business process management to be able to run effective business processes in order to achieve performance targets.

As an organization that provides insurance services, BPJS Kesehatan is also an interesting subject for this study.

## 2 METHODOLOGY

This study was conducted quantitatively, in which a set of questionnaires was developed to measure the relevant framework constructs. The contents of the questionnaire are based on a literature review (Elbashir et al. 2008; Wong et al. 2013), with modifications gradually made to suit the purpose of this study. This study employed an organizational analysis unit, with the unit of observation being BPJS Kesehatan Branch Offices throughout Indonesia, amounting to 127 branch offices. The respondents in this study were senior managers and managers who were occupying the position of Branch Head of BPJS Kesehatan. The data processing included descriptive statistical processing and partial-least square structural equation modeling (PLS-SEM) processing. Descriptive statistical processing aims to determine the distribution of the profiles of respondents involved in the study and the responses to each indicator in the study. PLS-SEM uses proxies to represent the constructs of interest, which are weighted composites of indicator variables for a particular construct. For this reason, PLS-SEM constitutes a composite-based approach to SEM, which relaxes the strong assumptions of CB-SEM that all the covariation between sets of indicators is explained by a common factor (Hair et al. 2017). The first step carried out in this research was the pretest questionnaires with face validation. The next step was data collection, path model specification using SmartPLS, followed by data examination. Next was the evaluation of the measurement model, followed by the evaluation of the structural model, and finally hypothesis testing.

## 3 RESULTS

The data collection resulted in 71 respondent data from the population, implying a response rate of 55.91%. All data was completely filled in and without any missing data. Respondents comprised 59.15% males and 40.85% females. In terms of age, respondents in this study were dominated by branch managers aged between 40–49 years old, amounting to 63.38%. In terms of education, bachelor degree dominated the respondent's education with 66.20%. Respondents with more than 15 years of work experience were the majority of the respondents, amounting to 57.75%. Regarding experience as a branch head, 67.61% of respondents had more than three years of experience. At the time of filling out the questionnaire, respondents were working in 29 provinces throughout Indonesia. The convergent validity appeared satisfactory with all the factor loadings greater than 0.4 (Igbaria et al. 1997), composite reliability greater than 0.7, and average variance extracted greater than 0.5. The discriminant validity was examined using the Heterotrait-Monotrait (HTMT) with all the HTMT values less than HTMT 0.85 (Hair et al. 2017).

The results show that 54.4% of the total variation in organizational performance variables was explained by the model. In testing the path coefficients and hypotheses, it was revealed that business process management had no significant effect on organizational performance. Following a direct hypothesis testing, it appeared that the relationship between business process management and organizational performance was not significant. However, the testing results of an indirect effect of the relationship between business process management and organizational performance with business process performance as the mediating variable showed a positive and significant effect. Hence, it can be inferred that the type of mediation was full mediation.

Business process performance is a significant variable in the relationship between business process management and organizational performance at BPJS Kesehatan. BPJS Kesehatan management needs to formulate measurable business process performance indicators to be an intermediate value to organizational performance. Furthermore, business process performance needs to be evaluated periodically to achieve optimal organizational performance at the end of the evaluation period.

The highest outer loading value indicates that this dimension is the strongest dimension that can reflect each of its latent variables. The highest outer loading value on the business process management variable is the manager's commitment dimension. In the context of BPJS Kesehatan, the Manager's role as a leader in the Branch Office is fundamental to encourage the implementation and evaluation of business processes periodically to achieve the best performance at the Branch Office. This is in line with research conducted by Tichy & Cohen (1997), where leadership is a key element for organizational success and results in greater productivity and competitive performance.

Business process management has been facilitated with a business process support application called *Bispro*. This application is helpful for every BPJS Kesehatan employee to find out about changes made in the business processes. BPJS Kesehatan management needs to pay attention to this since it is in line with the findings of this study where the employee involvement dimension was also one of the dimensions with a high outer loading value, in addition to manager commitment. Employees need to be given space to provide input for process improvement, and the management needs to provide a quick response to review the proposed business process improvements to improve performance achievements.

In the business process performance variable, the internal efficiency process benefit dimension held the highest outer loading. This is in line with research by Hammer (2007) and Küng & Hagen (2007) where business management can improve process quality. The achievement of the contribution income target was the attribute with the highest outer loading on the organizational performance variable, indicating that contribution income is an important key in the continuity of service industry operations, especially in the health insurance sector. This is in line with research conducted by Carrin & James (2005), which states that there are three main working indicators in the implementation of social health insurance, namely: contribution income, risk collection, and purchases.

#### 4 CONCLUSION

The findings have shown that business process management has no significant effect on organizational performance at BPJS Kesehatan Branch Offices. Although business process management did not have a direct significant effect on organizational performance, the indirect effect of the relationship between business process management and organizational performance by mediating business process performance, had a positive and significant relationship. Business process management had a positive and significant effect on business process performance at the BPJS Kesehatan Branch Office. Additionally, business process performance had a positive and significant effect on organizational performance at BPJS Kesehatan Branch Offices. This study provides an insight for managers, as Branch Office Heads play an important role in the consistent implementation of Business Process Management, which can affect the performance of branch offices by conducting periodic evaluations of the business process performance. This study also provides managerial implications for BPJS Kesehatan management that achieving the target of contribution income is something that needs to be the focus of every branch head to support the overall performance of BPJS Kesehatan. However, this study has limitations since it was conducted in a cross-sectional manner, which was carried out in the period from February to March 2022, and the questionnaire used had been adapted and adjusted for the study context at BPJS Kesehatan, hence readjustment will be required in further research.

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# The impact of career adaptability and occupational future time perspective on career planning and its implications towards turnover intention: Evidence from Indonesia's banking sector

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**ABSTRACT:** The employee turnover rate in Indonesia's banking sector was relatively high, exceeding the ideal level of 10%, while the rate of salary increase was the lowest compared to other sectors. Previous surveys and studies revealed that turnover intention is affected by career growth opportunities, which can be accommodated by career planning and occupational future time perspective (OFTP), therefore can affect personal actions. This study aimed at determining the relationship between career planning's relevant factors such as career adaptability based on career construction theory and the career planning itself, and the implications for turnover intention. This relationship will be mediated by occupational future time perspective (OFTP) as a construction mechanism. This study employed the quantity approach and Structural Equation Modelling (SEM) to test the hypotheses. Survey questionnaires were distributed and filled out by 176 full-time employees in the banking sector. The results showed that career adaptability positively and significantly impacted OFTP and had indirect significant positive impacts on career planning mediated by OFTP, which also positively and significantly impacted career planning. Both career planning and OFTP negatively and significantly impact employees' intention to turn over. Moreover, career planning also mediated the indirect and significant negative impacts of OFTP on turnover intention.

**Keywords:** turnover intention, career planning, occupational future time perspective, career adaptability, banking industry

## 1 INTRODUCTION

Based on a survey by Michael Page Indonesia, 84% of employees planned to resign in the next six months in 2022, with one of the highest turnover intention rate in financial services (Michael Page Indonesia 2022). The average rate for other industries was 7%, where the ideal company turnover intention rate is less than 10% (Mercer 2020; PwC Indonesia 2014; Ridlo 2016; Tampi 2010). High turnover intention rate harms the organization's image, reflecting lack of company stability, affecting hiring and training costs (Gore et al. 2006; Hee & Ann 2019; Tishman et al. 2015; Triyati 2002). Literature highlights that banks are facing the problem of employee turnover intention (Irawan et al. 2020).

In the banking and financial sector, 70% of employees considered remuneration and benefits as the top priority in choosing a job. On the other hand, this sector also had the lowest level of annual salary increase and bonus compared to other sectors, amounting to only 3.2% (Michael Page Indonesia 2021). The three main reasons driving employees to resign are competitive salaries, relationships with superiors, and the absence of clear career paths and guarantees (Mercer 2020; Michael Page Indonesia 2021). Career planning for employees can be initiated by the company, which not only provides them with the opportunity, but also helps them to rekindle their excitement in the workplace, and prevent turnover intention (Lin 2017). Career Construction Theory outlines how people build their career (Savickas 2013). In personal career planning, each individual is

expected to take on long-term responsibilities (Gubler et al. 2014) by showing a proactive attitude and adaptability which are considered essential for career success (Rudolph et al. 2017). OFTP is the reflection of employees' perceptions of the amount of time and opportunities until retirement (Rudolph et al. 2018). Thus, OFTP is associated with lower turnover intention (Bal et al. 2015). On the basis of the aforementioned facts and theories, this study aims at determining relationships and gathering managerial implications on how career planning affects the employee turnover intention by exploring behavioral aspects (career adaptability) and occupational future time perspective (OFTP) to guide the career planning itself.

## 2 METHODOLOGY

The quantitative research methodology was employed to measure the data and generalize the conclusions from the sample to the population of interest (Kahle & Malhotra 2016). Google forms was utilized to collect data from full-time employees in banking sector in Indonesia. This study also devised SEM PLS to analyze the relationships simultaneously, which allows estimation of complex cause-effect relationships in path models with latent variables. Turnover intention was measured in three items by using a scale of Michaels & Spector (1982). Career planning was measured in nine items by using a scale developed by Salleh, Omar, Aburumman, & Almhairat (2020), while OFTP was measured by six-items scale developed by Zacher and Frese (2009). Lastly, career adaptability was measured with the Career Adaptabilities Scale designed by Savickas & Porfeli (2012), including the four six-item subscales.

## 3 RESULTS

This survey was completed by 176 people. Most respondents were between 21 and 30 years of age (112; 64%) and female (103; 59%). Most respondents had a bachelor degree (150; 85%) and most had worked for less than 5 years (89, 51%). For the type of bank, most respondents were working at government-owned banks (98, 56%). The measurement model was tested using convergent and discriminant validity. In terms of convergent validity, all of the items had loadings ranging from 0.54 to 0.96. According to Hair et al. (2020) estimates of factor loading should be more than 0.5. As a result, there is no requirement that your loading estimations be higher than 0.7, or that items with a value larger than 0.70 be maintained (Hair et al. 2016). Meanwhile, all variables had Cronbach's Alpha and composite reliability above 0.90, exceeded the specified threshold value of 0.70 for both criteria. Based on the SRMR value or Standardized Root Mean Square, the value was  $0.067 < 0.10$ , meaning the model fits the data (Hu & Bentler 1999). Furthermore, the average variance retrieved values for all variables exceeded the stated threshold value of 0.50. (Joseph F. Hair et al. 2016) or accurate and trustworthy. The second stage of validity examination is the discriminant validity test by looking at the Fornell – Larcker (Henseler et al. 2016), and the result showed the square root of the extracted average variance for all variables was greater than inter-construct correlations.

To test each hypothesis, this study used bootstrapping techniques inherent in Smart PLS (version 3.3.8). The outcomes of the hypothesis testing all of the hypothesis were supported with significant value. H1 was supported that career adaptability positively and significantly OFTP, served as a psychological resource for managing job-related tasks, and it is likely to lengthen workers' ideas about their remaining future work time, boosting their control, concern, interest, and confidence for further career possibilities. H2 was supported that OFTP positively and significantly career planning. Higher OFTP scores meaning they feel confidence about their future and excited to create their own career planning in their own company. The findings also revealed that H3 was supported an indirect association between career adaptability and career planning, as mediated by OFTP, or positivity about the amount of time and possibilities remaining in their working careers. H4 was supported that OFTP negatively and significantly turnover intention. In order to be successful in their jobs, all employees want the opportunity to fully utilize their abilities, knowledge, and skills. As with OFTP, lower scores indicate that they do not believe they have any prospects left in

the organization. H5 was also supported that career planning negatively and significantly turnover intention. Both OFTP and career planning elicited good emotions, which resulted in increased commitment or a decrease in employees' intention to leave. H6 was supported that career planning mediates the negative and significant relationship between OFTP and employee intention to leave. OFTP appears to enhance career planning, which reduces turnover intention and increases the likelihood of greater retention. Career planning entails examining career goals in light of current resources and constraints, which will motivate a person to either reengage in established career goals or pursue new career goals. The findings are consistent with prior research. Career Planning as previous studies researched, mediates the relationship between various variables including retention or turnover intention. The model path and the complete result are displayed in Appendix.

#### 4 CONCLUSION

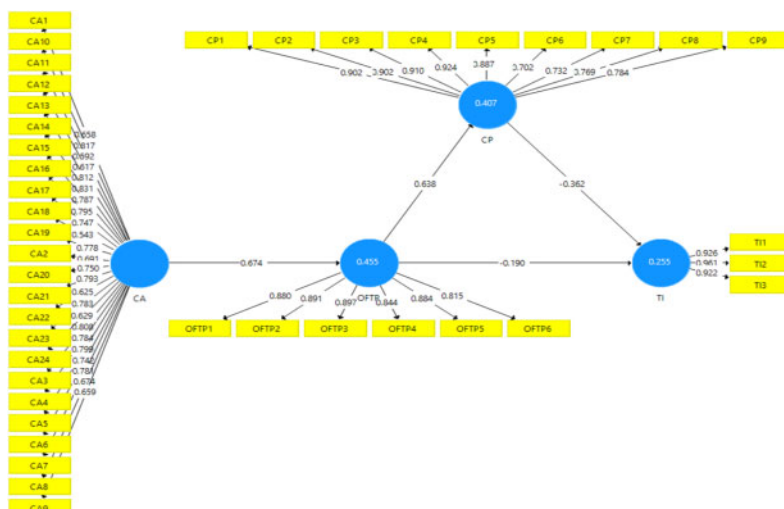
In the scale of Indonesian banking industry employees, this study helps to understand the relationship between career adaptability, OFTP, career planning, and turnover intention. Employees' career adaptability has a favorable impact on their perception on their time and opportunities for future careers (OFTP), as well as their attempts to actively design a career plan, according to the findings. Turnover intentions were predicted negatively by both OFTP and career planning. The practical implications necessitate a collaborative effort from employees' career adaptability and OFTP, as well as encouragement from employers, to provide career planning for the purpose of controlling employee turnover intention, which was one of the human resource issues faced by all industries, including the Indonesian banking industry. Overall, a greater knowledge of the relationship between career planning and turnover intentions may aid firms in developing ways to assist employees in managing their career trajectories, hence lowering turnover intentions.

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## APPENDIX – HYPOTHESIS TESTING RESULT FRAMEWORK





## Mediation role of innovativeness on the relation of digital competence and digital literacy to academic performance

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**ABSTRACT:** The Fourth Industrial Revolution has created opportunities in social and business contexts while demanding new personal competencies. This demand has motivated the growth of an education program focused on digital competence and digital literacy, as a part of wider education perspective shift called Education 4.0. The proliferation of digital technology has also influenced the way students do the process of learning, doing assignments, and nurturing creativities. This research aims to explore the influences of digital competence and digital literacy on academic performance, with special attention to the role of inovativeness as a mediator between digital competence and academic performance, and between digital literacy and academic performance.

### 1 INTRODUCTION

Industry 4.0 has driven digital transformation to business and everyday life. New business models rely on digitally-enabled collaboration and ecosystems. New production models, with better productivity and efficiency, need new digital capabilities. New marketing and business communications need digital competencies to understand better the behaviours of customers. Those things need a workforce reskilling and workplaces reshaping, which in turn requires a paradigm shift in education, named Education 4.0.

Education 4.0 puts attention on the development of new competencies and capabilities related to the world change facilitated by automation and digitalization (Hong & Ma 2020), while intensifying digital methods in learning. Education 4.0 focuses on acquiring competencies rather than knowledge, and the application of skills and knowledge on real-world problems as well as the transition of the role of the teacher to a mentor (Goldin *et al.* 2022). It introduces digital literacy and digital competency in the process of learning, including digital exploration, collaboration, *etc.* COVID-19 pandemic has abruptly transformed the way schools carry out learning process from class to digital media. It is an opportunity to implement digitally-enhanced education system, but it needs a better understanding on the way digitalisation in education may influence the academic performance. Pagani *et al.* (2016) reported that digital competence has direct and positive impact in academic performance of the students. Leung and Lee (2015) and Pagani *et al.* (2016) showed that young people with better digital literacy (those who are easier to find, explore, and access information sources; and those who have knowledge in creating information) perform better in overall academic competence.

It is necessary to carry out a research to measure the real relation between digital competence and academic performance, between digital literacy and academic performance, and between innovativeness and academic performance. It is also necessary to measure whether innovativeness mediates the relation between digital competence and academic performance, and between digital literacy and academic performance.

### 1.1 *Digital competence*

Competences are more than just knowledge and skills — they imply the ability to overcome complex situations by smartly combining psychological resources, skills, and attitudes (Canal, 2022). Ferrari (2013) defined Digital Competence as the confident, critical and creative use of digital technologies to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society. UNESCO outlines three levels of digital competences: functional skills (access to technology), generic skills, and higher level skills (professional ICT competences, including programming and innovation). In this research, Digital Competence is defined as the ability to manage and deploy various kinds of digital resources (knowledge and information, technology and services, culture and attitude) to solve complex and dynamic issues.

### 1.2 *Digital literacy*

Digital literacy refers to the abilities related to the use of ICTs to discover, assess, make, and communicate information, using intellectual and technical talents (Ala 2011). Lei (2021) stated that students with greater ICT literacy might use its component skills to learn more or use their familiarity in ICT-mediated activities to learn more. By accessing more information via ICT, students can use them as building blocks to learn more. In this research, Digital Literacy is defined as the ability to gain and master the information, knowledge, technology, and cultures related to digital technology.

### 1.3 *Academic performance*

O'Connor & Paunonen (2007) stated that academic performance refers to various terms related to the learning success. Academic performance is measured by self-reported performance indications, including students' perception on their ability in learning, doing academic tasks, and their total academic performance (Chang et al. 2019; El Ansari et al. 2020; Escalante Mateos et al. 2021; Han & Yi 2019; Martin et al. 2005). In this research, Academic Performance is defined as a combination of measured score and perceived performance related to the result of formal educational process (learning and doing educational tasks) and assessments.

### 1.4 *Innovativeness*

Innovativeness requires at least two dimensions: (a) In ideation dimension, innovativeness relates to orientation, trends, and culture. It refers to openness to new ideas as an aspect of corporate culture. (b) In execution dimension, innovativeness relates to the capacity to act in innovative ways; which in turn related to the the organisational involvement in the process of introducing new processes, products, or ideas (Hurley & Hult 1998; Hult et al. 2004; Bouwman 2019).

Kartajaya & Nasution (2018) proposed that there are two aspects related to innovation management: (a) creativity, which is the ability to develop new ideas using skills, flexible & imaginative thinking, and internal motivation; and (b) risk taking, which ability to endorse new strategic ideas with measurable risk management.

In this research, Innovativeness is defined as the the ability or potential to ideate and execute personal or organisational transformations towards improvement and enhancement of products or processes.

## 2 LITERATURE REVIEW

This research highly emphasise the positive effect of digital competence of students to the academic learning process and its performance in formal education institutions (Elstad & Christophersen 2017; Martin & Tyner 2012; Nyikes 2018). We propose that:

**P1:** Digital Competence has a direct and positive correlation with Academic Performance  
Amiri (2009) and Abbas Rasool (2019) report the positive effect of digital literacy on the students' academic performance. We propose that:

**P2:** Digital Literacy has a direct and positive correlation with Academic Performance

Marchiori (2022) showed that the innovations capability leads the better performance. We propose that:

**P3:** Innovativeness has a direct and positive correlation with Academic Performance

Neumeyer (2021) stated that the next stage in technology and digital literacy is transformation stage that drives — among others — the design of innovative solutions. Digital literacy could be analysed in some levels. Higher literacy level will drive to innovation creation. We propose that:

**P4:** Digital Competence has a direct and positive correlation with Innovativeness

Higher organisational performance results from the innovation capability of the organisation. Through innovation, the organisations explores the solutions for their issues and challenge, while opening the way for its success and sustainability (Hult et al., 2004). We propose that:

**P5:** Digital Literacy has a direct and positive correlation with Innovativeness.

### 3 CONCEPTUAL FRAMEWORK

Figure 1 shows the research framework, which includes the independent variables (digital competence and digital literacy), the dependent variable (academic performance) and the intervening variable (innovativeness).

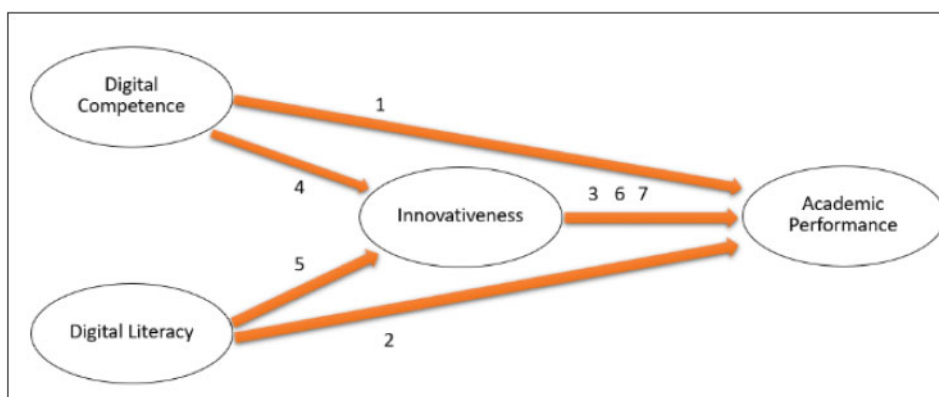


Figure 1. Conceptual framework.

### 4 CONCLUSION

This research has explored some literatures to define some academic footholds. Based on the discussion described in the previous chapter, the following conclusions are obtained:

1. Theoretical reviews have shown that Digital Competence, Digital Literacy, and Innovativeness have direct and positive correlations with Academic Performance.
2. Digital Competence and Digital Literacy also have direct and positive correlations with Innovativeness.
3. Innovativeness has mediation roles between Digital Competence and Academic Performance; and Digital Literacy and Academic Performance.

4. This conclusion could be treated as an academic foothold for the next research stage, i.e. the empirical measurement. It should also be noted that the aspects of competence and innovativeness may have cultural and contextual variation and uniqueness; so the empirical measurement could be carried out in different cultural backgrounds.
5. It is recommended for education and school management — in relation to inevitable cultural and social transformation enhanced by digital technology, and accelerating social change driven by the current pandemic — to design an education structure in which the aspects of digital literacy, digital competence, and innovation capability, are developed, improved, and optimally utilised.

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## Transformational leadership, CSR, and job performance: A mediation analysis in Indonesian architecture firms

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**ABSTRACT:** This article presents the empirical results of the relationship between transformational leadership and job performance, mediated by CSR in the context of Indonesian architectural design firms. Purposive sampling was employed and 118 samples were gathered through an online questionnaire. The samples consisted of Indonesian architects. The data were analyzed using the PLS-SEM method via bootstrapping. The findings of this research showed that there was a significant and positive effect of transformational leadership on CSR and job performance. It also showed a significant and positive mediating role of CSR. These findings confirmed CSR as a strong mediator between transformational leadership and job performance.

**Keywords:** Architecture, Transformational Leadership, Corporate Social Responsibilities, CSR, Job Performance

### 1 INTRODUCTION

Architecture is a growing industry in Indonesia. This growth can increase the competition between architectural firms. Increasing competition can lead firm managers to increase awareness about their firms' strengths and weaknesses, including their organizational and job performance (McMillan & Woodruff 2002). Thus, managers increased their interest in finding out the factors of performance, and how to manipulate them correctly (Alenezi et al. 2015).

One of the factors of firm performance is leadership style (Manzoor et al. 2019), and the leadership style that seems to be promising for architectural practices is transformational leadership (Hood 2021). Research by Manzoor et al. (2019) revealed that there are two ways in which transformational leadership can influence job performance, namely directly and indirectly, arguably through CSR. In architectural practice, CSR can retain, raise morale, and increase productivity of its employees (ARCASIA 2015). When leaders encourage CSR, the employees' performance is expected to increase (Jnaneswar & Ranjit 2020).

Recent literature revealed a significant and positive association between leadership and CSR (Iqbal et al. 2018). However, the research on the relationship between transformational leadership and CSR is scarce, especially in industries such as architecture. Therefore, it is crucial to study these variables within the context of Indonesian architecture firms. As such, the present research's main objective is to examine the impact of transformational leadership on job performance in Indonesian architecture firms with the mediating role of CSR.

## 2 HYPOTHESES DEVELOPMENT

### 2.1 *Transformational leadership and job performance*

Effective leaders are able to articulate their vision, encourage creative thinking and revolutionary changes, and create a high level of trust, confidence, and performance in their followers (Pawar & Eastman 1997). Because of these reasons, the positive relationship between transformational leadership and job performance was established consistently by multiple studies (Mangkunegara & Huddin 2016; Naeem & Khanzada 2018). Therefore, it can be assumed that transformational leadership has an important role in job performance.

**H1:** Transformational leadership has a strong and positive effect on Indonesian architects' job performance.

### 2.2 *Transformational leadership and CSR*

Studies on CSR and its relationships have been conducted by many researchers. A study by Alrowwad et al. (2016) showed that transformational leadership has a strong association with CSR strategies. Another study showed that CSR has an important role in influencing the behaviors of employees (Azim 2016). Empirical evidence showed that there is a significant and positive effect of CSR on job outcomes, such as work engagement and job performance (Lindgreen & Swaen 2010). Therefore:

**H2:** Transformational leadership has a strong and positive effect on the CSR of Indonesian architecture design firms.

### 2.3 *CSR and job performance*

The stakeholder theory proposes that the relationship between CSR and job performance is expected to be positive. According to OECD (2011), a firm may gain benefits by contributing toward CSR initiatives, two of which are 1) increased productivity and quality and 2) job performance. Research studies of the past have indicated that there is positive and significant association between CSR and the job performance of employees (Sun & Yu 2015), which signifies the importance of CSR toward job performance of employees. Thus, the third hypothesis is:

**H3:** CSR has a strong and positive effect on Indonesian architects' job performance.

### 2.4 *The mediating role of CSR*

The focus of this study is the mediating role of CSR in the relationship between transformational leadership and job performance. Empirical studies conducted by Jnaneswar and Ranjit (2020) and Manzoor et al. (2019) support CSR as a mediating variable of the relationship between transformational leadership and CSR. However, other than those studies, we are unable to find solid empirical evidence in other research. Considering the theoretical arguments presented above and the limited empirical evidences, this present study proposed that CSR is the mediating variable between transformational leadership and job performance. Hence, the fourth hypothesis is:

**H4:** CSR mediates the relationship between transformational leadership and job performance.

## 3 RESEARCH METHOD

This study used quantitative survey research. The target population for this quantitative research were architects that are currently working in Indonesian architecture firms. The primary data was collected using a self-administered questionnaire. The questionnaire consisted of screening questions and Five-Point Likert scale questions, from corresponded to strongly disagree (1), until corresponded to strongly agree (5). The questionnaire was then shared through social media.

A total of 118 samples were acquired using purposive sampling. Out of the 118 respondents, 62,7% were men, while the remaining were women. Most respondents (51.7%) are aged between 18 and 24, and the remaining are aged between 25 and 34. The majority of the respondents have a bachelor's degree (90.7%). A total of 40.7% of the respondents have less than a year of experience, while 44.1% of the respondents have 1–3 years of experience. Finally, the majority of the respondents are from Jakarta (34.7%), followed by East Java (14.4%) and West Java (11.9%).

To measure transformational leadership, this research adapted the questionnaire developed by Wang et al. (2005), while the measurement of CSR is adapted from the 16-item questionnaire developed by Iqbal et al. (2018). The job performance variable is measured by the 19-item questionnaire by (Koopmans et al. 2014).

#### 4 RESULTS AND DISCUSSIONS

The data acquired from the samples were then analyzed using the PLS-SEM method via bootstrapping (subsampling: 5000, measures: T-value > 0,96, *P*-value < 0,05). Table 1 below shows the original sample, mean, standard deviation, T-values, and *P*-values.

Table 1. Original sample, mean, standard deviation, T-values, and P-Values.

|           | Correlations   | Original Sample (O) | Sample Mean (M) | Standard Deviation | T-values | <i>P</i> -Values |
|-----------|--|---------------------|-----------------|--------------------|----------|------------------|
| <b>H1</b> | Transformational Leadership → Job Performance                  | 0.368               | 0.364           | 0.087              | 4.227    | 0                |
| <b>H2</b> | Transformational Leadership → CSR                              | 0.731               | 0.737           | 0.046              | 15.761   | 0                |
| <b>H3</b> | CSR → Job Performance  | 0.507               | 0.528           | 0.121              | 4.188    | 0                |
| <b>H4</b> | Transformational Leadership → CSR (mediator) → Job Performance | 0.37                | 0.389           | 0.094              | 3.952    | 0                |

The visualization of the research model and its effects is seen on Figure 1. Transformational leadership has a total positive effect to job performance (T-value = 4.227, *P*-value = 0) and to CSR (T-value = 15.761 and *P*-value = 0). CSR also has a positive effect towards job performance (T-value = 4,188 and *P*-Value = 0). These results supported H1, H2, and H3.

This research is mainly to study the mediating effect of CSR between transformational leadership and job performance. In Table 1, we can see that the indirect effect of transformational leadership to job performance (mediated by CSR) is empirically supported, seen by the T-value (3.952) and *P*-value (0). As a result, H4 is also supported.

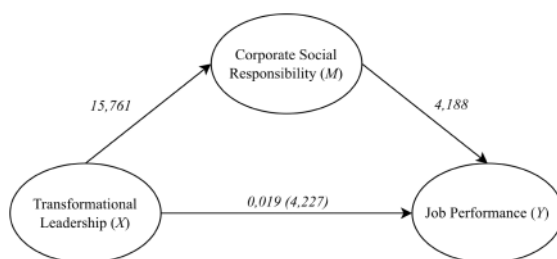


Figure 1. Research model and its effects.

Transformational leadership is chosen in this study because of its positive effect on job performance. Based on the results, we showed that transformational leadership has a positive and

significant effect toward job performance. The results are in line with previous findings by Mangkunegara and Huddin (2016) and Naeem and Khanzada (2018). Additionally, the study demonstrated the positive and significant influence of transformational leadership on CSR of Indonesian architecture firms. The findings are supported by the research done by Alrowwad et al. (2016). Third, the study clarified the effect of CSR toward job performance, which was positive and significant. The results are in line with previous studies done by Story and Castanheira (2019).

The mediation effect of CSR is significant, meaning that CSR does mediate the relationship between transformational leadership and CSR. The findings supported the existing empirical studies done by Jnaneswar and Ranjit (2020) and Manzoor et al. (2019), which argued that when a transformational leader promotes the activities of CSR, an increase in employees' job performance is expected. The results showed that the argument also fits to the context of Indonesian architecture firms.

## 5 CONCLUSIONS

The findings of our study revealed that transformational leadership has a positive and significant relationship with CSR and job performance, while CSR also has an affirmative mediating role between the transformational leadership and job performance. These findings indicated that behaviors of transformational leaders and CSR strategies can increase the job performance of architects working in the design firms. By using transformational leadership, firm leaders can increase work satisfaction between the architect employees, which, in turn, increases their job performance.

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## Asset securitization as a long-term funding and fee-based income alternatives: Case study of BTN

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**ABSTRACT:** Since its inception in 2009, BTN has been the first Indonesian national bank to engage in asset securitization operations. Asset securitization is an innovative strategy for obtaining long-term sources of funds, allowing bank to overcome liquidity risk and maturity mis-match problems. In addition to fee-based income, the bank will make money as a service provider. Therefore, this study aims to analyze the implementation of asset securitization and its impact for BTN. The interviews were conducted with the data processing to determine the effects of servicing fee on fee-based income and profitability. The result shows that asset securitization has positive impacts for BTN such as improving the maturity profile to overcome maturity mismatches, increasing CAR, and obtaining servicing fee. Meanwhile, the negative impact is the reduction number of assets in the balance sheet, which can temporary increase NPL ratio until the realization of new loans with good payment quality.

**Keywords:** Asset Securitization, Asset-Backed Securities, Securities Issuance.

### 1 INTRODUCTION

Generally, banks have served as go between, collecting money from depositors and disbursing it as loans to those in need. As an intermediary institution, the main component of a Bank's Balance Sheet consists of Third-Party Funds and Disbursed Credit composition. Third-Party Funds will have a shorter term than loans disbursed by banks when viewed from the term of the two components. The condition of the gap between the period and credit can lead to a maturity mismatch and the possibility that the bank is unable to fulfill its obligations within a certain period. Banks can have several options to overcome this, including borrowing money and issuing debt securities in the capital market (Gobat 2012).

Securitization is a popular technique of raising finance in the international capital markets, which has evolved in the last few decades. It was invented to satisfy the needs of the banks in additional capital, as well as to ensure their compliance with adequacy and other regulatory requirements. As a result, it is possible to turn financial assets into a form more appealing to investors, such as debt securities, which may be freely transferred to various investors. Securitization provides numerous advantages, which are the primary motivating factors for banks to engage in this practice (Vygovskyy 2019).

The main objectives are to review the implementation of Asset Securitization as a long-term funding and fee-based income alternatives for BTN.

The contributions of this study are: (1) identifying the positive and negative impacts, opportunities, and challenges of the implementation of asset securitization for BTN as long-term funding and fee-based income alternatives; (2) analyzing the potential implementation of asset securitization in the future.

## 2 ASSET SECURITIZATION

In its broadest sense, securitization is simply the process whereby credit demand shifts away from commercial banks, finance companies, and other traditional lenders toward publicly traded, open-market debt underwritten by securities firms. It is a disintermediation process whereby high-cost credit producers are displaced at a lower cost by institutional investors and the public capital market, with the cost savings shared by the issuers, security houses, investors, and consumers involved in the process (Goldberg et al. 1988). By performing Asset Securitization, the bank has innovated a strategy for obtaining long-term sources of funds that can overcome the problems of liquidity risk and maturity mismatch as previously described (Martin-Oliver & Saurina 2007).

### 2.1 *Benefits of asset securitization*

There are several benefits of Asset Securitization for the parties involved, such as originators, investors, and the capital market. It increases capital returns for originators by converting receivables on the balance sheet into off-balance sheet income streams. Furthermore, they can lower borrowing costs, depending on the structure used. Furthermore, it obtains additional capital for expansion or re-investment purposes, improves asset/liability management, and transfers credit risk (Comptroller of the Currency Administrator of National Banks 1997). It can improve financial ratios and provide fee-based income through servicing fee to handle the portfolio of securitized assets.

For investors, Asset Securitization offers an attractive combination of returns compared to other instruments of similar quality. Additionally, it can increase secondary market liquidity and provide more protection through excess collateral or guarantees by entities with high and stable credit ratings. It offers a measure of flexibility since the pay-out streams can be structured to meet the specific requirements of investors.

In practice, asset securitization also benefits a country's capital market. This is because the capital market provides an alternative investment product for investors. Asset securitization is one of the innovations based on a portfolio of assets that can be exchanged on the secondary market of securities.

### 2.2 *Basic process of asset securitization*

The originators of Asset Securitization are corporations that have receivables or assets that generate cash flow in the future. They identify the assets to be removed from the balance sheet and combine them into an asset portfolio. A Special Purpose Vehicle (SPV) is what the issuer uses to sell this bundle of assets (SPV). Financial institutions establish SPV to purchase assets and recognize them in their off-balance sheets for legal and accounting purposes. Investors in capital markets purchase securities with yields that enable the issuer to pay for acquiring an asset portfolio in the second phase. They receive fixed or floating yield payments from the custodial account sourced from the cash flows. In most cases, the originator provides services in handling the securitized asset portfolio, such as collecting payments from debtors and forwarding them directly to the SPV or Custodian Bank with reduced servicing fee. Asset securitization is an alternative and diversified financial source with a credit risk transfer mechanism. There is also the possibility of interest rate and currency risks from the issuer to investors (Jobst 2008).

Asset-Backed Securities (ABS) is one of the representative products of financial innovation. It is the process of packaging assets and loans with low fluidity through Special Purpose Vehicle (SPV) to generate relatively stable cash flows in the foreseeable future. A group of assets can then be turned into bonds that can be traded on financial markets by increasing their credit rating. As the total volume of products expands, its participants and underlying assets have also gradually diversified. The participants include banks, auto financing companies, financial leasing companies, and asset management companies. In addition to corporate loans, main-stream personal car loans and personal housing mortgages become the choices of underlying assets (Pan & Qiu 2020).

### 2.3 *History and application of asset securitization in Indonesia*

Asset securitization in the form of Collective Investment Contracts for Asset-Backed Securities (KIK-EBA) and Asset-Backed Securities in the form of Participation Letters (EBA-SP) has been carried out and well received by the market. The practice has been around since the 1990s and continues as alternative financing for corporations and banks. According to Presidential Regulation Number 19 of 2005, as amended by Presidential Regulation Number 1 of 2008, securitization turns non-liquid assets into tradable securities by acquiring financial liabilities from their original debtors. POJK No. 11/POJK.03/2019 concerning Prudential Principles in Asset Securitization Activities for Commercial Banks also defines it as the process of issuing securities by the issuer of Asset-Backed Securities or Islamic Asset-Backed Securities based on the transfer of financial or Islamic assets from the initial creditor (originator). This is followed by payments from the sale of asset-backed securities to investors or the issuer's funds.

## 3 MATERIALS AND METHODS

A mixed method of quantitative and qualitative will be used. The qualitative analysis describes how BTN's Asset Securitization implementation proceeded. Secondary data from BTN including servicing fee, fee-based income, and profit data will be used in quantitative analysis from 2018 to 2021. This study conducted a correlation test between servicing fee from asset securitization activities and fee-based income. Moreover, the correlation test between servicing fee and the profit of BTN was also carried out. It uses Pearson Correlation to determine the magnitude of coefficient and P-Value.

## 4 RESULTS AND DISCUSSION

BTN is an Indonesian national bank that focuses on housing finance. Considering the average term for housing loans are more than 10 years, long-term funding sources other than Third Party Funds are needed. One of the sources is the proceeds from securitization transactions. Therefore, asset securitization transactions are one of the diversifications of funding sources. BTN can only undertake this process on underlying financial assets such as credit or financing, claims arising from securities, future receivables, or another analogous financial asset. The underlying financial assets should meet the criteria, among others, have cash flow, are owned and under the control of the Original Creditor/Originator, and can be freely transferred to the issuer. The mortgage of this bank meets the criteria to be used as the underlying financial assets.

The implementation of asset securitization has positive impacts on BTN, such as improving the maturity profile of BTN to overcome the maturity mismatch and increasing CAR. Additionally, asset securitization increases profit through investment in Class B EBA, which earns interest income and servicing fee. Meanwhile, the implementation has a negative impact on BTN, such as reducing the number of assets on the balance sheet, which may result in a temporary increase in the NPL ratio until the realization of new loans with good payment quality. The implementation of asset securitization is quite complex and incurs higher costs than issuing debt securities because the process involves many parties.

BTN has opportunities to implement asset securitization, such as having an advantage with a reputation as the largest mortgage lender in Indonesia and a pioneer in implementing transactions. However, it faces challenges in implementing asset securitization, such as limited understanding from the public. Therefore, the bank should absorb part of the Securities resulting from the Class B and be the party who will bear the loss when there is a problem with the underlying asset being securitized.

From the correlation test as shown in Figure 1, servicing fee and fee-based income correlation coefficient value is 0.9135 and the P Value is 0.0864. It is concluded that servicing fee has a

strong positive correlation with fee-based income, but the statistical test has a probability of error of 0.0864 or 8% due to the limited amount of data processed in this statistical test. In addition, servicing fee and BTN profit correlation coefficient ( $r$ ) is  $-0.1848$  and the P Value is 0.8151. It is concluded that servicing fee has a weak negative correlation with BTN Profit and has no significant effect statistically.

Currently there are several companies in Indonesia that have carried out asset securitization, including BTN, Mandiri, Jasa Marga, Indonesia Power and Garuda Indonesia. As previously explained, asset securitization faces many challenges, such as the implementation of transactions that are relatively more complex, and lack of the understanding from companies and investors regarding the asset securitization process and its products. The development of asset securitization has good potential with education and socialization from the government and related parties to understand the transactions by the public and wider economic actors. This will promote increased transaction volume, the variety of types of assets being securitized, and the parties involved.

## 5 CONCLUSIONS

The implementation of asset securitization provides long-term funding advantages without increasing the debt ratio and gives fee-based income alternatives for BTN. However, it requires higher costs than the issuance of debt securities. This is due to the complexity of the transaction and involves many parties.

This study has analyzed the potential future implementation of asset securitization in Indonesia. Several companies have performed this process, which shows the potential to develop asset securitization in Indonesia. However, some companies are still limited to state owned enterprises and lack the diversity of underlying asset types. Therefore, it requires cooperation from regulators, government, and related parties to conduct education and socialization.

This study is expected to provide benefits for interested parties. For the banking industry, the results can be used as reference for consideration and evaluation related to implementing Asset Securitization activities. The results can be used as literature for other companies to understand Asset Securitization in theory, regulation, and experience. Finally, for academics, it is expected to enrich the literature and complete knowledge related to the process and the implementation by BTN.

The limitation of this study is the limited data from BTN for servicing fee since only data from 2018 to 2021 were used. Therefore, the results describe the condition from 2018 to 2021. By using data for the last 4 years, the results are expected to be able to describe the current and updated condition of BTN. Suggestions for future researchers, can be carried out not only from the side of originator but also from other parties involved in asset securitization.

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## The effect of brand image, price, trust, and value on repurchase intention of lifebuoy antibacterial soap

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**ABSTRACT:** The COVID-19 pandemic has altered people's behavior and consumption patterns. Likewise, it has also affected sales at a company. As a result, the demand for various products is increasing, one of which is hygiene products. Since the onset of the COVID-19 virus, maintaining cleanliness and health has been people's primary concern. Driven by this, many companies or businesses produce hygiene and health products, one of which is antibacterial soap. Antibacterial soap has become a staple product, therefore the need for it also surges. In Indonesia, Lifebuoy as a brand of antibacterial soap holds a good brand image. As seen from the data of the top brand index in 2019 until 2020, Lifebuoy managed to claim the first position in controlling the market share of soap in Indonesia. Being a top-of-mind brand can be viewed from several perspectives, one of which is through the brand image in the eyes of its consumers. This study is quantitative in nature and it employed descriptive design. The sampling technique used was purposive sampling, which involves selecting samples based on certain criteria. It is a form of non-probability sampling, a sampling strategy that does not provide equal opportunities to all members of the population. To collect the data, a survey was conducted through the distribution of online questionnaires to 269 people using Lifebuoy products, mainly women aged 17 until 55 years. To analyze the data, statistical analysis was employed, comprising a pilot test with 30 respondents, followed by a descriptive analysis, and a lastly using SmartPLS 3.0.

### 1 INTRODUCTION

Unilever introduced Lifebuoy antibacterial soap in the Home and Personal Care category in 1894. The purpose of Lifebuoy's existence is to provide value to consumers as a simple and economical hygiene and health solution so that people can live their lives without fear of being contaminated by germs. Lifebuoy brand antibacterial bath soap dominates the market share of antibacterial bath soap in 2019 with an index of 44.7 percent, and in 2020 with an index of 38.6 percent (top brand index, 2022). This shows that in 2019 and 2020, the market share of Lifebuoy soap has increased. In this study the main focus is on how consumers repurchase behavior towards Lifebuoy antibacterial bath soap, seen from 4 variables, namely brand image, price, trust and value. According to a study conducted by Lien et al (2015) regarding online hotel booking: The effect of brand image, price, trust, and value on repurchase intention. This study concludes that there is a positive and significant effect of Brand Image, Perceived Price and Perceived Value on the repurchase intention of hotel booking consumers, but the effect of trust on repurchase intention is not significant. According to (Sinaga Seffrina 2018) who conducted a study on the repurchase behavior of visitors at the Make Over Counter at Plaza Medan Fair concluded that brand image, product quality and price have a significant effect on repurchasing make over products.

## 2 LITERATURE REVIEW

### 2.1 *Brand image*

Brand image represents the trust of a group and consumers towards a particular brand (Tjiptono 2015:49). Furthermore, brand image symbolizes the exterior quality of a product or service, because the brand seeks to address the customers' social/psychological demands. According to Keller (2013: 97), there are five main dimensions to consider when building a brand image: brand identity, brand personality, brand association, brand attitude and behavior, brand benefit and competence. Therefore, the first hypothesis was formed:

H1a: Brand image negatively impacts repurchase intention.

### 2.2 *Price*

Price, according to Kotler and Armstrong (2013:151), is the monetary value attached to an object or service in return for the benefits that consumers receive from its use and ownership. Additionally, Kotler and Armstrong. Kotler in Tamzil et al. (2021) claim that the price variable can be divided into four dimensions: affordability, conformity of price with quality, price competitiveness, conformity of price with benefit. On this account, the second hypothesis was formed:

H1b: Price positively impacts repurchase intention.

### 2.3 *Trust*

Mowen and Minor (2018) define customer trust as all consumer knowledge and conclusions regarding objects, qualities, and benefits. The object can be a product, a person, a business, or whatever a person believes in, according to Kotler and Keller (2016:225), trust is a company's readiness to rely on business partners, influenced by various interpersonal and interpersonal aspects of an organization, including the company's perceived competence, integrity, honesty, and innovation.

Based on this, the third hypothesis was formed:

H1c: Trust negative impacts repurchase intention.

### 2.4 *Value*

Holbrook (2015) defines value as what is offered, referring to criteria, regulations, standards, norms and goals or ideals that form the basis for assessment. Meanwhile, Putri et al. (2012) in Zeithaml et al. (1988) claim that value is the overall usefulness of a product. There are 3 aspects of value (Newman & Gross 2012), namely: Functional Value, Emotional Value, Conditional Value

H1d: Value motive positively impacts repurchase intention

### 2.5 *Repurchase intention*

Repurchase intention, according to Anggraeni et al. (2015), is a consumer's desire to carry out further purchasing activities based on previous experience which is usually based on satisfaction with the product because it meets their expectations. According to Schiffman (2015:42), consumer commitment, loyal, and trust are dimensions of repurchase intention. With this foundation, the last hypothesis was formed:

H1e: Brand image, price, trust, and value negatively impact repurchase intention.

## 3 CONCEPTUAL FRAMEWORK

The proposed framework of this study is as follows:

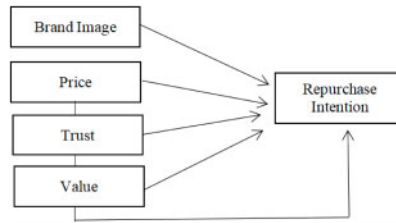


Figure 1. Conceptual framework, Lien et al. (2015).

## 4 METHODOLOGY

Structural Equation Modeling (SEM) with SMART PLS 3.2.9 software was devised in this study. According to Ghozali in 2014, SEM allows researchers to conduct a study using path analysis with latent variables, thus they can make more connections between data and theory.

The population of this study was everyone who uses Lifebuoy products in Indonesia whose exact number was unknown. In such case, the researcher performed a non-probability sampling technique known as purposive sampling by selecting a sample based on certain criteria. Purposive sampling was the method employed by the researcher as it allows the researcher to intentionally select certain representative sample members who can provide information that will be used as primary data. Therefore, the participants in this study were people who used Lifebuoy antibacterial soap, especially women aged 17–55 years.

## 5 DATA ANALYSIS AND RESULT

### 5.1 *Measurement model assessment*

| Items   | Loadings |
|---|----------|
| Brand Image ( $\alpha$ : 0.821, CR:0.870, AVE: 0.647)                         |          |
| Lifebuoy soap has a striking packaging color                                  | 0.721    |
| Lifebuoy soap has a good reputation   | 0.828    |
| Lifebuoy soap has a good brand image  | 0.864    |
| Lifebuoy soap has an attractive packaging                                     | 0.796    |
| Price ( $\alpha$ : 0.745, CR:0.855 AVE: 0.663)                                |          |
| The price of Lifebuoy soap is cheap   | 0.778    |
| The price of Lifebuoy soap comes in with quality given                        | 0.864    |
| The price of Lifebuoy soap is cheaper than other brands of antibacterial soap | 0.798    |
| Trust ( $\alpha$ : 0.861, CR:0.820 AVE: 0.604)                                |          |
| Lifebuoy soap takes good care of my skin                                      | 0.787    |
| Lifebuoy soap meets my expectations in terms of quality                       | 0.836    |
| After using Lifebuoy soap, I am confident because it smells good              | 0.850    |
| Lifebuoy soap never disappoints me  | 0.780    |
| Value ( $\alpha$ : 0.830, CR:0.887 AVE: 0.662)                                |          |
| The price of Lifebuoy soap according to my income                             | 0.908    |
| Lifebuoy soap is a good soap product to buy                                   | 0.765    |
| Repurchase Intention ( $\alpha$ : 0.959, CR:0.826 AVE: 0.705)                 |          |
| I have the intention to repurchase  | 0.717    |
| Chances are I will repurchase   | 0.865    |
| I hope to repurchase to try other variations                                  | 0.741    |

Notes:  $\alpha$ : Cronbach's alpha, CR: Composite Reliability, AVE: Average Variants Extracted



## 5.2 Structural model hypotheses testing

The bootstrapping technique was employed to assess the structural paths. To test the hypotheses, 500 sub-samples were used. The hypotheses paths are shown in Figure 1. The hypotheses results were confirmed through  $\beta$ -coefficient, p-value, and t-values. Additionally, model fit indices were assessed. The standardized root mean square residual value was 0.053, which was less than the threshold prescribed in the literature, i.e. 0.080 (Henseler et. Al., 2015). Also, the Normed Fit Index values were above 0.90, indicating a good model fit (Mansoor, 2021). The results for R<sup>2</sup> showed that there was a 61,8% in the Repurchase Intention.

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## The effect of hedonic shopping motivation and sales promotion on impulse buying through positive emotion as intervening variables on the marketplace shopee

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**ABSTRACT:** Shopee is the brand used most often and on top-of-mind for e-commerce by consumers with the highest consumer penetration and the highest transaction value in Indonesia as compared to other e-commerce. This study aims to determine the effect of hedonic shopping motivation and sales promotion on impulse buying with positive emotion as an intervention in the Shopee marketplace. The research used is descriptive and based on the problems and research questions that have been formulated, a causal study approach is used. The research methodology in this study is quantitative. Non-probability sampling technique was used which involved purposive sampling with the consideration that people who make purchases at the Shopee marketplace when there is a sales promotion and people who make purchases at the Shopee marketplace during the COVID-19 pandemic resulted in a total of 269 respondents. Data analysis using Structural Equation Modeling (SEM) which is processed using SmartPLS. The results showed that Hedonic Shopping Motivation had a significant positive effect on Impulse Buying, Sales Promotion had a significant positive effect on Impulse Buying, Positive Emotions had a significant positive effect on Impulse Buying, Hedonic Shopping Motivation had a positive and significant effect on Positive Emotions, Sales Promotion had a positive and significant effect on Positive Emotions, Hedonic Shopping Motivation has an indirect effect on Impulse Buying and Sales Promotions have an indirect effect on Impulse Buying.

**Keywords:** Hedonic Shopping Motivation, Sales Promotion, Positive Emotions, Impulse Buying

### 1 INTRODUCTION

Along with the rapid development of information technology, it has a big impact on all existing aspects, including the business and marketing. Currently, many buying and selling transactions are carried out via the internet or online. Based on data sourced from (Databoks.katadata.co.id 2019) the trend and level of penetration of e-commerce in Indonesia continue to increase from 2017 to 2023. Shopee is the brand use most often and top-of-mind e-commerce by consumers by consumers with the highest consumer penetration and the highest transaction value in Indonesia compared to other e-commerce.

When using a marketplace application, it triggers someone to shop to fulfill their hedonic needs which will then appear a sense of satisfaction that causes positive emotions even though they did not plan in advance to buy the product. In addition, the sales promotion carried out by the marketplace triggers consumers to make impulse buying because consumers feel benefited from the sales promotion. Therefore, it is necessary to examine how the influence of Hedonic Shopping Motivation and Sales Promotion on Impulse Buying with Positive Emotion as an intervening variable in the Shopee marketplace and also which variables have the most influence.

## 2 METHODOLOGY

The method used in this study is a quantitative method. The variables analyzed were Hedonic Shopping Motivation and Sales Promotion as independent variables, Positive Emotion as the intervening variable, and Impulse Buying as the dependent variable. The population in this study are people who make transactions through the Shopee marketplace. The sampling technique used is non-probability sampling with purposive sampling method. According to Sugiyono (2017:85) purposive sampling involves certain considerations. In this study, purchase practices done after sales promotion and during the COVID-19 pandemic. are considered and the total number accounts for 269 respondents. Data was collected using a questionnaire. The data analysis technique used Structural Equation Modeling (SEM) which was processed using SmartPLS.

## 3 RESULTS/FINDINGS

Female respondents were 167 with a percentage of 62% and male respondents were 102 with a percentage of 38%. Respondents aged between 15-24 years were as many as 157 people with a percentage of 58%. Respondents aged 25-34 years were 102 people with a percentage of 38%. 10 respondents were aged between 35-64 years with a percentage of 4%.

The descriptive results on the Hedonic Shopping Motivation variable are in the good category with a percentage of 75.03%. Sales Promotion variable is in a very good category with a percentage of 87.74%. Positive Emotion variable is in the very good category with a percentage of 88.70%. Impulse Buying variable is in good category with a percentage of 81.23%.

In Convergent validity, the factor loading value on the Hedonic Shopping Motivation, Sales Promotion, Positive Emotion, and Impulse Buying variables is  $> 0.70$  and is declared valid. The AVE value of all variables in the study was  $> 0.5$ . The results of Cronbach's Alpha and Composite Reliability were  $> 0.70$ .

The Influence of Hedonic Shopping Motivation on Positive Emotion. Based on the test results, the path coefficient value is 0.298, the t-statistic value is  $5.211 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

Effect of Sales Promotion on Positive Emotion. Based on the test results, the path coefficient value is 0.144, the t-statistic value is  $7.591 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

The Influence of Hedonic Shopping Motivation on Impulse Buying. Based on the test results, the path coefficient value is 0.308, the t-statistic value is  $4.897 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

Effect of Sales Promotion on Impulse Buying. Based on the test results, the path coefficient value is 0.308, the t-statistic value is  $1.997 > 1.65$  and the  $P$  value is  $0.023 < 0.05$ , then the hypothesis is accepted.

Effect of Positive Emotion on Impulse Buying. Based on the test results, the path coefficient value is 0.421, the t-statistic value is  $6.319 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

Effect of Hedonic Shopping Motivation on Impulse Buying with Positive Emotion as an intervening variable. Based on the test results, the path coefficient value is 0.125, the t-statistic value is  $4.117 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

Effect of Sales Promotion on Impulse Buying with Positive Emotion as an intervening variable. Based on the test results, the path coefficient value is 0.216, the t-statistic value is  $4.717 > 1.65$  and the  $P$  value is  $0.000 < 0.05$ , then the hypothesis is accepted.

## 4 CONCLUSION

The conclusion in this study is that hedonic shopping motivations and sales promotions had a positive and significant effect on positive emotions. Hedonic shopping motivations, sales promotions,

and positive emotions have a positive and significant effect on impulse buying. Hedonic shopping motivation has an indirect effect on impulse buying. Sales promotion has an indirect effect on impulse buying. Suggestions for Shopee are to continue practicing sales promotions and provide recommendations for users so that sales will increase.

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## Overview of scenario thinking on PT Len Telekomunikasi Indonesia's long-term business strategy

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**ABSTRACT:** The dynamics of the business world, including the telecommunications industry, will be higher, in which volatility, uncertainty, complexity, and ambiguity (VUCA) lead to organizational challenges. This study aims to identify the baseline future and alternative futures resulting from the scenario analysis process linked to the company's long-term business strategy with case studies at PT Len Telekomunikasi Indonesia (LTI). This study used a qualitative method by using the Framework Foresight and the system thinking approach. Four scenarios were found that described the business positioning of LTI in 2024, namely Palapa Ring 2.0 as the baseline future and three alternative futures consisting of the National Telco-Defense Think Tank, Business Switch Over, and Loss of Corporate Portfolio. This study contributes to the literature on scenario thinking by examining the impacts of various plausibility of the organization's future. It also contributes to practical suggestions for Public-Private Partnership firms to anticipate VUCA conditions using the scenario analysis.

**Keywords:** Scenario analysis, baseline future, alternative futures, forces of change

### 1 INTRODUCTION

In the business world today and in the future, the dynamics will be higher and the problems that arise are volatile, uncertain, complex, and ambiguous, which are often abbreviated as VUCA. These conditions make the big picture of the business world unpredictable and its future unknown (Duijne & Bishop 2018). Commonly, to deal with uncertainty, an organization or company prepares different scenarios to look for future results from several possible events (Schwarz et al. 2018).

PT Len Telekomunikasi Indonesia (LTI), a telecommunications backbone operator, has invested in the Palapa Ring Project Central Package through the cooperation scheme between the government and business entities, often called Public-Private Partnership (PPP). The PPP scheme has risk factors and uncertainty over the return on its investment in the future. In the beginning, LTI was a Special-Purpose Vehicle for Palapa Ring Central Package Project, in which they obtained revenue from the Availability Payment. Since 2020, LTI has carried out a business transformation through the long-term business plan for 2020–2024. It has produced two grand strategies: (1) maintaining network performance to maximize Availability Payment from the Palapa Ring Project, and (2) exploring the business potential to increase revenue beyond Availability Payment through business development (PT Len Telekomunikasi Indonesia 2020).

Unfortunately, LTI recorded revenue from business development of only 41.09% of the revenue target in the long-term business plan or contributed 0.88% of the company's total revenue in 2020 (PT Len Telekomunikasi Indonesia 2021). In other words, the revenue performance of business development, which was one of the long-term business strategies, did not achieve its target in 2020. The unattainable target of the long-term business plan in 2020 indicated the absence of scenarios, impacts, and responses or steps to be taken on the scenarios that may have occurred in the document. LTI chose its future in the long-term business plan. However, there was no

indication that the company had developed a long-term business strategy through the scenario thinking process.

Based on the research gap described above, this study aims to identify the baseline future and alternative futures resulting from the scenario analysis process linked to the company's long-term business strategy and competitive advantage, with the following research questions:

1. What is the baseline future of LTI resulting from the scenario analysis process?
2. What are the alternative futures of LTI generated from the scenario analysis process?
3. How will baselines and alternatives affect the company's long-term strategy, current competitive advantage, and future competitive advantage?

## 2 LITERATURE REVIEW

### 2.1 *Trend-uncertainty analysis*

Trend and uncertainty analysis used in all practical approaches to scenario planning consists of two parts: identifying fundamental trends and critical uncertainties. One of the tools used for trend and uncertainty analysis is the impact-uncertainty grid. According to Schwenker and Wulf (2013), the impact-uncertainty grid consists of three components: secondary elements, trends, and critical uncertainties. The bottom section of the grid contains factors that have a relatively small effect on the company's performance, called secondary elements. Factors that fall into this category are not considered further in the scenario planning process. The top left of the grid contains factors that have a relatively significant impact on company performance and are relatively easy to predict, which are called trends. The top right of the grid contains essential factors for scenario development, namely critical uncertainties, elements with a significant impact on the company, and a high level of uncertainty. These factors are the basis for identifying two-dimension scenarios, usually the result of combining or grouping closely related critical uncertainties.

### 2.2 *Framework foresight*

The Foresight Framework is a structured approach to forecasting and planning (Duijne & Bishop 2018). It starts with defining the domain of the studied object. The next step is the exploration of current conditions and stakeholders involved. Then, an in-depth analysis of the forces of change helps to see the expected baseline future based on recent insights into the power of change. One begins to see uncertainty associated with the forces of change. Both the baseline future and alternative futures will have implications. Organizations can respond to this by designing policies, plans, and actions that contribute to a better lot.

## 3 METHODOLOGY

The method used was qualitative with a study case approach. Data collection techniques were in-depth interviews and secondary data supply. The sources were internal parties of the company, including directors and structural officials (five persons), external parties in the telecommunication sector (three persons), and external parties in the non-telecommunication industry (four persons). Framework foresight, PESTEL analysis, and system thinking approaches were used for determining the baseline future, alternative futures, and their effect on the future competitive advantage.

## 4 DISCUSSION AND FINDINGS

After receiving the variable operations through the foresight framework, 47 lower-level factors were obtained, which would then be analyzed in the clustering and systems thinking stages, resulting

in seven higher-level factors. Next, the trend-uncertainty analysis was carried out through the impact-uncertainty grid to identify fundamental trends and critical uncertainties.

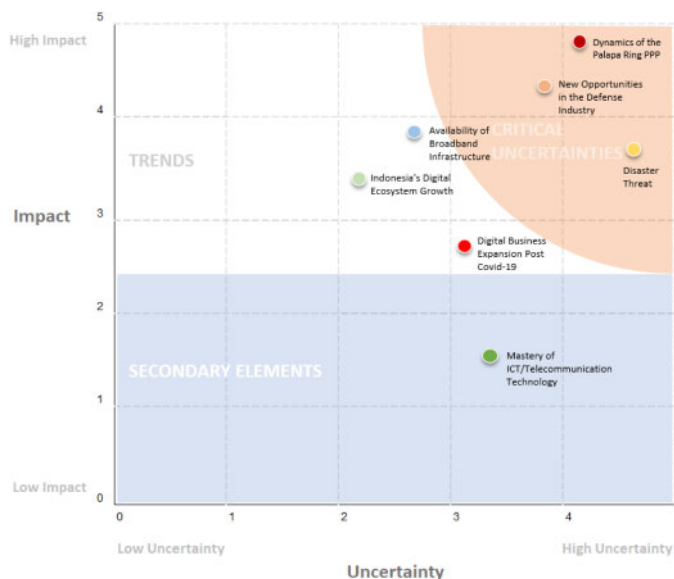


Figure 1. Impact-uncertainty grid.

The analysis of the relative impact and uncertainty found that three forces of change that correspond to the category of critical uncertainties are (1) the dynamics PPP in Palapa Ring, (2) new opportunities in the defense industry, and (3) the threat of disaster. From the scenario matrix, four scenarios described the business positioning of LTI in 2024, namely Palapa Ring 2.0 as the baseline future, and three alternative futures consisting of the National Telco-Defense Think Tank, Business Switch Over, and Loss of Corporate Portfolio.



Figure 2. Scenario matrix for long-term business plan of LTI.

The Palapa Ring 2.0 scenario is a future picture where the Palapa Ring PPP project would continue until the end of the concession period with improvements in its implementation. However, LTI will have no intention of penetrating the defense industry, or the defense industry would not be good enough to respond to the business prospects proposed by LTI. This scenario was resulted from a combination of the high level of sustainability of the Palapa Ring PPP and the low attractiveness of the defense industry to the telecommunications-backbone business.

Meanwhile, the National Telco-Defense Think Tank is a scenario that describes a lot where there would be an alignment between the national defense security needs, and the telecommunications business managed by LTI. This scenario was resulted from the combination of the high level of sustainability of the Palapa Ring PPP and the attractiveness of the defense industry to the high-backbone telecommunications business. Then, the Business Switch Over is a scenario with a future picture in which the company would experience a significant transition of business model and portfolio from a Palapa Ring backbone network operator to a company engaged in cyber security and managed services for ICT devices within the state defense agency. This scenario was resulted from the combination of the low level of sustainability of the Palapa Ring PPP and the high attractiveness of the defense industry to the telecommunications-backbone business. And finally, the Loss of Corporate Portfolio describes a scenario in the future where the Palapa Ring PPP would be terminated before the 15-year concession period, and the company's penetration into the defense industry would not be going well. LTI would have lost its long-term portfolio in the Palapa Ring business due to disagreements over the interpretation of the Palapa Ring PPP agreement. This scenario was resulted from the combination of the low level of sustainability of the Palapa Ring PPP and the low attractiveness of the defense industry to the telecommunications-backbone business.

In this study, we found that the current competitive advantages of LTI consist of HR and fiber-optic backbone networks in the 3T Area (the rural area with no other providers in that location) and cash flow stability from Availability Payment of Palapa Ring. In addition, it was found that the long-term business strategies of LTI consist of two strategies. Both of them will be temporary and not robust against the challenges of alternative futures.

## 5 CONCLUSION

This study resulted in four scenarios that describe the business positioning of LTI in 2024, namely Palapa Ring 2.0 as the baseline future, and three alternative futures consisting of the National Telco-Defense Think Tank, Business Switch Over, and Loss of Corporate Portfolio. LTI's current competitive advantages will be temporary, and long-term business strategies are not robust against the alternative futures, so a response to each scenario is required through a scenario analysis to generate future competitive advantages. The limitation of this study is that the object of scenario planning is limited to a company, not a broad industry. This study contributes to the literature on scenario thinking by examining the impacts of various plausibility of the organization's future. It also contributes to practical suggestions for PPP firms to anticipate VUCA conditions through the scenario analysis.

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## Strategy to increase ARPU of Telkomsel high-value prepaid customers (case study of prepaid customers in the Jabotabek Jabar area)

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**ABSTRACT:** In 2019, Telkomsel Jabotabek Jabar has been listed as the operator with the highest number of subscribers compared to its competitors with a contribution of 35.9%. Telkomsel Jabotabek Jabar generated the largest revenue through internet usage with a contribution of 70.3%, followed by voice&SMS usage at 22.1%, and digital at 7.6%. Telkomsel Jabotabek Jabar has categorized customers based on the period of use (Length of Stay / LOS) and average usage for 3 months (Average Revenue Per User / ARPU) where customers with LOS > 6 months and ARPU > 100 thousand or a high-value customer, have contributed 63.5% of total revenue based on data in March 2020. This article was prepared for the examination of ways to increase revenue from high-value customers where segmentation activity was carried out based on customer behavior. Marketing tactics were determined using the generated segmentation based on the concept of the E-Marketing mix by utilizing the resources owned by Telkomsel Jabotabek Jabar. The target of this research was prepaid customers that were categorized as high-value based on their largest revenue contribution. The data collection method employed in this research was prepaid customer population data along with predetermined variables based on internal data (Big Data). A cluster using the K-Means Clustering method was formed. From the specified number of clusters, characteristics of customers have been obtained which became the basis to determine marketing strategies for each customer. Data analysis and processing were carried out using Hadoop and Python software. This research has resulted from 4 profiles of high-value prepaid customers, namely Legacy Active, Digital Active, Socially Active, and Traditional Active, based on 16 variables that became the main activities of customers. Various inputs from data experts based on survey results have become the basis to consider all marketing activities that could increase the ARPU of high-value customers. Marketing activities that refer to the concept of the marketing mix which was combined with scientific management theory have optimized the results even with limited resources. By referring to the results of this research, Telkomsel Jabotabek Jabar could easily determine marketing activities for high-value prepaid customers, and it was highly recommended that they could use data modeling activities for operational purposes to the smallest territorial level.

**Keywords:** Segmentation, High-Value, Personalized, Big Data, and Clustering

### 1 INTRODUCTION

To turn into a digital company and rank as a number one leader in the digital cellular business in Indonesia, Telkomsel continued to transform in terms of business, people, organization, and corporate culture. All of these were critical elements that were required to be developed to create a gateway to the digital world for the people of Indonesia. Based on Telkomsel's annual report in 2019, Telkomsel has succeeded in making YoY growth and has generated revenue from digital service by 29% and data service by 22.3%. Telkomsel has aggressively participated in activities to increase the number of Base Transceiver Station (BTS) which were built in almost all cities in Indonesia, thus making payload and data consumption experience significant year-on-year growth. By increasing the number of Base Transceiver Station (BTS) by 12.2%, there was a growth in

Payload by 53.6% and data consumption by 54.7%. In 2019, the number of Telkomsel's subscribers was 171.1 million, divided into four product and service users, namely KartuHalo, simPATI, Kartu As, and LOOP.

KartuHalo was positioned as a product for professionals and corporations where the payment method is postpaid, simPATI was positioned for the middle class. Kartu was very affordable and suitable for the lower-middle class, and LOOP was targeted at the youth segment. With so many segments that must be accommodated by Telkomsel, the products made for each segment were different. Products that could be enjoyed by customers must also be able to accommodate digital services based on customer needs and according to customer categories where Telkomsel divided customers into 4 categories namely Silver, Gold, Platinum, and Diamond. Customers with Gold, Platinum, and Diamond were categorized well known as high-value customer distinguished by their range of ARPU and their Length of Stay (LoS). In the first quarter of 2020, Telkomsel Jabotabek Jabar Area has 6.6 million of high-value customers, which contributed 63.5% to total revenue. Based on the revenue contribution of high-value customers which have become the highest among all the customers, special treatments were required to maintain or uplift their ARPU. This article aimed to determine the characteristics of high-value prepaid customers in Telkomsel Jabotabek Jabar area and to determine the appropriate marketing tactics to be implemented for them to increase their Average Revenue Per User (ARPU).

## 2 FRAMEWORK

The purpose of our analysis was to examine the characteristics of high-value prepaid customers of Telkomsel in Jabotabek Jabar area and based on the characteristics that have been defined would be determined the appropriate marketing tactics to be implemented in order to increase their ARPU. The framework used in our research was firstly using segmentation concept based on high-value customers' transaction behavior to create models or cluster's profile. Internal data source which contained all Telkomsel customer's transaction has been used as an input to the data mining processing phase. There were only 16 variables that have been used in this research based on the customer's main transaction activities such as games payload, socialnet payload, video payload, music payload, communication payload, recharge, data revenue, legacy revenue, digital revenue, international roaming revenue, others revenue, data transaction, legacy transaction, digital transaction, international roaming transaction, and others transaction. These variables have been processed by using Hadoop and Python software to create models based on non-hierarchical clustering mechanism. K-Means algorithm has been used as common mechanism for larger data population so that 5.6 million of high-value prepaid customers could be smoothly processed. The result of the segmentation phase would be used as a reference to determine the marketing tactics based on marketing mix concept that has been chosen. Marketing mix concept was one of a marketing strategy mostly used at present time especially in digital marketing. Telkomsel as one of the biggest telecommunications companies need to have a strategy adjusted based on current market conditions. Marketing mix consist of product, price, place, promotion, people, physical evidence, and process. Based on these parameters, high-value prepaid customers that have been formed into models will be divided into several marketing activities based on current Telkomsel marketing activities especially in Jabotabek Jabar area. A survey based on the models which have been paired with its marketing activities will be conducted to Telkomsel's data expert to determine the best marketing activities based on their analysis and experiences. The method used in this research was similar to the research conducted by Indika Arumawadu; Hasitha; Tharanga Rathnayaka; Kapila; and Illangarathne (2015), "Mining Profitability of Telecommunication Customers Using K-Means Clustering", which also used Data Mining to determine telecommunication customers with high profitability based on phone call profiles. Using RFM analysis, several customer models have been produced based on their profitability level which can then be used by companies in making decisions to improve services and increase revenue.

### 3 RESULTS AND CONCLUSION

Our research has succeeded to generate four models of high-value prepaid customers in Telkomsel Jabotabek Jabar area from 5.6 million data population based on their transactional behavior namely Legacy Active, Digital Active, Socially Active, and Traditional Active. Legacy Active is referred to high-value prepaid customers who have a tendency to use voice and SMS services quite high compared to other services. Digital Active is referred to high-value prepaid customers who tend to use digital payload higher than other services. Socially Active is referred to high-value prepaid customers that use all services almost evenly. Traditional Active is referred to high-value prepaid customers that have no specific services for the clear definition of other models that have been formed. The result is shown in the following table:

Table 1. High-value prepaid customers models.

| Models             | HVC Subs  | HVC Contribution |
|--------------------|-----------|------------------|
| Legacy Active      | 172,653   | 3.1%             |
| Digital Active     | 1,094,084 | 19.66%           |
| Socially Active    | 6371      | 0.11%            |
| Traditional Active | 4,292,817 | 77.13%           |

As the models have been created, now we know what were the characteristics of high-value prepaid customers in the Telkomsel Jabotabek Jabar area. The next step was to determine what marketing tactics were suitable for high-value customers to increase their ARPU. The survey to the Telkomsel data expert team has been conducted based on current marketing activities in general. The questions for the survey are based on the marketing mix concept that has been previously informed. Result of the survey was shown in the following table:

Table 2. High-value prepaid customers models vs marketing mix strategies.

| Parameters | Strategies              | Legacy Active      | Digital Active     | Socially Active    | Traditional Active |
|------------|-------------------------|--------------------|--------------------|--------------------|--------------------|
| Product    | Product                 | Not Recommended    | Recommended        | Highly Recommended | Quite Recommended  |
|            | Bundling                | Recommended        | Recommended        | Recommended        | Recommended        |
| Product    | Product Personalization | Not Recommended    | Highly Recommended | Highly Recommended | Recommended        |
|            | Price Up + Topping      | Quite Recommended  | Recommended        | Highly Recommended | Not Recommended    |
| Price      | Discount Price          | Recommended        | Quite Recommended  | Highly Recommended | Not Recommended    |
|            | MyTsel Channel          | Quite Recommended  | Highly Recommended | Highly Recommended | Not Recommended    |
| Place      | Priority                | Recommended        | Recommended        | Recommended        | Recommended        |
|            | M-Banking               | Quite Recommended  | Recommended        | Highly Recommended | Not Recommended    |
| Promotion  | Channel                 | Recommended        | Recommended        | Recommended        | Recommended        |
|            | Social Media            | Quite Recommended  | Highly Recommended | Quite Recommended  | Not Recommended    |
| Promotion  | Referral                | Not Recommended    | Highly Recommended | Highly Recommended | Quite Recommended  |
|            | Program                 | Recommended        | Recommended        | Recommended        | Recommended        |
| People     | Personal Assistant      | Not Recommended    | Highly Recommended | Recommended        | Not Recommended    |
|            | CS in GraPARI           | Highly Recommended | Quite Recommended  | Not Recommended    | Recommended        |
| Process    | ChatBot App             | Not Recommended    | Quite Recommended  | Highly Recommended | Quite Recommended  |
|            |                         | Recommended        | Recommended        | Recommended        | Recommended        |

(continued)

Table 2. Continued.

| Parameters        | Strategies                     | Legacy Active   | Digital Active     | Socially Active | Traditional Active |
|-------------------|--------------------------------|-----------------|--------------------|-----------------|--------------------|
| Process           | MyTsel replace GraPARI         | Not Recommended | Highly Recommended | Recommended     | Quite Recommended  |
| Physical Evidence | Showcase Differentiation       | Not Recommended | Highly Recommended | Recommended     | Quite Recommended  |
| Physical Evidence | Content Provider Collaboration | Not Recommended | Highly Recommended | Recommended     | Quite Recommended  |

Based on the survey result, Telkomsel Jabotabek Jabar area could prioritize marketing tactics with a high recommendation for high-value prepaid customers. Marketing activities could also use existing activities that perhaps are not yet effectively implemented in Telkomsel Jabotabek Jabar. Using deep analysis on customer segmentation and the right marketing strategy for high-value prepaid customers would increase the revenue although there were some limitations in resources. Kotler & Armstrong (2016) stated that marketing is a process by which the company creates value for customers and builds strong relationships with customers to capture value from customers as a reward. So, Telkomsel Jabotabek Jabar need to highly implement new ways of marketing strategy to increase their customer's ARPU.

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## Credit risk management strategies in the banking industry before and during the COVID-19 pandemic

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**ABSTRACT:** The research seeks to investigate macroeconomics before and during the COVID-19 by evaluating how the COVID-19 pandemic affected banking credit activity, and analyzing banking performance factors associated with credit risk, such as capital, bank size, net interest margin, return on asset, return on equity and credit growth. The differences or influences that have a significant impact on credit risk before and during the COVID-19 pandemic is then studied. Furthermore, determining its relevance is an important aspect of this work. This research employs a quantitative strategy based on multiple regression analysis and a descriptive approach to fit an evaluation method with a particular condition. The results revealed that the bank performance related to credit risk before and during the COVID-19 was different. In this case, it is expected that bank management can prepare a risk mitigation strategy based on these results.

### 1 INTRODUCTION

Nowadays, banking profit still mainly comes from credit activity. In this case, credit has the potential to become a non-performing loan, leading to credit risk for the bank. Credit risk is considered a systematic risk originating from the banking itself, such as the debtor's condition and external factors such as political and economic situations. It is similar to what is happening now, with the economic downturn caused by the COVID-19 pandemic. Jorion & Zhang (2009) stated that credit risk is systemic; one of the factors is worsening economic conditions, which have an impact on banking customers' financial situation, causing them to be unable to fulfill all types of payback obligations to banks. Anginer & Yıldızhan (2018) studied bank credit risk and argued that a high default (deterioration) situation was closely related to the economic cycle. The situation in the banking sector will also tend to default if economic conditions decline. This situation will undoubtedly exacerbate systemic credit risk.

Few research opportunities in this field exist due to the country's social, cultural, political, and economic vulnerability. Furthermore, research comparing credit risk indicators before and during the COVID-19 outbreak is still rare. Consequently, this research aims at looking into the factors that influence bank credit risk in the Indonesian banking industry by looking at bank rates and macroeconomic variables like the COVID-19 pandemic. According to Zheng et al. (2018), bank profitability, capital, total assets, and macroeconomic variables like GDP growth rate and inflation had a significant negative impact on bank credit risk, whereas net interest and inefficiency had a favorable impact. Several studies have revealed that specific bank-level characteristics are responsible for an increase in bank credit risk or a decline in credit quality (Espinoza & Prasad 2010; Nkusu 2011). In addition, the studies seek to investigate those characteristics, having an impact, influence, or relevance before and after the COVID-19 pandemic. Capital, bank size, net interest margin, return on assets, return on equity and credit growth are the variables that will be analyzed in this research.

The effect of bank-level and credit risk variables is examined using annual reports from commercial banks, banking statistical reports from the Financial Services Authority (OJK – *Otoritas Jasa*

*Keuangan*) and Bank Indonesia. It also looks to determine the optimal model based on specified criteria.

## 2 METHODOLOGY

### 2.1 *Research design*

This research employed a quantitative method. The research period chosen was 2019 before the COVID-19 pandemic and 2020 when the COVID-19 pandemic occurred. This research uses secondary data from bank's financial statement from bank category 3 (BUKU 3) and category 4 (BUKU 4), which have a time span starting from 2019 and 2020. The time range was chosen based on the beginning of COVID-19. In this case there will be more reliable to make comparison. According to Berger & Demirgüç-Kunt (2021), the best time to conduct research to determine what needs to be addressed is during a crisis. The t-test, multiple regression and backward model are used in this research. The type of data consists of the number of cross section data and the amount of time series data. The dependent variable in this research is credit risk, which is described by the ratio of non-performing loans to total credit at the bank (NPL), while independent variable consists of Capital Adequacy Ratio (CAR), Asset, Net Interest Margin (NIM), Return on Asset (ROA), Return on Equity (ROE) and Credit Growth.

### 2.2 *Hypotheses development*

H1: Capital ratio (CAR) has a significant negative effect on credit risk.

H2: Bank size (assets) has a significant negative effect on credit risk.

H3: Net Interest Margin has a significant negative effect on credit risk.

H4: ROA has a significant negative effect on credit risk.

H5: ROE has a significant negative effect on credit risk.

H6: Credit growth has a significant positive effect on credit risk.

## 3 DISCUSSION

### 3.1 *Backward model regression*

This method aims at finding out the best model with the most appropriate variable. Backward Model Regression is carried out by removing any variables from the model deemed unnecessary in this research (Delsen et al. 2019).

### 3.2 *Backward model regression before and during COVID-19*

From the Table 1 above, shows backward model regression before COVID-19 as follow:

$$y = 0.037 - 0.554 \text{ ROA} \quad (1)$$

From the Table 2 above, shows backward model regression during COVID-19 as follow:

$$y = 0.047 - 0.038 \text{ CAR} + 0.562 \text{ ROA} - 0.174 \text{ ROE} + 0.102 \text{ G\_Credit} \quad (2)$$

By knowing the most suitable variable, it provides a baseline to define findings from the research (Ghozali 2018). Table 1 shows that with the backward method in the 2019 model, there are five stages of elimination of independent variables in the regression model. In this case, there are six regression models. The first regression model (Model 1) involves six independent variables (CAR, Ln (Asset), NIM, ROA, ROE, and Credit Growth). The second regression model (Model 2)

Table 1. Elimination of Independent Variable Regression Model in 2019 (Before COVID-19).

| Model       | Variables Included to Model   | Variables Eliminated to Model | Method   |
|-------------|---|-------------------------------|--|
| 1           | G_Credit_2019, ROA_2019, Ln(Asset)_2019, CAR_2019, NIM_2019, ROE_2019 | –                             | Enter  |
| 2           | G_Credit_2019, ROA_2019, Ln(Asset)_2019, CAR_2019, NIM_2019           | ROE_2019                      | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| 3           | G_Credit_2019, ROA_2019, CAR_2019, NIM_2019                           | Ln(Asset)_2019                | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| 4           | G_Credit_2019, ROA_2019, CAR_2019                                     | NIM_2019                      | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| 5           | G_Credit_2019, ROA_2019   | CAR_2019                      | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| 6           | ROA_2019  | G_Credit_2019                 | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| a. <b>D</b> | Dependent Variable: NPL_2019  |                               |  |
| b.          | All requested variables entered                                       |                               |  |

Table 2. Elimination of Independent Variable Regression Model in 2020 (During COVID-19).

| Model | Variables Included to Model  | Variables Eliminated to Model | Method   |
|-------|--|-------------------------------|--|
| 1     | G_Credit_2020, ROA_2020, Ln (Asset)_2020, CAR_2020, NIM_2020, ROE_2020   | –                             | Enter  |
| 2     | G_Credit_2020, ROA_2020, CAR_2020, NIM_2020, ROE_2020  | Ln (Asset)_2020               | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |
| 3     | G_Credit_2020, ROA_2020, CAR_2020, ROE_2020<br>Dependent Variable: NPL_2020<br>All requested variables entered | NIM_2020                      | Backward (criterion: Probability of F-to-remove $\geq 0.100$ ) |

contains five independent variables (CAR, Ln (Asset), NIM, ROA, and Credit Growth), and the ROE variable is later removed from the model. The third model (Model 3) contains four independent variables (CAR, NIM, ROA, and credit growth), and the Ln (Asset) variable is taken out from the model. The fourth model (Model 4) inserts three independent variables (CAR, ROA, and credit growth), and the NIM variable is omitted. The fifth model (Model 5) processes two independent variables (ROA and credit growth), and the CAR variable is not included in the model. The sixth model (Model 6) contains only ROA variables, and the credit growth variables for this model have been removed. Table 2 shows that with the backward method in the 2020 model, there are two stages of elimination of independent variables in the regression model, which lead to building three regression models. The first regression model (Model 1) involves six independent variables (CAR, Ln (Asset), NIM, ROA, ROE, and Credit Growth). The second regression model (Model 2) contains five independent variables (CAR, NIM, ROA, ROE, and loan growth), and the variable Ln (asset) is removed from the model by the Backward Method. The third model (Model 3) considers four independent variables (CAR, ROA, ROE, and Credit Growth), with the NIM variable omitted in this model.

## 4 CONCLUSION

The indicators that included a relationship with credit risks, such as capital, assets, NIM, ROA, ROE, and credit growth, had been discussed in this study. Based on the results of the pair data test, the credit risk (NPL) before COVID-19 was significantly different from the credit risk (NPL) at the onset of COVID-19. This is one of the reasons behind the increased value of banks' bad debts, as COVID-19 makes it difficult for communities and MSME stakeholders to make installments. In the model before COVID-19, only one of six independent variables was contained in the study using the backward multiple regression model, namely the ROA variable. Credit risk was significantly influenced by this variable (NPL). Other variables, such as CAR, Assets, NIM, ROE, and Credit Growth, had no effect or contributed in a significant way to the increase or decrease in credit risk (NPL). During the COVID-19, four out of six independent variables contained in the study using the backward multiple regression model, the CAR, ROA, ROE, and Credit Growth variables had a significant effect on credit risk (NPL). While other variables, namely Assets and NIM, had no effect or did not make a large contribution to the increase or decrease in credit risk (NPL).

At the end, the results of this research are intended to aid the national banking industry in reducing credit risk. Banks can use the results of this research to monitor the movement of non-performing loans in response to the COVID-19 pandemic and devise strategies for reviewing restructuring and providing new loans during the pandemic. For the government, the restructuring policy will significantly ease the burden on business owners while also lowering the current NPL rate. However, in actual terms, the Bank still bears the impact of the decline in income and even losses. It also implies that the bank's capital buffer should be strengthened. This research can be used as a resource for assessing policies implemented in a short period of time in order to determine the best alternative policies for all stakeholders involved in the economy.

Furthermore, this research could be the basis for further research on other aspects as an indicator of the stability of Indonesian banks affected by the pandemic. Also, the data can be continued for a longer time span to see the long-term response of NPL to the COVID-19 phenomenon, besides that it can also add independent variables, in the form of banking categories per group (BUKU 1, BUKU 2, BUKU 3, and BUKU 4) or per type of Bank (Government Bank, Private Bank, Regional Bank, and Foreign Bank).

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## The business model canvas of Telkomaterial as a B2B entity

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**ABSTRACT:** In today's digital era, telecommunication developments have a significant impact on many aspects of human life, including business and company development. The development of technology creates a culture and environment for a technology-oriented society. Telkomaterial's sales results in 2020–2022 demonstrate that quarterly sales have fluctuated or been inconsistent. Telkomaterial, a company established in 2020, needs a unique strategy to overcome the competition in the telecommunications market. According to David (2015), the main focus of strategic management is obtaining and maintaining a competitive advantage. This study used qualitative research methods. The approach process carried out in this study is to conduct in-depth interviews about Telkomaterial. The design of the business strategy formulation aims at determining the internal and external aspects of the company. It is possible to observe what Telkomaterial owns and the situations that currently exist in the internal aspects of the company.

**Keywords:** Business model canvas, business strategy formulation, telecommunication, digital business strategy

### 1 INTRODUCTION

In today's digital era, telecommunication developments have a significant impact on many aspects of human life, including business and company development. The development of technology creates a culture and environment for a technology-oriented society. Telkomaterial's sales results in 2020–2022 demonstrate that quarterly sales have fluctuated or been inconsistent. Telkomaterial, a company established in 2020, needs a unique strategy to overcome the competition in the telecommunications market.

Based on the research background in the scientific map that the researchers are interested in and potential business strategies for the Telkomaterial business, the formulation of the problem in this study is:

1. This research will plan a business strategy with a B2B scheme on market segmentation in the environment of a telecommunications company, will directly help increase revenue and development of Telkomaterial, and will automatically have an impact on PT Sarana Prima Solusi Indonesia.
2. How to develop a business plan for Telkomaterial.

### 2 LITERATURE REVIEW

Digital transformation refers to the process and strategy of using digital technology to drastically change the way businesses operate and serve customers. According to David (2015), strategic management is all about gaining and maintaining a competitive advantage. The term can be used to describe any activity that a company excels at in relation to its competitors' activities or any resource that the company has that its competitors desire. Owning fewer fixed assets than competing companies can provide a significant competitive advantage. According to Thompson Jr. et al.

(2015), corporate strategy is an action plan from a company’s management to run a business and carry out its operations. It includes activities on how management seeks business growth; how to build loyal customers and compete against its competitors; and how to operate the business function, including research and development, value chain activities, production, sales and marketing, distribution, finance, and human resources; and how to improve the company’s performance.

### 3 METHODOLOGY

This study used qualitative research methods. Satori & Komariah (2013) explained that qualitative research intends to understand concepts, characteristics of goods and services, and other descriptive phenomena while descriptive phenomena not being evaluated were being studied. A study on specific issues can be conducted using qualitative research techniques to gather complete data and understand and analyze a variety of phenomena found in the field. The approach in this study is to conduct interviews in-depth about Telkomaterial.

Table 1. The research information.

| No | Research Types       |                           |
|----|----------------------|---------------------------|
| 1  | Research purposes    | Descriptive               |
| 2  | Research paradigm    | Interpretivism            |
| 3  | Research methodology | Qualitative               |
| 4  | Unit of analysis     | Organization              |
| 5  | Research Engagement  | Not Interfering with Data |
| 6  | Execution time       | Cross sectional           |

Table 2. The data of the interviewees.

| No | Name        | Code | Position                  | Job description   | Company                |
|----|-------------|------|---------------------------|---|------------------------|
| 1  | Rian Wibawa | N1   | PT SPSI’s Director        | Responsible for the company’s overall business  | Telkomaterial          |
| 2  | Hetty       | N2   | PT SPSI’s Project Manager | Responsible for carrying out the project for the company                              | Telkomaterial          |
| 3  | Ihsan       | N3   | PT SPSI’s Manager         | Responsible for managing the company  | Telkomaterial          |
| 4  | Iman        | N4   | Staff                     | Identification, preparation, implementation, monitoring, and evaluation of strategies | Telkomaterial          |
| 5  | Sendra      | N5   | Staff                     | Identification, preparation, implementation, monitoring, and evaluation of strategies | Telkomaterial          |
| 6  | Uslyadin    | N6   | Director                  | Responsible the company’s overall business  | PT Fajar Mitra Persada |

### 4 RESULTS

This study was started by reviewing internal and external factors from Telkomaterial. These factors will be used to determine the next strategy by examining the strengths with opportunities, strengths with threats, weaknesses with opportunities and weaknesses with threats. From the results of the SWOT matrix analysis, four strategies can be applied, namely:

#### 4.1 *SO (Strengths-Opportunities) strategy*

- 1) Internally, Telkomaterial prepares the company to address the diverse demands of the telecommunications market. (S1, S2, S3, S4, S5, O1)
- 2) The development of business lines in the telecommunications industry by using technology is to meet additional consumer needs. (S1, S2, S3, S4, S5, O1, O2, O3, O4)

#### 4.2 *WO (Weaknesses-Opportunities) strategy*

- 1) Telkomaterial learns more features for marketing development to expand and recruit experts. (W1, W2, W3, W4, O1)
- 2) A new campaign for the latest product is created. (W1, W2, W3, W4, O2, O3, O4)

#### 4.3 *ST (Strengths-Threats) strategy*

Human resources with the necessary skills to produce high-quality goods are required to face the current market conditions. (S1, S5, T1, T2, T3, T4, T5)

#### 4.4 *WT (Weaknesses-Threats) strategy*

Digital technology is applied during the pandemic. (W3, W4, T1, T4)

|   |   |   |   |  |
|---|---|---|---|--|
| <b>Key Partnerships</b><br>- Supplier of raw material<br>- Marketing agency<br>- Online platforms | <b>Key Activities</b><br>- Selling telecommunication products.<br>- Building connection<br>.          | <b>Value Proposition</b><br>- Quality and affordable products<br>- Knowledge from human resources.<br>- Quality products<br>- Interaction with customers<br>- Easy payment system | <b>Customer Relationship</b><br>- Direct communication.   | <b>Customer Segment</b><br>- Vendors and subsidiaries of PT Telkom Tbk |
|   | <b>Key Resource</b><br>- Human resources.<br>- Raw materials<br>- Finance<br>- High-quality equipment |   | <b>Channel</b><br>- Websites<br>- WhatsApp<br>- Employees |  |
| <b>Cost Structure</b><br>- Operational cost<br>- Marketing cost<br>- Tax                          |   | <b>Revenue Stream</b><br>- Sales of products and services<br>- Building rental fee  |   |  |

Figure 1. A summary of the strategies identified by Telkomaterial's SWOT matrix.

The SWOT analysis results were integrated into the aspects of the existing business model canvas at this analysis stage. There was also an analysis of business model development obtained from the SWOT analysis results.

## 5 CONCLUSION & SUGGESTION

Based on the results of this study, several conclusions are, namely:

- 1) The current condition of Telkomaterial can be described by identifying the existing Business Model Canvas from Telkomaterial. This identification is crucial to developing the strategies

to deal with the COVID-19 pandemic. B2B can occur because companies need goods or services from other companies. Therefore, before marketing their products to final consumers, companies usually collaborate with other companies to meet their production needs or introduce their products to the public.

- 2) As a business model that is in line with the requirements and circumstances of the current telecommunications industry, the Business Model Canvas developed by adapting the results of the business strategy formulation is recommended. Based on the results of the strategy formulation, Telkomaterial's business model canvas needs to be modified with additional elements if companies are to survive the COVID-19 pandemic.

In addition, there are several suggestions that would like to be offered.

- 1) This research can be used as an input in maintaining Telkomaterial revenue amid the COVID-19 pandemic so that business continuity is maintained. The proposed product development and market penetration strategy can be a reference in running the business in the future.
- 2) This research is still only focused on start-ups, especially in the telecommunications industry, in order to get an overview of the business climate amid the COVID-19 pandemic. Future research is expected to be carried out in the start-up industry in different fields.

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# The effect of facebook marketing on the purchase intention of security training customers

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**ABSTRACT:** Industrial security becomes increasingly popular nowadays along with development of many industries in Indonesia. This phenomenon increases the demand for qualified and professional security officers. To be considered qualified and professional, someone needs to join a security training, which is available in many private companies that provide security training under the supervision of police officers. There are 200 security training companies in West Java that compete in this business. To attract more customers, PT. Caraka Sakti Utama uses seven social media marketing tools and the most active one is Facebook. Based on previous studies, social media has a significant impact on purchase intention. Social media marketing as a part of digital marketing contributes to building a trusted brand, improves business performance, measures business activity, improves customers' satisfaction, and increases sales. This study is quantitative method used simple random sampling aimed at analyzing the effect of Facebook marketing, brand awareness, and WOM toward Purchase Intention of PT. Caraka Sakti Utama's new customers.

## 1 INTRODUCTION

PT. Caraka Sakti Utama is a security training company with a legal permit from the Indonesian Police Headquarter, Jakarta. Located in Subang, Cirebon, Purwakarta, and Jakarta, this company regularly conducts security training for the public on a monthly basis (Utama, n.d.). The participants are people who want to be security officers. As stated in National Police Regulation (Kapolri 2017), people who wants to become a security officer, he or she have to pass security training.

PT. Caraka Sakti Utama uses several social media platforms for their marketing purposes, such as Facebook, YouTube, TikTok, Instagram, WhatsApp (WA) marketing, and email marketing to attract new customers. The data of its social media followers are shown below in Table 1:

Table 1. Social media database.

| No | Name              | Followers |
|----|-------------------|-----------|
| 1  | Facebook          | 3,580     |
| 2  | Facebook fan page | 9,094     |
| 3  | Instagram         | 2,131     |
| 4  | YouTube           | 773       |
| 5  | TikTok            | 17,798    |
| 6  | WA marketing      | 2,128     |
| 7  | Email marketing   | 2,128     |

Among all their social media platforms, the reach and interaction (engagement) on PT. Caraka Sakti Utama's Facebook account has the highest number. Additionally, their Facebook communication brings the company the highest number of student enrolments compared to other companies

that do not use social media platforms for their marketing tools. The comparison can be seen in the following Figure 1.

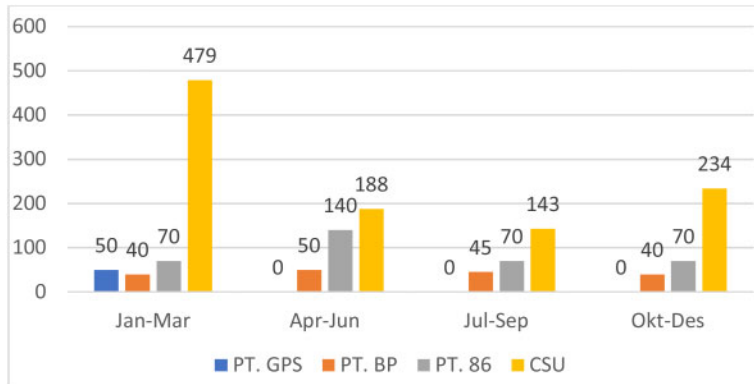


Figure 1. Comparison among companies.

As shown in Figure 1, the number of participants who register at PT. Caraka Sakti Utama is the highest every batch. This is predicted to happen as the impact of their Facebook communication. That being said, there has not been research conducted on this matter, hence the importance to study it to confirm if social media has an impact on purchase intention.

## 2 LITERATURE REVIEW

The American Marketing Association defines marketing as the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offers that have value for customers, clients, partners, and society at large (Kotler 1956). Marketing is also defined as a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and values with others (Kotler et al. 2005).

Chaffey (2014) describes three main types of media channels marketers that need to consider: 1) Paid media. These are bought media where there is an investment to pay for visitors, reach or conversions through search, display advertising networks, or affiliate marketing. Offline, traditional media like print and TV advertising and direct mail remain important, accounting for the majority of paid-media spend; 2) Earned media. Traditionally, earned media has been the name given to publicity generated through PR invested in targeting influencers to increase awareness about a brand. Now, earned media also includes word-of-mouth that can be stimulated through viral and social media marketing and includes conversations in social networks, blogs, and other communities; 3) Owned media. This is the media owned by the brand, can be online or offline. Online, this includes a company's websites, blogs, email list, mobile apps, or social presence on Facebook, LinkedIn, or Twitter. Offline, owned media may include brochures or retail stores.

Some activities that are considered social media communication: 1) Opinion Seeking is the state where any person seeks any supported argument. It is a physiological need of human that gives satisfaction and help them make better decisions (S. C. Chu & Kim 2011). With this in mind, we propose that H1. Opinion Seeking has a positive effect on Purchase Intention; 2) Viral Advertisement messages spread like fire. It is like any chemical material that catches fire and spreads within minutes in all environments. This is the same as if an ad gets viral on social where, within minutes, it spreads all around the social media platform (Todt 2009). For this media communication, we argue that H2. Viral Advertisement has a positive effect on Purchase Intention; 3) Brand Page Commitment (BPC) is a long-term relationship building method between brands and their consumers, due to which the consumers feel directly connected with the brands. It has a

positive physiological impact on consumer minds (Hutter et al. 2013). Considering that, we propose that H3a. Brand Page Commitment has a positive effect on Purchase Intention and H3b. Brand Page Commitment has a positive effect on Brand Awareness; 4) Lack of Irritation refers to the absence of irritation of advertisements. “When advertising employs techniques that annoy, offend, insult, or are overly manipulative, consumers are likely to perceive it as an unwanted and irritating influence” (Ducoffe R.H. 1996). Taking this into account, we propose that H4a. Lack of Irritation has a positive effect on Purchase Intention and H4b. Lack of Irritation has a positive effect on Word of Mouth; 5) Word of Mouth (WOM) is defined as the act of exchanging marketing information among consumers and plays an essential role in changing consumer attitudes and behavior towards products and services (Hepp 1955). For this communication, we propose that H5. Word of Mouth has a positive effect on Purchase Intention; 6) Brand Awareness is related to the strength of the resulting brand node or trace in memory as reflected by consumers’ ability to identify the brand under different conditions (Keller 2008). Considering this, we propose that H6. Brand Awareness has a positive effect on Purchase Intention; 7) Purchase Intention is a decision-making process where consumers make the decision to purchase from the brand (River et al. 2010). With this in mind, we propose that H7a. Brand Page Commitment through Brand Awareness has positive effect on Purchase Intention and H7b. Lack of Irritation through WOM has positive effect on Purchase Intention.

### 3 CONCEPTUAL FRAMEWORK

This study used a quantitative method. The population consists of 400 prospective customers who followed PT. Caraka Sakti Utama’s Facebook account.

The sample includes 210 participants that had been selected using a simple random sampling. The data generated from the sample were analyzed using the Structural Equation Modelling (SEM) technique on SmartPLS. Similar models were used by Hutter et al. (2013), Gaber et al. (2019), and Chu (2011).

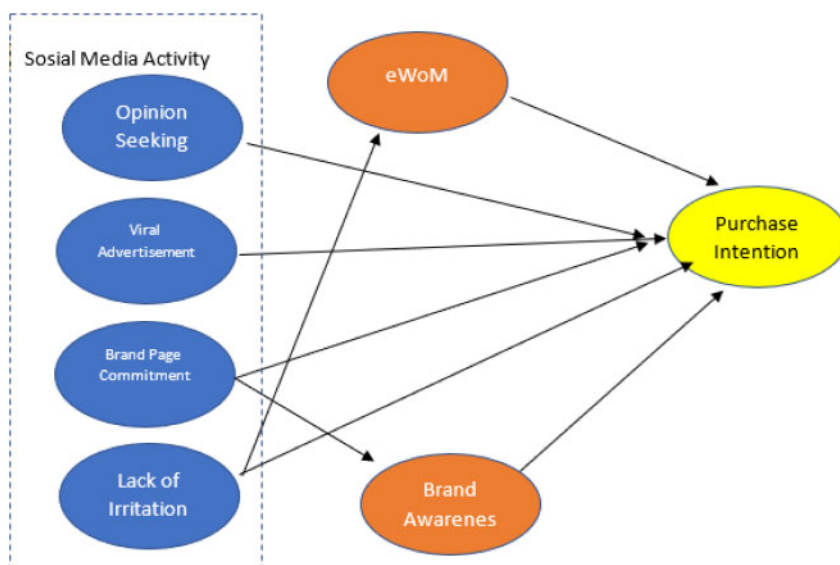


Figure 2. Conceptual model.

The questions and items used were set up based on literature and measured on a five-point Likert scale. Opinion Seeking was measured using two adapted items from Chu (2011). Viral

Advertisement was measured using four items from Chu (2011). Brand Page Commitment was measured using six adapted items from Chu (2011). Brand Page Commitment was measured using five items from Hutter et al. (2013). Lack of Irritation was measured using three items from Gaber et al. (2019). Word of Mouth was measured using three items from Hutter et al. (2013). Brand Awareness was measured using four items from Hutter et al. (2013). Purchase Intention was measured using two items from Hutter et al. (2013).

Based on the findings, it can be summarized that five of the ten hypotheses were accepted. This is because with P-value are under 0.05 and a T-value is above 1.65 for one tailed test. (Hair et al. 2014).

#### 4 CONCLUSION

Our findings represent that engagement with a Facebook fan page has a positive effect on consumers' Brand Awareness, Brand Page Commitment, and Purchase Intention. The results further indicate that the Lack of Irritation with the fan page has a positive effect on Purchase Intention and Word of Mouth. Moreover, Brand Page Commitment also has a positive effect on Purchase Intention through Brand Awareness.

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## Analyzing strategies in IT startup companies using business model canvas

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**ABSTRACT:** Digital startup companies are growing rapidly, and the competition between digital startup companies is also very high. Digital startup companies must have the right strategy to survive and compete. Therefore, they can continue to grow, and contribute greatly to the people of Indonesia. In the business process, IT startup companies experienced several challenges in developing their business. The challenges are related to the decline in revenue due to fierce competition between IT startup companies, lack of innovation, selection and implementation of inappropriate strategies, and more. This research aims at analyzing the problems related to the companies' internal and external conditions that IT startup companies encounter and to develop several alternative formulations to overcome challenges so that they can grow rapidly in the next 5 years. Several methods employed in this research are case study qualitative method with SWOT approach, internal and external analysis, alternative strategy development, strategy selection, and analyze Business Model Canvas (BMC). This research is expected to provide several alternatives of the most appropriate strategy to be applied to the IT startup companies by considering the current internal and external conditions so that the IT startup companies can develop rapidly.

**Keywords:** SWOT, startup company strategy, strategy, analysis, business, process

### 1 INTRODUCTION

Facing the the industrial revolution 4.0, people are expected to be able to adapt to technological advances, also known as digitalization. Technology can be used to improve the quality of life, especially after the COVID-19 changed people's behavior, especially technological needs. The industrial development of startup companies is currently experiencing a significant increase. This rapid increase is influenced by the high number of internet users and the use of technology in today's society. Therefore, digital startups become easier to develop. Digital startup companies are growing rapidly, and the competition between them is also very competitive. Digital startup companies must have the right strategy to survive and compete so that they can continue to grow, and contribute greatly to the people of Indonesia. The industrial development of startup companies in Indonesia is currently experiencing a very significant increase. This rapid increase is influenced by the high number of internet users and the use of technology in today's society. In 2021, Indonesia was in the fifth place with the largest number of startup companies in the world (Startupranking.com). This research analyzes how to develop a business strategy for a startup IT company and formulating the most appropriate strategy for the development of startup companies in the next 5 years. This research is expected to provide several alternatives to the most appropriate strategy to be applied to the IT startup companies by considering the current internal and external conditions so that the IT startup companies can develop rapidly.

2 LITERATURE REVIEW

COVID-19 pandemic continues to bring uncertainty by forcing small businesses to embrace information technology (IT). Undoubtedly, innovation during a crisis is crucial for organizational resilience and competitiveness through establishing valuable resources and taking risks (Cefis et al. 2020; Hipp & Binz 2020). Many small businesses reported struggling to adopt IT due to various barriers, including lack of confidence, poor IT strategy, and the pressure of other commitments (Chouki et al. 2020). SWOT is one of the most widespread methods for developing strategies. It creates qualitative and subjective models based on how strategic decisions are made (Oreski 2012). Formulation of development strategies in realizing the goals of a company and improving the company’s current position (Pugh & Bourgeois III 2011). Decorative Square Business can be identified through the nine blocks of the Business Model Canvas and SWOT analysis. This canvas model was created to see market segmentation to increase sales with a strategy of product innovation. Product innovation is carried out by creating designs that are never the same for every project that is accepted (Fitriani and Sultan, 2019).

3 METHODOLOGY

In this study, the internal and external factors of an IT startup company were analyzed. The internal factors were analyzed through vision and mission analysis and functional analysis. Vision is a series of sentences that state the ideals or dreams of an organization or company to be achieved in the future (Wibisono 2006). Mission is a series of sentences that state the purpose or reason for the existence of the organization that contains what is provided by the company to the peoples, either of products or services (Wheelen 2006). Functional management is a process that consist of planning, organizing, actuating, and controlling to determine and accomplish the objectives by the use of people and resources (Terry 2011). On the other hand, the external factors of an IT startup company were analyzed using PEST (Political, Social, Economic and Technological). PEST analysis is an analysis of business external environmental factors that include the political, economic, social, and technological fields (Ward & Peppard 2002).

The data of this research were processed using the SWOT matrix analysis and Business Model Canvas (BMC). The tool used to structure the company’s strategic factors is the SWOT matrix. The matrix can clearly describe how to adjust a company’s external opportunities and threats based on its strengths and weaknesses (Rangkuti 2014).

Table 1. Matrix SWOT.

| <div>IFAS<br/>EFAS</div> | Strength  | Weakness   |
|--------------------------|---|--|
| Opportunity              | <b>Strategy SO</b><br>Create strategies that use strengths to take advantage of opportunities | <b>Strategy Wo</b><br>Create strategies that use weakness to take advantage of opportunities |
| Threats                  | <b>Strategy ST</b><br>Create strategies that use strength to overcome threats                 | <b>Strategy WT</b><br>Create strategies that minimize weaknesses and avoid threats           |

Source: Rangkuti (2014)

This matrix produces four possible alternative strategies which are arranged as follows:

- 1. SO Strategy: This strategy is based on the company’s mindset, which is to seize and take advantage of the greatest opportunities by taking advantage of all existing advantages.
- 2. ST Strategy: This strategy is used by the company to overcome every challenge faced by the company.

3. WO Strategy: This strategy is used to take advantage of opportunities by minimizing existing weaknesses in the company.
4. WT Strategy: The strategy is based on defensive activities and seeks to deal with existing weaknesses and avoid threats.

Business Model Canvas (BMC) is a business model that describes the rationale of how an organization creates, delivers and captures value (Osterwalder 2014). It can be described through nine building blocks:

Table 2. Business model canvas.



Source: Osterwalder (2014)

Customer segments define the different groups of people or organizations an enterprise aims to reach and serve. Customers are the heart of any business model. Value propositions describes the bundle of products and services that create value for a specific customer segment. The value proposition is the reason why customers turn to one company over another. Channels describes how a company communicates with and reaches its customer segments. Customer relationships describes the types of relationships a company establishes with specific customer segments. Revenue streams represents the cash a company generates from each customer segment (costs must be subtracted from revenues to create earnings). Cost structure describes all costs incurred to operate a business model. This building block describes the most important costs incurred while operating under a particular business model. Key resources describes the most important assets required to make a business model work. Every business model requires key resources. Key activities describes the most important things a company must do to make its business model work. Every model calls for a number of key activities. Key partnerships describes the network of suppliers and partners that make the business model work.

#### 4 RESULT

This research resulted that to maintain an IT startup company, it was necessary to change the business model to adapt to the conditions that occur. Business strategy needed to be redesigned because of the unsustainable business conditions and the existing business model could not adapt to current conditions. In his book, Navawi (2005) stated that strategic management is a large-scale plan (strategic plan) facing the distant future (vision), which is defined as decision making (basic and

main decisions) from top management so that the organization can interact effectively. Strategic management is the process of making decisions and taking actions that aim to determine the performance of an organization in the long term so that organizational activities can run effectively. In designing a business strategy, it is necessary to create a business model. According to Osterwalder and Pigneur (2010), a business model is a tool used to illustrate the basic principles of how organizations create, deliver, and capture value. In the process, the business model canvas is a management strategy used to design a company's business plan based on the company's value proposition, products, infrastructure, customers, and finances. To see the value of all aspects of the business model and see all aspects in detail, a SWOT analysis is needed to see the strengths, weaknesses, opportunities, and threats of the business. According to Rangkuti (1998), SWOT analysis is defined as a logic-based analysis, so as to minimize weaknesses and threats while minimizing advantages and opportunities. SWOT analysis provides four perspectives for evaluating business model elements, while BMC provides the necessary focus in developing a business model.

## 5 CONCLUSION

This research was aimed at conducting a strategic analysis for startup companies using the SWOT analysis to analyze the company from the internal and external factors and design a new business model canvas (BMC) for startup companies to find the right strategy, which will be carried out by the company, with the aim of advancing the company. This research is expected to provide several alternatives of the most appropriate strategy to be applied to the IT startup companies by considering the current internal and external conditions so that the IT startup companies can develop rapidly. However, it is necessary to conduct empirical testing related to the theoretical framework.

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## Addressing SDG 4 in digital sustainable entrepreneurship: The what, how, and why

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**ABSTRACT:** In the wake of the growing recognition around the importance of bringing the Sustainable Entrepreneurship to the local entrepreneurs in Bandung City Indonesia, this study elaborates on the concept of “Three Circle Framework of Ecopreneurship” and analyzes to what extent the environmentally friendly business actors are considered in the implementation of the Sustainable Development Goals 2030. Through the lens of ecopreneurs or green entrepreneurs, namely Yayasan Tunas Nusa, Hayu Hejo Kota Baru Parahyangan, Komunitas Hayu Hejo, Haiqal’s Garden, and CeuMeta.com; the aim is to provide context to what, how and why leveraging SDG 4 “Quality Education” is critical for achieving sustainable development by 2030. This study employs a qualitative methodology, in which the data obtained were the result of a semi-structured interview. The findings indicate how the concept of “Three Circle Framework of Ecopreneurship” has been shaped, how it features in addressing the SDG 4 gained from their environmentally friendly activities, and why it is considered critical with regard to their business growth. Nevertheless, while the concept of sustainable development requires actions, the practical process of SDG 4 in the context of digital sustainable entrepreneurship is still subject to a number of questions. In this regard, this study is expected to produce a richer understanding of nature of the dynamic and complex phenomenon that is usually referred to as sustainable entrepreneurship.

### 1 INTRODUCTION

In the last decades, Sustainable Development Goals (SDGs) have become an essential topic of discussion for scholars and practitioners concerned with environmental issues. Since the Brundtland Report published, SDGs have steadily gained popularity to become one of the most critical environmental discourses today. Together with innovation, businesses are believed to be partly responsible for managing the balance in economically driven, socially driven, and ecologically driven manners. Critically, Sustainable Entrepreneurship (SE) or green entrepreneurship or ecopreneurship is increasingly cited as a critical sector that can bring about sustainable transformation in production and distribution. Due to its growing recognition as a driver of sustainable development, SE or ecopreneurship is subject to research across many scientific disciplines. Thus, this study aims to systematically analyze and outline on how the case studies of sustainable development influences ecopreneurial activities and vice versa. The result reported in this study aims to describe the evaluation of what, how, and why the ecopreneurs played their role in addressing SDG 4 “Quality Education” gained from their green business. However, the findings on how ecopreneurship activities contributed to the achievement of SDG 4 were still limited and should be addressed by further research.

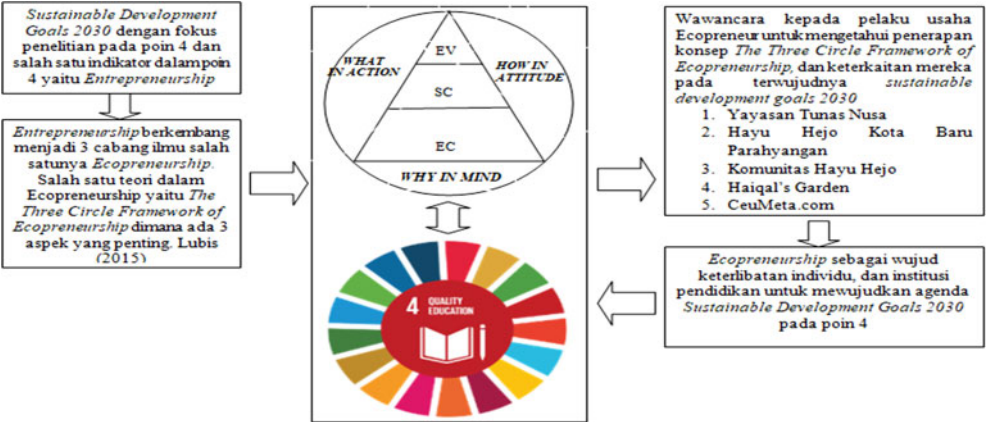
### 2 LITERATURE REVIEW

Entrepreneurship (in French) is a term that has become popular since 1990, the understanding in this case is more likely to be interpreted as a person who buys goods at a fixed price with the

aim of reselling them at an undetermined price. Today, entrepreneurship is equated with different but cheerful terms, in which the scope is the same, namely someone who has the ability and behavior of a person in obtaining business opportunities with various risks that they may face (Zimmerer 1996:12). From this definition, it can be inferred that entrepreneurship is a science that studies the value of a person's abilities and behavior to see an existing opportunity and then create a new innovation by looking at the direction of development of a product they create. Furthermore, in management science, entrepreneur develops in three branches of science, namely Technopreneurship, Sociopreneurship and Ecopreneurship (Lubis 2015).

The theory of the ecopreneurship concept of Lubis' (2015:45) research is believed to be a solution to the goals set by the United Nations through the 2030 SDGs. The final result of this study is information about the application of the ecopreneurship concept in several organizations and communities in the city of Bandung and linking the activities of the five research objects is a form of contribution from the business world and academic to the 2030 SDGs by using the theoretical approach of "The Three Circle Framework of Ecopreneurship" from Lubis (2015:45) as a variable to be examined in the object of research.

### 3 THE CONCEPTUAL FRAMEWORK



The framework flow in this study starts from the SDGs 2030 with an approach to business actors who think about the impact of the environment. Next, it is followed by the Indonesian government regulations that support the SDGs 2030, namely Presidential Regulation No. 59 of 2017. The authors then selected one of the 17 goals of the 2030 SDGs, namely number 4, that is "Ensure inclusive and equitable quality education and promote life-long learning opportunities for all".

In point 4.4, it specifically states "Ensure inclusive and equal quality education, as well as support lifelong learning opportunities for all". Substantially, there should be an increase in the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship, where entrepreneurship itself is currently starting to develop, giving rise to a new environmental-based entrepreneurship theory or Ecopreneurship (Vorley, 2002:547–548).

### 4 RESEARCH FINDING AND DISCUSSION

This part presented the discussion of research findings which provided evidence to answer problem statement on how do the business actors' and communities' in addressing SDG 4 "Quality Education" gained from their environmentally friendly activities. This section estimates which of

the drivers mentioned in the application of the ecopreneurship concept are most important to those five respondents', namely: Yayasan Tunas Nusa, Komunitas Hayu Hejo, Hayu Hejo Kota Baru Parahyangan, Haiqal's Garden, and CeuMeta.com

Following to this, a tabulation of the responses to indicate the respondents' views of the "environmental values", "social values", and "economic values" in relation to the three drivers of ecopreneurial action is illustrated in Table 1. All the respondents rank the three drivers of ecopreneurial action in order of importance on a scale of 1-3; with 1 being most important and 3 being least important.

Table 1. The research findings in relation to the three drivers of ecopreneurial action\*.

| Yayasan Tunas Nusa       | Komunitas Hayu Hejo      | Hayu Hejo Kota Baru Parahyangan | Haiqal's Garden          | CeuMeta.com              |
|--------------------------|--------------------------|---------------------------------|--------------------------|--------------------------|
| (1) Social values        | (1) Environmental values | (1) Environmental values        | (1) Social values        | (1) Environmental values |
| (2) Environmental values | (2) Social values        | (2) Social values               | (2) Economic values      | (2) Social values        |
| (3) Economic values      | (3) Economic values      | (3) Economic values             | (3) Environmental values | (3) Economic values      |

\* The rating importance in the questionnaire is: (1) Most important; (2) Slightly important; (3) Least important, or numbering 1 to 3 as an interval scale.

The implementation of the most dominant values for the five ecopreneur actors was environmental and social, although two of them had dominant social values, the future impact of the activities carried out by each ecopreneur was for the creation of a better environment in accordance with the theory of the concept of "The Three Circle Framework of Ecopreneurship" where the five respondents have the same goal based on the "Why". The interview question of "Why they carry out these activities, namely with the hope that the environment will be better and the community will form a mindset so as not to damage the environment".

Based on the research results, ecopreneur actors through the concept of "The Three Circle Framework of Ecopreneurship" could prove that the business activities of these business actors were evidence of their involvement in realizing the 2030 SDGs.

## 5 RECOMMENDATIONS FOR FUTURE RESEARCH

In this study, the authors sought to provide recommendations for four parties, namely Academics (A), Business (B), Community (C), Government (G) and Media (M) with a period between 0–5 and 5–10 years in accordance with the year set and the end of the SDGs in 2030, as described in Table 2.

The following are the recommendations for future research:

- (1) There is a need for research on activities carried out in the SDGs in a universities.
- (2) There is a need for research involving ecopreneurs and the factors that create ecopreneur in terms of the family environment.
- (3) There is a need for research on the age of an ecopreneur in terms of a community that does not seek profit.
- (4) There is a need for research on the attractiveness of millennials in building a new business related to ecopreneur.

Table 2. The action plan by A, B, C, G, M for Addressing the SDGs 2030\*.

| Academics<br>(A)  | Business<br>(B)  | Community<br>(C)  | Government<br>(G)  | Media<br>(M)   |
|---|--|---|--|--|
| Establishing<br>SGDs Centers in<br>universities so<br>that every<br>activity with the<br>direction of the<br>2030 SGDs can<br>be recorded | Conducting<br>socialization in<br>environmentally<br>friendly businesses<br>and providing<br>lessons to the<br>community for<br>waste management | Setting targets for<br>millennials where<br>nowadays it is<br>easier for<br>millennials to be<br>an influence on<br>society | Preparing<br>planning for the<br>procurement of<br>green areas as a<br>follow-up to the<br>achievement of<br>the 2030 SDGs | Creating a<br>Collaboration<br>between the media<br>so that publications<br>regarding the SDGs<br>are conveyed to the<br>public continuously |

\* The action plan in the next 5–10 years: Adopting “The Three Circle Framework of Ecopreneurship” as an alternative solution to help achieve the Sustainable Development Goals (SDGs) through Digital Sustainable Entrepreneurship.

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## Identifying the driving forces of digital sustainable entrepreneurship: A triple bottom line in the business model canvas to achieve SDGs

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**ABSTRACT:** The entrepreneurship concept in the digital era has evolved significantly in recent years, and it has a more significant impact on a company's sustainable innovation capabilities. Entrepreneurship has gradually become spiritual trait of organization members in the digital era and appears on all levels of an organization. This research examines the impact of entrepreneurship on a company's sustainable innovation capability in the digital era from Triple Bottom Line (TBL) perspective. The empirical data were collected with entrepreneurs who participated in the "Pasar Sehat Bandung" event through the semi structured in-depth interview. The research results show that entrepreneurial organizations have adopted innovative approaches to promote Sustainable Development Goals (SDGs) with digital technologies. This research emphasizes the critical role of entrepreneurship in enterprise sustainable innovation capability. It discusses that digital sustainability can spur empirical advances in Sustainable Entrepreneurship (SE), Innovation, and strategy with the potential to impact society to achieve that SDGs positively.

**Keywords:** Sustainable Development Goals (SDGs), Digital Sustainable Entrepreneurship, Triple Bottom Line, Business Model Canvas.

### 1 INTRODUCTION

The 2030 SDGs agenda is a United Nations-supported effort to eradicate poverty from an economic aspect, reduce inequality from a social stance, and protect nature from an environmental perspective. It applies to all countries without exception and has a moral obligation to achieve the goals and targets of the SDGs. In attempting to achieve one of the SDGs goals, namely goal number 4 Quality Education, which implies ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all, the focus on indicator point 4.4 is to substantially increase the number of youth and adult with relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship. Thus, universities play a critical role in increasing the number of adolescents and adults with relevant skills, including technical and vocational skills that are beneficial for finding decent jobs and entrepreneurship. As a result, it is necessary to have an SDGs Center at every university, including Telkom University, which is Indonesia's number one private university (PTS – *Perguruan Tinggi Swasta*) in 2019 and ranks 14th out of 100 institutions (PT – *Perguruan Tinggi*) according to the Ministry of Research, Technology and Higher Education.

This research used a BMC approach and mapping to determine the description of the business model of the Pasar Sehat Bandung business unit, which includes nine elements, namely customer segments, value proposition, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structures. Business model mapping through BMC aims at making it easier to analyze what is not right and what needs to be developed so that the correct measures can be taken to achieve business goals.

This research was conducted to show how the ecopreneurship concept is implemented into the business model. The triple bottom line theory proposed by Elkington (1998) is used to analyze the business focus of the business model that is currently being implemented and mapped with BMC.

In addition to making profit, the company must also pay attention to and be involved in ensuring the welfare of the community (people) and actively contribute to environmental preservation (Planet) in the triple bottom line.

## 2 LITERATURE REVIEW

### 2.1 *The concept of ecopreneurship*

According to Lubis (2015), the concept of ecopreneurship identifies three drivers of ecopreneurial action (Three Drivers of Ecopreneurial Action) that help to identify commercial business opportunities while generating environmental, social, and economic benefits. In addition, it also represents attitudes, skills, and behaviors that emphasize environmental, social, and economic values. In the image of the Lubis pyramid, ecopreneurial actions represent attitudes, skills, and behaviors that focus on environmental, social, and economic values.

### 2.2 *Business Model Canvas (BMC)*

According to Osterwalder and Pigneur (2010), the Business Model Canvas (BMC) is a complex business model simplified using the canvas approach, which involves drawing a single canvas with a map of nine building blocks (squares) to help entrepreneurs identify potential businesses. The nine canvas building blocks that must be understood and considered to run a business are the customer segment, value proposition channel, customer relationship, revenue stream, key resources, key activities, key partnership, and cost structure.

### 2.3 *Triple bottom line*

The triple bottom line was first introduced by Elkington (1998) in his book, *Cannibals with Forks: The Triple Bottom Line*. He coined the terms “economic prosperity,” “environmental quality,” and “social justice” to describe the triple bottom line concept. Triple Bottom Line is the concept of measuring the performance of a business in a “holistic” manner by taking into account economic performance measures in the form of profit gain, social awareness measures, and environmental conservation (Elkington 1998).

1. Profit – Profit is the main goal of every business action that involves economic factors, such as the bottom line and cash flow. Companies must continue to be focused on generating economic benefits that allow them to operate and develop. Increased productivity and cost efficiency are the activities that can be implemented to generate profits and give the organization a competitive advantage that can provide maximum added value.
2. People – Companies must consider human welfare with social variables, such as society, education, social equality, human resources, health, welfare, and quality of life. Realizing that the community around the company is one of the important stakeholders for the company, because the support of the surrounding community is very necessary for the existence, survival, and development of the company. Thus, as an inseparable part of the environmental community, companies must commit to maximizing the community’s benefits.
3. Planets – The company’s relationship with the environment is a cause-and-effect relationship. If the company takes care of the environment, the environment is beneficial to the company with environmental variables, such as natural resources, water, air quality, energy conservation, and land use. A company’s obligation is to care for the environment and sustainable biodiversity.

In this study, the researchers conducted interviews and observations related to nine elements of BMC to business units that have been determined from Pasar Sehat Bandung, namely Warung 1000 Kebun, Sekolah Rempah Nusantara, Botanina, Rahsa Nusantara, and Warung Imah Babaturan. The results of interviews and observations were mapped and related to the Elkington’s triple bottom

line theory in order to see the focus of their business. Based on this description, the theoretical framework is made as shown in Figure 1.

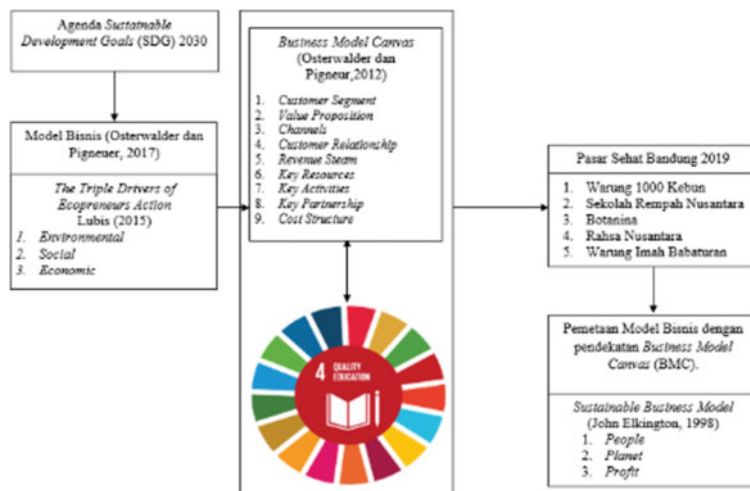


Figure 1. Research framework adopted from Lubis (2015).

### 3 RESEARCH FINDING AND DISCUSSION

This part presented the discussion of research findings which provided the Elkington's triple bottom line approach, namely 3P that stands for "People, Planet, and Profit". The researchers categorized business focus based on the strength of the elements possessed by each respondent. All respondent – Warung 1000 Kebun, Sekolah Rempah Nusantara, Botanina, Rahsa Nusantara, and Warung Imah Babaturan – choose which of the 3P approach that characterized their business model. The findings are shown in Table 1.

Table 1. The focus on business orientation based on business model canvas mapping.

| Warung 1000 Kebun       | Sekolah Rempah Nusantara | Botanina  | Rahsa Nusantara   | Warung Imah Babaturan                            |
|-------------------------|--------------------------|---|---|--|
| People (public welfare) | People (public welfare)  | People (public welfare) and planet (environmental sustainability) | People (public welfare) and planet (environmental sustainability) | Profit and planet (environmental sustainability) |

### 4 RECOMMENDATIONS FOR FUTURE RESEARCH

In this study, the authors propose recommendations for each respondent with regard to business development and are listed in Table 2.

In addition to business development as shown in Table 2, the authors propose recommendations for academics, business entities, communities, and the government, along the period of one to three years, as known as mid-term action plan. Table 3 shows the description of the recommendations.

Future research is recommended to examine the ecopreneurship concept business model with other approaches, such as Lean Canvas, SWOT, Five Porters Analysis and empathy map. In addition, in-depth research can also be carried out on the business model with the ecopreneurship concept

Table 2. Recommendations with regard to business development.

| Respondent                  | Detail description of recommendations   |
|-----------------------------|---|
| Warung<br>1000 Kebun        | Strengthening the channel elements by using online marketplace channels such as Shopee and Tokopedia so as to increase revenue streams. Furthermore, to increase positive feedback from consumers, the key resource of human resources is given education on understanding healthy food products. Moreover, physical resources provided include nutritious food needs, and gardening equipment managed organically.   |
| Sekolah Rempah<br>Nusantara | Strengthening the channel elements by using online marketplace channels such as Shopee and Tokopedia so as to increase revenue streams. Furthermore, to increase positive feedback from consumers, the key resource of human resources is given education on understanding healthy food products. Moreover, physical resources provided include more variety of organic processed products.   |
| Botanina                    | Strengthening key partnership elements by utilizing brand ambassadors to increase brand image and consumer awareness so as to increase sales and influence revenue streams.   |
| Rahsa Nusantara             | Strengthening key partnership elements by utilizing brand ambassadors to increase brand image and consumer awareness so as to increase sales and influence revenue streams.   |
| Warung Imah<br>Babaturan    | Strengthening key partnership elements by utilizing brand ambassadors to increase brand image and consumer awareness so as to increase sales and influence revenue streams and collaborate with local farmers to obtain organic raw materials. Thus, the food offered is categorized as organic healthy food without chemicals and improve the status of farmers. In addition, on the key resources element in human resources, education is given to understand about healthy food products in order to increase good feedback to consumers. |

Table 3. Recommendations with regard to mid-term action plan for academics, business entities, communities, and the government.

| Responsible<br>Person/Organization | Mid-term action plan   |
|------------------------------------|--|
| Academics                          | Establishing of a Sustainable Development Goals Center in every educational institution, especially universities as a medium to support the achievement of the Sustainable Development Goals (SDGs) agenda |
| Business                           | Collaborating with other businesses with an ecopreneurship concept so as to create product collaborations, educational activities, such as seminars and workshops.   |
| Community                          | Conducting seminar activities with communities related to the theme of a healthy life-style, a healthy environment, and being an environmentally friendly businessman.                                     |
| Government                         | Organizing activities with academics, business people, communities regarding the understanding of the SDGs related to environmental, social, and economic aspects.   |

using internal and external analysis of a business towards other business units participating in the Pasar Sehat Bandung or other activities.

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## Scenario planning approach for future electricity businesses to support the energy transition in Indonesia

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**ABSTRACT:** The global industry is looking for ways to survive during technological developments that are currently so massive. The same goes for the electricity industry. The employment industry must be able to meet consumer needs, keep up with technological developments and develop business models to adapt to changes. To overcome future uncertainties of electricity demand, the rapid deregulation of the electricity sector, and the transition of energy to renewable energy, it is necessary to plan a scenario which will be elaborated on in this study to provide a comprehensive scenario planning to help PLN one of electricity company in Indonesia to adapt and develop in the future with uncertainties that arise in the future. which can have an impact on the future of the electricity business. The purpose of this research is to provide an overview of the future situation in the electricity industry and all aspects that can impact on changes in the electricity sector in Indonesia such as driving forces, critical uncertainties, possible scenarios, and options for each scenario. This study will use a qualitative research methodology that uses primary data and secondary data to determine the driving factors that will affect the electricity business. This research is also able to transform from one scenario to another with a better future. So that it will produce a powerful strategy to face the future and the choices that will occur for each scenario that will be carried out. Through this research will generate possible future opportunities and prepare for future competitive challenges.

**Keywords:** Scenario Planning, Electricity Industry; Energy Transition, Uncertainties, Business Strategy, Driving Forces.

### 1 INTRODUCTION

The global industry is looking for ways to survive during technological developments that are currently so massive. The same goes for the electricity industry. The employment industry must meet consumer needs, keep up with technological developments and develop business models to adapt to changes. Electricity has been the main energy source for many things since its invention. Electricity is a strategic infrastructure for the economy and national development. Several studies have revealed that electricity is the foundation for achieving development goals, such as increasing people's welfare, national income, employment opportunities, and changes in the economic structure (Latif 2016:29–41).

The trend in the global energy sector is towards increasing the share of renewable energy sources compared to continuing to develop conventional energy sources in line with Indonesia's commitment to the use of coal and fossil fuels by 2060. Technological developments, increased business development, and deregulation in Indonesia's electricity sector are the determining factors for increased private participation in power generation using renewable energy.

For Indonesia, which has a proportion of fossil energy reaching almost 70% in the primary energy mix, the urgency to carry out decarbonization is even higher (IESR 2019). Achieving the target set by the government regarding the energy mix is not easy. This is because the state-owned electricity company is currently experiencing an oversupply or oversupply of electricity.

Several previous studies show that nobody has specifically reviewed the future electricity business in Indonesia with a scenario planning approach. Existing analysis has been a lot of on the constraints of project completion, development strategy in line with regional potential, and provide and demand studies (Hendro & Sunitiyoso 2016; Gultom 2017; Nizam 2008; Suharmanto et al. 2015). Moreover, research by Quentara & Suryani (2017), showed that the most downside of the electrical operational systems in Indonesia is the way to maintain the continuity of effective and economical services to the purchasers and meet the availability and demand for power, significantly a great deal of islands area in Indonesia is way distant from the facility generation sources. This research will answer these following questions:

1. What are the appropriate key driving forces to predict the future of the electricity business sector in Indonesia?
2. What are the strategies that electricities companies in Indonesia should implement for each scenario of future conditions?

The purpose of this study is to provide an overview of the future situation in the electricity industry and all aspects that may impact changes in the electricity sector in Indonesia to face the energy transition in 2030. This research will generate the possibility of future opportunities and prepare for future competitive challenges.

## 2 LITERATURE REVIEW

### 2.1 *Scenario planning*

Scenario planning has been widely used in the last 20 years or so. Scenario planning is known as an effective method of identifying future uncertainties within the organization (Kahane 1999). In addition, scenario planning has been trusted by many as a useful tool in improving and implementing various strategic planning options for organizations (Swanson et al. 1998). Mats Lindgren dan Hans Bandhold (2003:21) reported Scenario is not a forecast (forecasting) in the sense that the scenario is not a projection of the future from existing data at the present time. The scenario is also not a vision (vision) or the desired future condition (the desired future).

The scenario development process holds 4 critical steps. First identifying the driving forces and critical uncertainties for years to come, the goal is to develop 4 distinct scenarios that are most likely to happen.

#### a) *Identifying driving forces*

To begin with, you should discuss what are going to be the big shifts in society, economics, technology, and politics in the future and see how it will affect your company. Most organizations use STEEP analysis to run environmental scanning. STEEP (Social, Technology, Economics, Environment, and Politics) analysis is a tool commonly used in marketing to evaluate the different external factors that impact an organization. It is important for every business to consider some external forces before making a decision. Fathi S. M. Abdullah (2009).

#### b) *Trend and uncertainty analysis*

Once the basic data and information have been collected, factors potentially affecting future developments must be analysed with the view to identifying the most relevant ones (Schwartz 1991; Schoemaker 1995). One common way to undertake this task is to rank the various factors according to their degree of uncertainty and potential impacts on the system under investigation (Schwenker & Wulf 2013), by employing an impact/uncertainty grid (van der Heijden 2005).

#### c) *Scenario building*

In this step, the identified trends and critical uncertainties are converted into various plausible scenarios that describe different possible future states of the world (Schwartz 1991; Schoemaker 1995).

#### d) *Strategy definition*

In this step traditional appraisal and evaluation tools and techniques can be employed to identify the most flexible and robust strategy. Once scenarios have been developed, different decisions and strategic options can be tested against the various possible future conditions (Schwartz 1991; van der Heijden 2005).

### 3 METHODOLOGY

This scenario planning research is qualitative research that uses the TAIDA method, which in the beginning was developed by Lindgren and Bandhold in 2003 and then perfected in 2009. TAIDA stands for Tracking, Analysing, Imaging, Deciding, and Acting in its simple form. Tracking is the stage that is related to the efforts to discover the trend, drivers, and uncertainty that should be considered as long as they are influential toward the future of the focal question (Lindgren & Bandhold 2009). In essence, the focus is on the efforts to firstly identify the trend, in which the drivers and uncertainty can be found. The identification is performed through media scanning, internet research, and interview which in this research is conducted by STEEP analysis. As an additional trend identification, a desk study is carried out on related regulations and planning documents. STEEP analysis method analyzes the current social, technological, economic, environmental, and political conditions. The analyzing is basically aims to identify the drivers as well as the consequences in order to understand how trend interacts (Lindgren & Bandhold 2009). This stage consists of two main activities, the first one is conducting an interrelation analysis using critical uncertainties analysis between trends that are found and the second one is to develop a scenario. The imaging stage is closely related to the decision-making process in the future to achieve certain targets or commonly known as vision. The previous stage is just an instrument to clarify the future situation. scenarios are then written up as a story. The deciding stage is also related to making decisions about what scenarios will be the target and using what kind of strategy? or in other words, the deciding stage is related to the identification of several options and strategies.

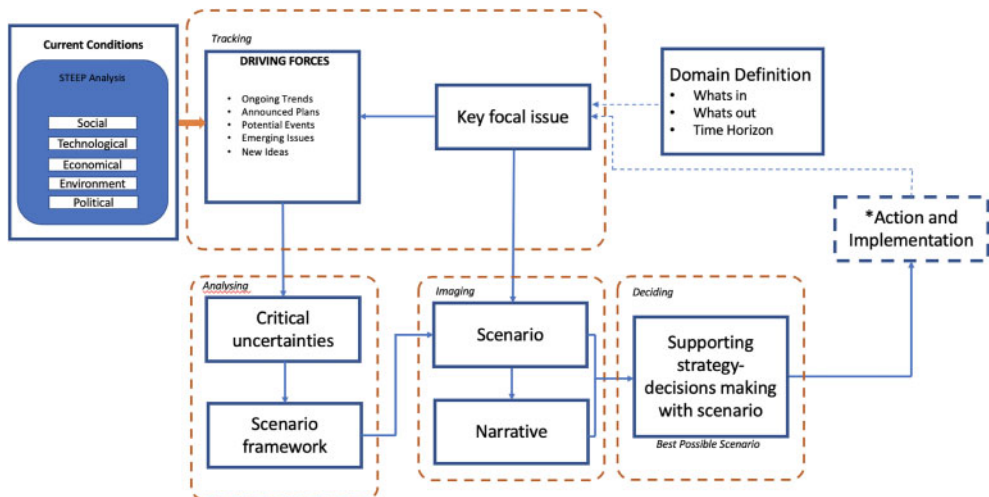


Figure 1. Theoretical framework.

Source: Adaptation and Modification – Expanded from Lindgren and Bandhold (2009) & Zulfitri and Hermawan (2015)

## 4 CONCLUSION

This study seeks to conduct an environmental analysis using STEEP analysis to determine the driving force via interview panels, internet search media scanning, regulation, and planning documents. Furthermore, empirical testing related to the theoretical framework is required to generate the possibility of future opportunities and prepare for future competitive challenges in the electricity industry.

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## Technology readiness & acceptance model and digital transformation strategy of Ciparay traditional market village, Bandung

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**ABSTRACT:** Traditional markets are a business ecosystem as well as a center for community economic activities that support the lives of the wider community. All actors in the economic sector, including traditional markets, were forced to make changes as a result of the implementation of the PSBB amid the Covid-19 pandemic. The adoption of technology in traditional markets is said to be one of the solutions launched by the central government during a pandemic. In this study, the author will examine the factors that affect the readiness of traditional market players to adopt technology with a case study of the Ciparay traditional market village with the Technology Readiness and Acceptance Model (TRAM) approach after being proven by previous research that this model can accurately explain the readiness to adopt technology. The method used in this study is a quantitative which explains the relationship between the independent variables and the dependent variable. The research was conducted through a census of all market traders, totaling 345 respondents that processed quantitatively using TRAM analysis and then confirmed based on statements from the Market Village manager as well, of traders and buyers which will then be processed to produce a formulation strategy.

**Keywords:** Traditional Market, Technology Readiness Index (TRI), Technology Acceptance Model (TAM), Technology Readiness and Acceptance Model (TRAM)

### 1 INTRODUCTION

Referring to the Domestic Trade-Ministry of Commerce data, processed by the Central Statistics Agency (*Badan Pusat Statistik*) (2021), the number of traditional markets in Indonesia in 2019 showed an increase of 10.4% in 2017–2018. In 2019, it reached 15,675 units with a total of 2,818,260 traders and continued to increase to 16,235 units in 2020 with an increase of 12,625 million traders active in it. All actors in the economic sector including traditional markets are forced to make changes. Hundreds of traditional market traders have felt the bad impact of the Large-Scale Social Restrictions (PSBB) during the Covid-19 pandemic. The adoption of technology in traditional markets is one of the solutions launched by the central government during the pandemic. This step is important to take as anticipation so that traditional market traders can also compete by selling their goods online. The Ministry of Trade will soon synergize the offline market with the online, due to the shift in people's consumption patterns, especially due to the Covid-19 pandemic.

#### 1.1 *Technology Readiness and Acceptance Model (TRAM)*

Technology Readiness and Acceptance Model (TRAM) was proposed by Lin et al. (2007), which is a combination of the concept of readiness for technology adoption of the Technology Readiness Index and the concept of technology acceptance of the Technology Acceptance Model. TRAM is used to determine the effect of user readiness on the acceptance of information technology or systems. Davis (1989) stated that the impact of factors on a person's interest in using information systems (intention to use) will be mediated by perceived usefulness and perceived ease of use.

## 1.2 *Structural Equation Modeling (SEM) and Partial Least Square (PLS)*

Structural Equation Modeling (SEM) is a methodological combination of two disciplines, namely a confirmatory factor analysis model taken from psychometrics and a structural equation model taken from econometrics (Ghozali & Latan 2015). SEM is a statistical technique for simultaneously testing and predicting causal relationships between several independent and dependent constructs or between variables. Another definition of SEM is a statistical technique used for testing and estimating causal relationships based on causal statistical and qualitative data (Urbach & Ahlemann 2010).

Partial Least Square (PLS) is defined by two sets of equations, namely the inner model and the outer model. The inner model determines the specification of the relationship between the latent construct and other latent constructs, while the outer model determines the specification of the relationship between the latent construct and its indicators (Yamin & Kurniawan 2009). Partial Least Square (PLS) is stated as an alternative method for Structural Equation Modeling (SEM), which can be used to solve the problem of the relationship between the complex variables involved with a small sample data size of 30 to 100, while SEM has a data sample size of at least 100 (Hair et al. 2010). The selection of the PLS method was based on the consideration that in this study three latent variables were formed with formative indicators and formed a moderating effect. The formative model assumes that the construct or latent variable affects the indicator and the direction of the causal relationship is from the construct to the indicator (Ghozali 2006).

## 2 LITERATURE REVIEW

### 2.1 *Technology Readiness and Acceptance Model (TRAM) model*

The study that combined TRI and TAM has also been carried out (Aisyah 2014; Basgoze 2015; Chen et al. 2011; Erdogmu & Esen 2011; Hallikainen & Laukkanen 2016; Walczuch et al. 2007). Not all of them used the name TRAM in their studies, but there are similar model characteristics, namely the TRI dimension variables (optimism, innovativeness, discomfort, and insecurity) and TAM dimensions (perceived ease of use, perceived usefulness, intention to use).

### 2.2 *Structural Equation Modeling (SEM) model*

The software for SEM analysis that is often used is SmartPLS. It has several advantages. SmartPLS is statistical software with the same purpose as LISREL and AMOS, namely to test the relationship between variables. The SmartPLS approach is considered powerful because it is not based on various assumptions. The number of samples required in the analysis is relatively small. The use of Smart PLS is highly recommended when we have a limited number of samples while the model being built is complex. This cannot be done when we use other software, LISREL and AMOS, which require sufficient samples. The data in the SmartPLS analysis do not have to have a normal distribution because SmartPLS uses the bootstrapping method or random multiplication. Therefore, the assumption of normality will not be a problem in PLS. Apart from being related to the normality of the data, by doing bootstrapping, PLS does not require a minimum number of samples. SmartPLS is able to test formative and reflective SEM models with different indicator measurement scales in one model. Whatever the form of the scale (category ratio, Likert, etc.) can be tested in one model. However, the disadvantage of SmartPLS is that it can only read Excel data in CSV format.

## 3 CONCEPTUAL FRAMEWORK

This study uses a framework adopted from Fishbein and Azjen's framework of Technology Readiness and Acceptance of the Research model methodology which has been modified following Lin et al., 2007 research. This research methodology is divided into two sides, namely relevant (according

to the facts on the ground) and Rigor (knowledge). The framework adopted for this research is depicted in the figure below:

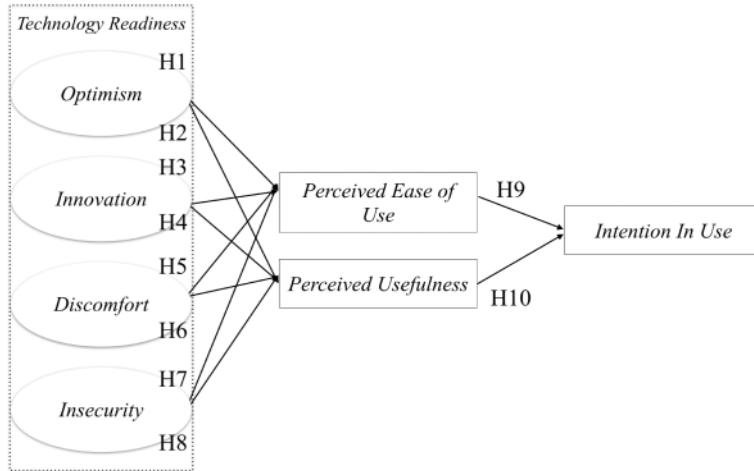


Figure 1. Conceptual framework.

Ten hypotheses were developed (Figure 1) for measures how personality traits (i.e., optimism, innovation, discomfort, and insecurity) are posited as e-readiness factors through TAM's cognitive dimensions (i.e., perceived ease of use and perceived usefulness) affects the intention of traditional market traders in Ciparay to accept the implementation of the technology. based on the opinions of experts who state that (a) Optimism is a positive attitude towards technology and the belief that technology will increase control, flexibility, and efficiency in life (b) Innovativeness is a tendency to be the first to use new technology products or services (c) discomfort as an attitude that is difficult to control and tends to be overwhelmed/unconfident when dealing with new technologies and (d) insecurity as an attitude that has suspicions about technology security and reasons for personal data security (Parasuraman 2000). Hence, we hypothesize that:

$H_0$ : All independent variables (optimism, innovativeness, discomfort, and insecurity) do not effect on the dependent variable (Perceived Ease of Use and Perceived Usefulness).

$H_a$ : All independent variables (optimism, innovativeness, discomfort, and insecurity) have a significant effect on the dependent variable (Perceived Ease of Use and Perceived Usefulness).

#### 4 CONCLUSION

The method used in this research is quantitative research which explains the relationship between the independent variable and the dependent variable. The research was conducted through a census of all market traders who were processed quantitatively using TRAM analysis, then the results of the analysis in the form of models were then processed to obtain a proposed strategy. Previous studies have proven that this model can accurately explain the readiness of technology adoption clearly. TRAM is used to determine the effect of user readiness on the acceptance of technology or information systems (Davis 1989). Validation was carried out in this study using SmartPLS (Partial Least Square).

The results of the study are: (a) the model obtained from the quantitative analysis shows that the relationship between the independent and dependent variables in the study shows significant results and the results of testing the positive hypothesis are positive and (b) the strategy for formulating digital transformation from the analysis of the model formulated by the factors that must

be considered. implemented in the Ciparay Village Traditional Market as a step in implementing digital transformation.

The conclusions of this study are: (a) Technology Readiness and Acceptance Model (TRAM) is a model that can accurately explain technology acceptance in Ciparay Village Traditional Market, (b) Perceived Ease of Use variable has the most influence on Intention of Use, and (c) Optimism is the independent variable that has the most significant effect on Perceive ease of Use and has a greater influence than other independent variables in existing conditions.

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## Analysis of differences financial literacy and investment decisions between student in Bandung city and Cirebon city

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**ABSTRACT:** Financial literacy is processes to be able to increase the knowledge, skills and confidence so that they can manage their personal finances better and make investments and the money they manage can provide benefits after a certain period of time. Many previous studies have discussed the level of investment financial literacy and investment decisions, but no one has examined the differences in big cities and small cities in West Java, therefore this study will find out whether there are differences in financial literacy and in-vestment decisions between students in Bandung and Cirebon, by spreading questionnaires and analyzed the Wilcoxon signed ranks test, and that the results show that there is no difference in financial literacy between Bandung and Cirebon students, and there are differences in investment decisions between Bandung and Cirebon students. The results of this study will be useful for the financial sector, especially in marketing its investment products.

### 1 INTRODUCTION

With the developments in the era of globalization which is quite fast, the investment world is also growing. The community must have knowledge of good and correct financial management. Before determining the steps to invest, people need to realize the importance of having knowledge about financial literacy. According to Arviana (2019), the financial literacy of the Indonesian people is 29.7% where these figures are low, and low financial literacy can lead to a lack of good financial planning, undirected financial goals, not determining investment instruments, and being trapped by the lure of the lure of investments that will provide large profits or fraudulent investments. Low financial literacy causes people to be easily attracted to save their money in investment products with the promise of high profits in the short term.

### 2 MATERIAL & METHOD

#### 2.1 *Definition of financial literacy*

Financial literacy is the knowledge and skills of the public that are able to provide confidence regarding financial institutions and the various products in them within the parameters of the index size. According to the Financial Services Authority (2013), literacy is the ability and understanding, so that financial literacy is the ability to manage the funds owned so that they develop and live more prosperously in the future. In this study, the authors use the model used by Ulfatun et al., (2016) where financial literacy is divided into four aspects, namely as follows: Financial knowledge, Savings and borrowing, Investment and Insurance.

## 2.2 *Definition of investment and decisions.*

According to Lubis & Zulam (2017) the decision to invest is influenced by information and investor knowledge about investment and each investor has a different level of ability and knowledge about investment. According to Tandelilin (2010) there are 3 basic types in investment decisions including: Return, Risk and Risk & Return Relationship.

## 2.3 *Sampling technique*

The technique used in this sample collection is purposive sampling. Purposive sampling is a sampling technique with considerations or criteria for students with the 2017-2021 class from all majors and all universities in Bandung City and Cirebon City. In this study, the population size is the total of the number of students in the city of Bandung and the city of Cirebon as many as 35,847 with an error rate of 5%, so that there are 396 respondents using the Slovin formula to obtain the research sample.

# 3 DATA COLLECTION

The method in this study uses a quantitative method with a questionnaire survey. Researchers used Google Form and distributed it to students in Bandung City and Cirebon City. By giving 30 questions, where 20 questions are financial literacy variables and 10 questions are investment decision variables. Respondents were given a choice of answers using the Likert scale method, where there were 5 choices containing Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. That of the 396 respondents 70% of them are female, totaling 277 respondents, and the remaining 30% are male, totaling 119 respondents and the respondents aged 21–23 years are 312 respondents, while respondents aged 18–20 years are totaled 84 respondents. 50% of respondents came from students in the city of Bandung and 50% came from students in the city of Cirebon. 243 student respondents found that they had not invested, while the remaining 153 had invested. As for the decision to save, 390 respondents already have savings, while 6 respondents do not have savings.

# 4 RESULT AND DISCUSSION

## 4.1 *Result*

The normality test on the financial literacy data of students in the city of Cirebon is 0.000, the financial literacy of students in the city of Bandung is 0.000, the investment decision of students in the city of Cirebon is 0.000 and the investment decision of students in the city of Bandung is 0.000. The criteria for a normally distributed data is if the data has a value  $> 0.05$  but the data in this study is 0.000 so it is said that the data in this study is not normally distributed. Because the data are not normally distributed, the difference test in this study uses the non-parametric Wilcoxon signed ranks test. 4 that the sig value of Student Financial Literacy in Bandung City and Cirebon City is 0.967, which means that the value is  $> 0.5$  so there is no difference in financial literacy between students in Bandung City and Cirebon City. The sig value of Student Investment Decisions in Bandung City and Cirebon City is 0.04 which means that the value is  $< 0.5$  so it can be said that there are differences in investment decisions between students in Bandung City and Cirebon City.

The results of the data prove that there is no difference in financial literacy between students in the city of Cirebon and the city of Bandung where both are included in the medium category and have a score interpretation value of 77.67% for financial literacy students in the city of Cirebon and 77.90% for students in the city. Bandung. Then for the investment decision variable, it shows that there are differences between students in the city of Cirebon and the city of Bandung. Students in the city of Cirebon are included in the fairly good category with an interpretation score of 67.62%

while students in the city of Bandung are included in the good category with an interpretation score of 78.05%.

#### 4.2 Discussion

According to research conducted by (Nawangsari 2018) through his research which analyzes the Effect of Financial Literacy and Interest in Investing on Investment Decisions in Unisba Bandung Students and shows that financial literacy possessed by students has an influence in making decisions to invest. In this study, it was also found that the financial literacy of students in the city of Bandung was in the medium category where it can be said that most of the students in the city of Bandung already understand and can manage their personal finances well. on the investment decision variable, students in the city of Bandung are in the good category, indicating that students in the city of Bandung have started to invest. According to research conducted by (Sholehah, 2020) which analyzes financial literacy in the city of Cirebon, it shows that financial literacy in the city of Cirebon belongs to the medium category. This study found similarities where the financial literacy of students in the city of Cirebon belongs to the medium category. It can be interpreted that students in the city of Cirebon have been able to manage their finances quite well. There is no research that analyzes student investment decisions in the city of Cirebon, in this study the authors get the results that there are differences in student investment decisions in the city of Bandung and the city of Cirebon. the results of investment decisions in the city of Bandung are in the good category while the results of investment decisions in the city of Cirebon show quite well, this shows that students in the city of Cirebon have invested but not as many as students in the city of Bandung.

### 5 SUMMARY AND SUGGESTION

#### 5.1 Summary

This study aims to determine whether there are differences in financial literacy and investment decisions between students in the city of Bandung and the city of Cirebon. With demographic differences where the city of Bandung is the capital of the province of West Java and Cirebon is a small city, so that is what underlies the authors to conduct this research. Researchers have carried out data processing and data testing so that it can be concluded that there is no difference in financial literacy between students in the city of Bandung and the city of Cirebon. And there are differences in investment decisions between students in the city of Bandung and the city of Cirebon.

#### 5.2 Suggestion

Based on the results of research that has been carried out regarding the differences in financial literacy and investment decisions between students in Bandung City and Cirebon City, there are several suggestions with the hope of providing benefits to the financial sector:

1. Give more efforts in improving financial literacy. Because it is still necessary to increase financial literacy in order to increase students' self-awareness of the importance of managing finances properly and correctly.
2. Need to be improved in providing an effort that investment is considered important from an early age, because the results of respondents show that most students in Bandung and Cirebon do not have investments.
3. The need for investment products that are easy to understand so that students who are not yet interested in investing will be interested in investing so that their money can be managed properly and be useful for the future.

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## Analysis of challenging factors for digital transformation in Telkomsel company

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**ABSTRACT:** The digital transformation carried out by Telkomsel led to several challenges along the way. As the market leader in the Telco industry in Indonesia with a large number of employees, customers, and assets spread across various islands in Indonesia, this can be challenging for Telkomsel's ongoing digital transformation process. This study aims at analyzing the challenging factors and identifying the most dominant challenging factors in the transformation process in Telkomsel, especially in the Network Services Management Group (NSM Group) unit. By understanding the challenging factors for emerging digital transformation, it is hoped that the NSM Group unit can prepare the right strategy to help accelerate and optimize the current transformation process.

### 1 INTRODUCTION

Since 2020, the telecommunications industry in Indonesia has experienced turbulence that presents both opportunities and challenges. The COVID-19 pandemic has put the telecommunications industry at the center of life by empowering businesses and communities through emerging connectivity. In addition, phenomena that have emerged in recent times, such as changes in customer behavior in the digital era as a result of technology disruption, are Gradually fading business legacy (SMS and voice) that switch to data. The trend of non-data revenue (legacy), which keeps declining while data revenue keeps rising at the three (three) biggest cellular operators in Indonesia, namely Telkomsel, XL, and Indosat, makes this clear.

The increase in Telkomsel's revenue from the surge in data traffic (payload) has not been able to cover the decline in revenue from legacy traffic. Increasing data traffic (payload) requires a significant cost that is increasing. These factors encourage Telkomsel to transform from a traditional Telco to a digital Telco.

According to digital transformation statistics, in 2018, more than 50% of all attempts failed miserably (Forester), 70% of all digital transformation programs failed due to employee refusal and lack of support from management (McKinsey), and 16% of employees claimed that their digital companies' transformation efforts improved or sustained their performance (McKinsey).

Network Services Management Group (NSM Group) is part of the Telkomsel organization, which is at the forefront of operations that are directly or indirectly related to Telkomsel's customers. The NSM Group consists of organic employees with a current number of approximately 987 employees or 18% of the total number of Telkomsel employees.

The following conditions describe the challenges faced by the NSM Group when the digital transformation process takes place in Telkomsel.

1. The results of the survey on the ACTION implementation index in the NSM Group, which is a guideline in the digital transformation process in Telkomsel
2. Large organizational conditions where low capability skills and gap future capabilities still dominate and are in the identification and analysis stage as well as new business models that are still in the early stages are challenges faced by Telkomsel, especially in the NSM group

Table 1. The challenges faced by NSM group in the transformation process.

| Organization Value | Implementation percentage per score |          |          |        |
|--------------------|-------------------------------------|----------|----------|--------|
|                    | Area 1                              | Area 2   | Area 3   | Area 4 |
| Agility            | Low                                 | Low      | Low      | Low    |
| Customer Centric   | Moderate                            | Moderate | Moderate | High   |
| Innovation         | Low                                 | Low      | Low      | Low    |
| Open Mindset       | Low                                 | Low      | Low      | Low    |
| Networking         | Low                                 | Low      | Low      | Low    |

to carry out digital transformation. Artificial Intelligent/Machine Learning (AI/ML) has not been widely adopted and used properly. The lack of utilization of Big Data and Automation Platform, including minimal exploration and implementation of new technologies for business development, is also a challenge in the digital transformation process (Nugroho 2021).

This study seeks to explore all the challenging factors for digital transformation in general and specify them in the Network Services Management Group unit so that it can answer the following research questions:

1. What factors are the challenges in carrying out digital transformation in the NSM Group unit?
2. What factors are the most dominant challenges in the digital transformation process in the NSM Group unit?

2 LITERATURE REVIEW

2.1 Digital transformation

According to Hartl & Hess (2017), the term “digital transformation” refers to the changes those technological advancements can make to a company’s business model, such as new organizational structures, products, or processes that are automated. According to Rogers (2016), digital transformation covers the following strategic areas: customer, competition, data, innovation, and value.

2.2 Factors affecting digital transformation

According to Ousmundsen et al. (2018), Some factors that can cause a company to carry out digital transformation, including regulatory changes, changes in the competitive landscape, shifts/changes to digital forms of industry, and changes in consumer behavior and expectations. According to Henriette (2015), digital transformation can involve more or less major changes in a company’s business model, which can occur in processes, resources, methods, or operational culture.

There are several other factors revealed in the research results (Kwon & Park 2017), the factors that affect digital transformation in the global industry, namely human factors, technology factors, IT factors and business strategies, and digital leadership factors.

2.3 Agile

According to Pressman (2010), the role of humans or teams in agile development is significant and will affect software development. Agile development focuses on the capabilities of each individual. The skills needed to build a team in agile development, namely competence, common focus, collaboration, decision-making ability, fuzzy problem-solving ability, mutual trust and respect, and self-organization.

## 2.4 *Customer centric*

Customer-centric strategy is implemented by the company to serve customers better. Companies can define the customers to be served so that they can understand the needs, wants, and expectations of customers. Companies must also listen to the voice of customers, whether they want to provide input or complaints (Tandjung 2006).

## 2.5 *Open mindset*

Gunawan (2007) explains that mindset is the essence of self-learning. This factor determines how to view potential, intelligence, challenges, and opportunities as a process that must be pursued with perseverance, hard work, and effort to achieve goals.

## 2.6 *Innovation*

Freeman (2004) considers innovation as the efforts of the company through the use of technology and information to develop, manufacture, and market products that are new to the industry. In other words, innovation is the modification or discovery of ideas for continuous improvement and development to meet customer needs.

## 2.7 *Digital culture*

The term culture comes from the Latin “cultura”, which means “to cultivate”. Culture has various meanings. Digital culture serves as a bridge or catalyst between the real and the virtual (Rab 2007). Another definition, digital culture is a complex set of values or beliefs, assumptions, and symbols that become the way companies do digital business through collaboration, creation of creativity, and innovation through digital strategies (Martínez et al. 2020).

## 2.8 *Objective key result*

OKR or objective key result is a collaborative goal-setting protocol to help ensure that organizations consistently focus and prioritize efforts to achieve the same goals within the organization (Widodo 2020).

## 2.9 *Digitalization*

Digitization is a direct process of converting analog information to digital. It can also be interpreted as the process of moving the process from manual to digital (for example: replacing the handwritten form with an online version that goes directly to the database) (Gobble 2018). Meanwhile, digitalization based on Gobble (2018) refers to the use of digital technology, and possibly digital information, to create and grow value in new ways.

## 2.10 *Digital technology*

Digital technology is a technology whose operating system runs automatically using a computerized system. Digital technology is essentially just a highly quick counting system that converts all types of information into digital codes or numeric values. The development of this technology brings changes to the quality and efficiency of the data capacity that is created and transmitted, such as images become clearer due to better quality, more efficient capacity, and faster delivery processes (Danuri 2019).

### 3 METHODOLOGY

#### 3.1 Factor analysis

There are two types of factor analysis, namely CFA (Confirmatory Factor Analysis) analysis, which is to confirm the shape of the latent variable model based on empirical data, and EFA (Exploratory Factor Analysis) analysis, which is to explain (explore) what factors make up the latent variable (Haryono 2017).

In this study, confirmatory factor analysis was used with the assistance of SPSS 25 software for factor analysis: Kaiser-Meyer-Olkin (KMO)/Sampling Sufficiency Measure (Sample Adequacy Test), The Bartlett's test of Sphericity (aims at determining the feasibility of the formed factors), Factoring and Rotation, Determination of the Number of Factors, Factor Interpretation and mention the factors that form.

### 4 CONCEPTUAL FRAMEWORK

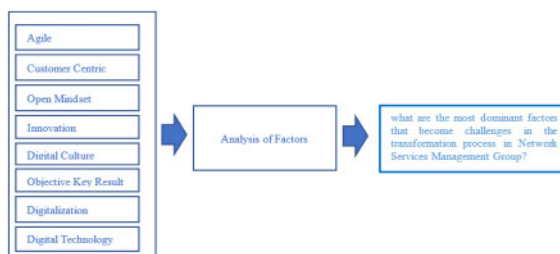


Figure 1. Conceptual framework.

### 5 CONCLUSION

1. This study aims at analyzing the factors that become challenges and the most dominant challenge factors in the transformation process in the Network Services Management (NSM) Group, one of the units in Telkomsel.
2. This study uses qualitative and quantitative methods to obtain truly original variables so that by using Confirmatory Factor Analysis (CFA) can be obtained specific and dominant factorization.

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## Factors affecting the adoption of new innovation technology on MSMEs in Indonesia

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**ABSTRACT:** Micro-Small-Medium Enterprises (MSMEs) play an important role in Indonesia's economic growth. The COVID-19 pandemic situation hit their business, thus increasing the use of innovative technology for both MSME players and buyers. MSMEs should be encouraged to adopt new technology so they can recover or even improve during the pandemic. Many different theories assess the acceptance of innovative technology and its advantages and disadvantages. The TOE-DOI models can complement each other. This study aims to develop the conceptual framework of a new innovation technology by combining two technology acceptance models and also the most influential factors in adopting an innovation technology.

**Keywords:** MSMEs, COVID-19 Pandemic, TOE-DOI Model, Innovation Technology, Factor Affecting

### 1 INTRODUCTION

Micro-Small-Medium Enterprises (MSMEs) play an important role in Indonesia's economic growth. The COVID-19 pandemic situation hit MSMEs' business and pushed them to increase the use of Information and Communication Technology (ICT) in MSMEs, Large Enterprises, and the buyers. LPEM FEB UI (2020) and Rakhmawati et al. (2021) compared the use of ICTs before and during the pandemic that the number increased.

They need to adopt new technology for their business to recover and even improve. Several studies stated that the ICT adoption among MSME players is significant because (1) They are the most significant business in developing countries, especially in Indonesia; (2) They are the main driver for industrial growth; (3) They will encourage the economic integration; and (4) by ICT adoption, they will accelerate to an advance level and improve the global economy.

The theory of adoption of the innovative technology can be carried out in MSMEs and it is possible to combine several theories of acceptance of innovation technology. In addition, Elghdhan et al. (2020) stated there are several theories in MSMEs technology acceptance, such as the Technology Acceptance Model (TAM), the Unified Theory Acceptance and the Use of Technology (UTAUT), Diffusion of Innovations (DOI), and Technology-Organization-Environment (TOE). There are several advantages and disadvantages to the theory of adoption of innovative technology. TOE-DOI model could complement each other. Hsu et al. (2006) stated that the TOE-DOI models explains better about innovation diffusion. This study seeks to answer the following questions:

1. What factors influence MSMEs in Indonesia to adopt a new innovative technology?
2. What are the most influential factors that influence MSMEs in Indonesia to adopt a new innovative technology?

## 2 LITERATURE REVIEW

### 2.1 *Technology Acceptance Model (TAM)*

TAM was proposed by Davis (1989) and Davis et al. (1989) to predict the possible adoption of a new innovative technology in an organization. Furthermore, Y. Lee et al. (2003) stated that TAM was considered to be an influential theory. However, Houache et al. (2019) stated that TAM was not suitable among MSMEs because it does not take into account contextual factors.

### 2.2 *The Unified Theory Acceptance and the Use of Technology (UTAUT)*

UTAUT was proposed by Venkatesh et al. (2003) as the extension of TAM. Idris et al. (2017) stated that the UTAUT model has been used in more than 70% compared to other models. However, according to Venkatesh et al. (2008), behavioral intention did not explain the prediction of uncertainty between the time of raising the intention until the behavior is carried out. The UTAUT model does not take into account contextual factors that change user intentions over time.

### 2.3 *Diffusion Of Innovation (DOI)*

DOI was proposed by Rogers (2003) to explain that individual decision about innovation technology acceptance is not about action but the process itself occurs over time which consists of various actions. Parker & Castleman, (2009) stated that this model could be applied in several MSMEs. However, Lawrence (2010) stated that DOI did not adequately consider MSMEs' problems and dynamics regarding complex external forces among them.

### 2.4 *Technology-Organization-Environment (TOE)*

TOE was proposed by Tornatzky & Fleischer (1990), which can explain the factors that influence the decision of an organization to adopt an innovative technology. Huy et al. (2012) stated that TOE could understand both internal and external factors to adopt information technology on 926 MSMEs in Vietnam. However, Awa et al. (2015) stated that TOE was only applied in large enterprises which were not suitable for MSMEs. TOE did not emphasize individual factors, there must be additional models.

### 2.5 *TOE-DOI model combination*

With the aforementioned advantages and disadvantages, we can combine the TOE and DOI models. Senarathna et al. (2018) stated that the TOE served to expand the DOI model. Furthermore, Amini & Bakri (2015) stated that out of all listed above, only DOI and TOE models are the most prominently adopted models at the organizational level. This is in line with Oliveira & Martins (2011) who stated that the integration model emphasizes individual characteristics along with the internal and external characteristics of the organization as a driver of innovation adoption at the organizational level. Ramdani et al. (2013) stated that the TOE-DOI model is the strongest analytical tool to predict acceptance adoption for MSMEs.

## 3 METHODOLOGY

### 3.1 *Diffusion Of Innovations (DOI) model*

The innovation context is often used in studies for innovation technology acceptance. Elghdhan et al. (2020) analyzed that relative advantage, compatibility, complexity, trialability, and observability can contribute to describing the innovation context.

### 3.2 Technology-Organization-Environment (TOE) model

The technology context includes technology that is relevant to the company. Elghdhan et al. (2020) described the technological context that often appears in several studies. IT Infrastructure is usually used in small businesses.

N. A. Y. Al-Qirim (2003) identified organizational factors in several studies in which the adoption of new technology was positively influenced by the CEO's Innovativeness. Because innovative CEOs would be aware of which new technology, they must choose to implement solutions. Thus, the CEOs would speed up the implementation adoption process.

Sharma (2000) stated that Environmental Uncertainty is an opportunity for the company to innovate more than other organizations because it forces the organizations to adopt a new innovative technology to achieve their competitive advantage. Papazafeiropoulou & Pouloudi (2000) stated that the government should have a helicopter view of what should small businesses do to adopt new innovation technologies.

## 4 CONCEPTUAL FRAMEWORK

The proposed framework in Figure 1 illustrates the combined TOE-DOI Model as follows.

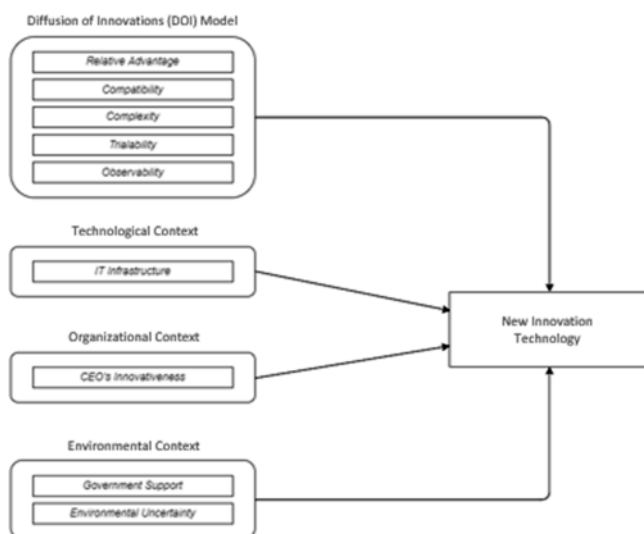


Figure 1. Conceptual framework.

## 5 CONCLUSION

This study seeks to integrate the TOE and DOI models to determine the factors that can influence MSME players to implement a new innovation technology during the COVID-19 pandemic. As we know, there is a few studies about the TOE-DOI model which are performed on MSMEs so this study will enrich the theory acceptance model for MSMEs in Indonesia. This study is beneficial for supporting MSME players, researchers, and developers with new innovation technologies. They will know the most influential factors in adopting a new innovation technology. This will lead you to gain more people to adopt a new innovation technology in the near future.

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## The relationship between collaboration factors, teamwork satisfaction, and student satisfaction: A conceptual paper

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**ABSTRACT:** The education industry in Indonesia is currently one of the most focussed areas of the government. A study pressing that in the 21st-century, collaboration has become an essential part of the learning process and work. At present, learning activities can possibly be carried out collaboratively, as one of the efforts made by providing spaces that are widely for the potential of students to be developed according to the needs of their era. Learning actively needs to be done in the form of the application of this learning model, namely, collaborative learning method. Creating student satisfaction is one of those involved and collaborative learning included in the category of active learning. Collaborative learning, categorized as active learning in general, affects student satisfaction in both individual and group activities. To achieve student satisfaction, the components of teamwork satisfaction need to be considered.

**Keywords:** Collaborative Learning, Learning Model, Active Learning, Student Satisfaction, Teamwork Satisfaction.

### 1 INTRODUCTION

The education industry in Indonesia is currently one of the government's most focussed areas. The era of higher education is divided into three periods: The era of "growth" from 1968 to 1990, the era of "technology" in 1990 to 2010 and the era of "collaboration" in 2010 until now (McMillion 2003). A study emphasizes that in the 21st century, collaboration has become an important part of the learning and working process (Lailiyah et al. 2021). Currently, learning activities can be carried out collaboratively, as one of the efforts made is by providing the widest possible space for potential students to be developed according to the needs of their time (Hidayatullah et al., n.d.).

Collaborative learning is one of the important things involved in the ongoing process of the learning program in Indonesia and also the learning method in which students work together in small groups to achieve a common goal (Ku et al. 2013). A learner cannot reach an understanding of a new idea or concept unless he or she obtains help or feedback from a teacher or peer. In a classroom, teamwork is an increasingly popular active learning strategy. Active learning needs to be done, one form of application of this learning model is the collaborative learning method; therefore, it is necessary to pay attention to collaboration factors so that the hope is to create satisfaction in a group which will ultimately result in a sense of satisfaction both individually and in groups (Respati 2019).

The concept of collaborative learning can be found in the implementation of the learning program in Indonesia, namely collaborative learning that involves teammates and instructors. In the research by Wengrowicz et al. (2018), it is stated that customer satisfaction is very important for the success of any business venture, including education. In the study, identification and understanding were carried out regarding the elements of student satisfaction. It can be seen that students are not the only customers in higher education. However, they argue that it will be difficult to maintain a program if students are dissatisfied. Therefore, it is important to be able to anticipate the factors

that affect satisfaction so that it is hoped that there will be an increase in student retention in the program. Based on the background the research questions in this study are:

1. How does the collaboration affect the teamwork satisfaction and student satisfaction?
2. How does teamwork satisfaction affect student satisfaction?
3. Does the teamwork satisfaction mediate the relationship between collaboration and student satisfaction?

## 2 LITERATURE REVIEW

### 2.1 *Collaboration*

Collaborative learning is a teaching style in which students work together in small groups to complete tasks together (Lailiyah et al. 2021). In a study, it was stated that the learning method has shifted to various approaches that are oriented and involve students working together in groups (Wang 2014). Ku et al. (2013) found several factors in collaborative learning, namely team dynamics, team acquaintance, and instructor support. In this study, the authors used a factor collaboration model.

#### 2.1.1 *Team dynamics*

Team Dynamics is a conceptual framework that provides a heuristic approach to understanding how effective groups are, both at work and advancing knowledge about the impact of the processes carried out by students in groups (Greenlee & Karanxha 2010). Ku et al. (2013) found that team dynamics encourage higher teamwork satisfaction. Team dynamics are also conceptualized into the following categories: participation, communication, collaboration, trust, and cohesion. The categories are interrelated and highly correlated with each other. Collaborative learning or team dynamics is categorized as active learning in general. It affects student satisfaction in both individual and group activities (Hyun et al. 2017).

#### 2.1.2 *Team acquaintance*

Team acquaintance refers to students' familiarity with team members, students who form close teams with each other more easily and set goals more quickly than others. It was also mentioned that the three subscales students collaborated with were team dynamics, team acquaintance, and instructor support. The results showed that the introduction of the team made a significant contribution to teamwork satisfaction, which means that students who become acquainted with team members build good relationships with others resulting in high team satisfaction. Familiarity in the team with each member's learning style, personal beliefs, and professional background are factors that make team acquaintance (Ku et al. 2013). Collaborative learning or team acquaintance is categorized as active learning in general, and it affects student satisfaction in both individual and group activities (Hyun et al. 2017).

#### 2.1.3 *Instructor support*

Instructor support is a condition where the instructor responds quickly to student requests or questions when students face problems. It was also explained that the effect of learning activities and student satisfaction was influenced by the attitude of the teachers in supervising learning activities. Receiving support from an instructor who guides students to achieve a learning goal and encourages interaction between peers are factors called instructor support (Ku et al. 2013). Collaborative learning or instructor support is categorized as active learning in general, and it affects student satisfaction in both individual and group activities (Hyun et al. 2017).

### 2.2 *Teamwork satisfaction*

Teamwork satisfaction is a positive affective response that individuals in a group have to several elements related to the group. Another study explains that in a classroom, teamwork is an active learning strategy that is increasingly becoming popular (Shujaat et al. 2014). Teamwork is also

defined as a working group for a common goal where each member develops a reciprocal relationship for a company (French & Kottke 2013). Generally, student learning satisfaction is limited to one dimension of student perception after an activity. Therefore, for the teamwork satisfaction scale, it involves three perspectives: satisfaction with collaborative learning, satisfaction with the learning process of teamwork, and satisfaction with the benefits of peer interaction (Ku et al. 2013).

### 2.3 Student satisfaction

Individual student satisfaction is student satisfaction in improving individual development in terms of understanding subject matter and professional skills (Hyun et al. 2017). Student satisfaction is defined as an assessment of student outcomes and experiences in education and life on campus. In addition, it was also stated that research examining student satisfaction in higher education has shown that instructors, quality, and teaching methods are key elements (Shonfeld 2021).

## 3 METHODOLOGY

To achieve student satisfaction, the components of teamwork satisfaction need to be considered because one of the perspectives on teamwork satisfaction is collaborative learning (Ku et al. 2013). To be able to form teamwork satisfaction, it is necessary to have the perspective of collaborative learning in which collaboration factors can be a component to achieve student satisfaction. Collaborative learning is categorized as active learning in general, and it affects student satisfaction in both individual and group activities (Hyun et al. 2017). Wengrowicz et al. (2018) also explain that the biggest predictor of student satisfaction is the interaction and understanding between students and instructors. Interactive group learning is an important factor in predicting student satisfaction.

## 4 RESULT

This study describes a conceptual framework to determine the collaboration factors (team dynamic, team acquaintance, and instructor support) that affected teamwork satisfaction and student satisfaction in the learning program. The proposed conceptual framework is intended to support student satisfaction in the learning programs.

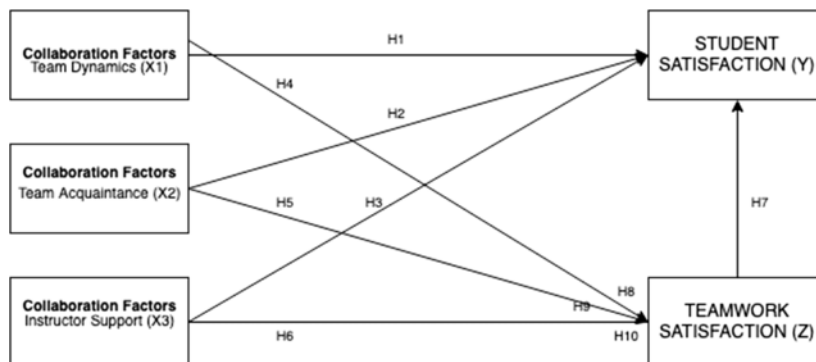


Figure 1. Conceptual framework.

From the conceptual framework, we hypothesized that:

- H1: Team Dynamics (X1) has a significant effect on student satisfaction (Y)
- H2: Team Acquaintance (X2) has a significant effect on student satisfaction (Y)

- H3: Instructure support (X3) has a significant effect on student satisfaction (Y)  
 H4: Team Dynamics (X1) has a significant effect on teamwork satisfaction (Z)  
 H5: Team Acquaintance(X2) has a significant effect on teamwork satisfaction (Z)  
 H6: Instructure Support (X2) has a significant effect on teamwork satisfaction (Z)  
 H7: Teamwork satisfaction (Z) has a significant effect on student satisfaction (Y)  
 H8: Teamwork satisfaction (Z) mediates the relationship between team dynamics (X1) and student satisfaction (Y)  
 H9: Teamwork satisfaction (Z) mediates the relationship between team acquaintance (X2) and student satisfaction (Y)  
 H10: Teamwork satisfaction (Z) mediates the relationship between instructor support (X3) and student satisfaction (Y)

## 5 CONCLUSION

This study seeks to develop a learning program in Indonesia that is beneficial for higher education or the lecture and student in a learning program based on teamwork. Furthermore, in real life, it is hoped that students involved in collaborative learning will not only improve their critical thinking and problem-solving skills, but also become active learners in the learning process, and would be able to work together in teams. In addition, knowing student satisfaction with a learning program can be used as material for evaluation and monitoring of the implementers of the student learning method development program specifically on teamwork-based program.

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## Factor analysis of learning technology acceptance by state civil apparatus

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**ABSTRACT:** In this digital era, several ministries in Indonesia facilitate learning technology as a strategy in improving the competence of the State Civil Apparatus. This is done to support the “Smart ASN 2024” program, which is in line with one of the government’s priorities in the “Making Indonesia 4.0” roadmap, to improve the quality of human resources. The availability of learning technologies has great potential for organizations, but several studies have shown that learning technologies exhibit high failure rates. Therefore, it is fundamental to understand the factors that lead to increased acceptance for the maximum use of learning technology. This study conducted factor analysis based on the variables in the Extended Theory of Acceptance and Use of Technology (UTAUT2) and Technology to Performance Chain (TPC) models, which have been proven that these two models can explain better technology acceptance than if only one of them was used separately. In this study, Learning Value variable was used as a substitute for Price Value in the UTAUT2 model. This research is expected to add insight and become a reference for the development of learning technology and can be a reference for further research.

### 1 INTRODUCTION

Indonesia is currently facing the Industrial Revolution 4.0, which encourages various sectors to digitize, including the government sector. Electronic government (E-Government) is a form of digital transformation in providing services to the general public to achieve effective, efficient, and responsive public services (Faedlulloh et al. 2020). However, the E-Government Development Index report released by the United Nations (UN) in 2020, Indonesia was still ranked 88th in the world and 7th in ASEAN for the development and implementation of E-Government (United Nations 2020). In addition, based on Government Effectiveness 2019, which is related to the assessment of the quality of public services and human resources of the apparatus, Indonesia was only ranked 73 out of 193 countries (Valev, 2020). Therefore, improving the competence of the civil apparatus is the government’s first step in improving the quality of public services. The Ministry of State Apparatus Empowerment and Bureaucratic Reform (Kemenpan-RB) has launched the development of “Smart Civil Apparatus 2024” toward a world-class bureaucracy (Kemenpan-RB 2019).

Based on the Law Number 5 of 2014, every state civil apparatus has the right to obtain competency development of at least 20 hours of lessons/year. To facilitate this, several Ministries in Indonesia have adopted Learning Technology as a strategy for developing the competence of conventional civil apparatus toward a modern concept. With this technology, it is expected that all state civil apparatus can develop themselves anytime and anywhere, both at the center and in the regions. Learning technology in the government is usually connected to the staffing system so that the civil apparatus can map competencies according to their functional and structural positions. Therefore, the availability of learning technology has great potential for organizations. However, several studies have shown that learning technology shows a higher failure rate than traditional learning methods (Rulevy & Aprilianti 2021). One of the causes is the lack of user acceptance of technological innovation. Technology adoption is supported by a belief system (i.e., behavioral intention) and the acceptance or rejection of innovation is influenced by several factors. So, it is important to

understand the factors that lead to increased acceptance for maximum use of learning technology. Therefore, this study attempts to answer the following questions:

1. What are the factors that encourage the acceptance of learning technology by the State Civil Apparatus?
2. What factors have the highest contribution value to the acceptance of learning technology?

To examine the acceptance of technology in the society, many theories of technology adoption (Technology Adoption Model or Technology Acceptance Theories) have been developed, including Innovation Diffusion Theory (IDT) introduced by Rogers (1962), Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975), Technology Adoption Model (TAM) developed by Davies (1986), Model of PC Utilization (MPCU) by Thompson et al. (1991), Theory Planned Behavior (TPB) by Davies (1992), Technology to Performance Chain (TPC) by Goodie Goodhue dan Thompson (1995), the Unified Theory of Acceptance Use of Technology (UTAUT) by Venkatesh et al. (2003), and many more.

There are various theoretical expressions and frameworks regarding the acceptance of learning technology, but they rarely discuss learning technology in the government sector. This study refers to previous studies which also examined the acceptance of learning technologies such as E-learning, Learning Management Systems (LMS), and so on. Based on Macedo's study (2017), UTAUT2 as a development of UTAUT has been able to effectively explain behavioral intentions and use of ICT among population groups (Macedo 2017). Meanwhile, according to Sharif et al. (2019), the UTAUT2 model with TPC was found to be not only well integrated but also empirically important (Sharif et al. 2019). This is also evidenced by several studies that integrate UTAUT2 and TPC, namely by Faqih & Jaradat (2019), Sharif & Afshan (2019), and Wan et al. (2020). Therefore, we conducted a factor analysis based on the variables in the UTAUT2 and TPC models.

## 2 LITERATURE REVIEW

### 2.1 *Extended Unified Theory of Acceptance and Use of Technology (UTAUT2)*

The development of the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which is an integration of the previous eight models, namely TRA (Theory of Reasoned Action), TPB (Theory Planned Behavior), TAM (Theory Acceptance Model), MM (Motivation Model), MPCU (Model of PC Utilization), DOI (Diffusion of Innovation Model), and TAM-TPB and SCT (Social Cognitive Theory) (Saparudin et al. 2020).

UTAUT2 is needed for this study because the construct puts more emphasis on the individual context of technology users than the previous model which discusses it in the context of the organization (Alalwan et al. 2017). Macedo (2017), Wan et al. (2020), and Zwain (2019) proved that UTAUT2 could effectively explain behavioral intentions and the use of learning technologies among population groups. UTAUT2 has seven independent variables:

- a) Performance Expectancy: the level of trust that a person has with the use of technology will help users to achieve benefits in job performance (Shivdas et al. 2020; Venkatesh et al. 2012)
- b) Effort Expectancy: indicates the level of convenience felt by user is the ease of using a technology (Shivdas et al. 2020; Venkatesh et al. 2012).
- c) Social Influence: a belief that the closest person can influence and recommend the use of technology (Shivdas et al. 2020; Venkatesh et al. 2012).
- d) Facilitating Condition: the level of confidence that users can implement the innovation in the presence of suggestions that support the use of the new technology (Shivdas et al. 2020; Venkatesh et al. 2012).
- e) Hedonic Motivation: a person's level of pleasure in using technology is an important factor in determining the acceptance and use of technology (Shivdas et al. 2020; Venkatesh et al. 2012).
- f) Price Value: the level of comparison between the users' perceived benefits and the costs of using technology (Shivdas et al. 2020; Venkatesh et al. 2012).

- g) Habit: the extent to which users tend to use technology as a habit in using technology (Shivdas et al. 2020; Venkatesh et al. 2012).

## 2.2 Learning value

Ain et al. (2015) and Zwain (2019) noticed that most UTAUT2 studies in the context of learning technology ignored the construction of price value, hence learning value was introduced instead of price value considering that learning technology usually does not incur any additional costs for the user. Therefore, it was proven that learning value in the context of learning technology is better to replace price value (Ain et al. 2015; Zwain 2019). Learning value can be defined as the perceived value of learning technology for the time and effort spent (Zwain 2019).

## 2.3 Technology to Performance Chain (TPC) model

TPC is considered important because technology acceptance also depends on the degree of alignment between the characteristics of the technology and the tasks performed by users (Faqih & Jaradat 2021). TPC model was used to determine the extent to which technology helps individuals in carrying out their task or job task (Setianingsih & Supriatna 2009). Faqih & Jaradat (2019), Sharif & Afshan (2019), and Wan et al. (2020) found that the UTAUT2 and TPC integration was not only well integrated but also empirically important. The variables of TPC are:

- Task-Technology Fit: the extent to which a technology can help someone in doing their job (Tam & Oliveira 2017).
- Utilization: the level of utilization of learning technology by users.

## 3 RESULT

The proposed framework is illustrated in Figure 1, where factor analysis was carried out on seven variables from the UTAUT2 model and two variables from the TPC model. This resulted in a smaller group of factors.

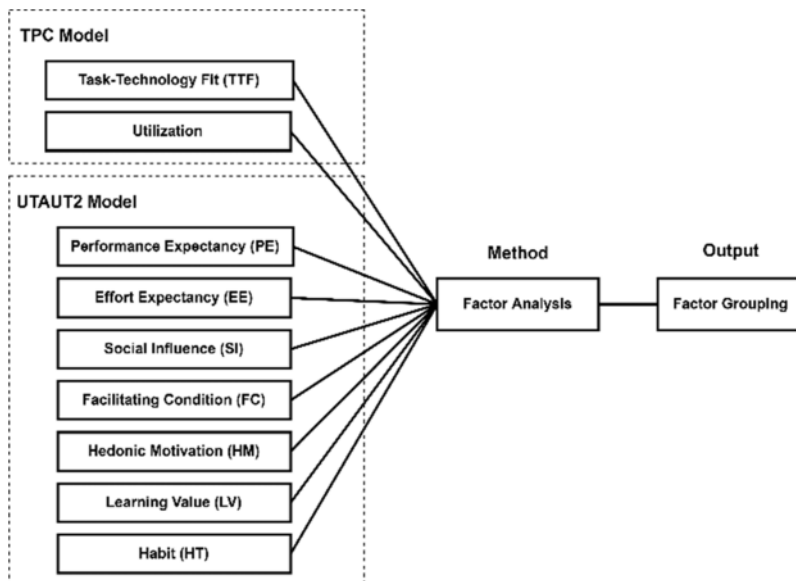


Figure 1. Conceptual Framework.

## 4 CONCLUSIONS

This study develops a conceptual framework to determine the dominant factors that influence the acceptance of learning technology by the State Civil Apparatus. Factor analysis was carried out based on the UTAUT2 model with the variables of performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and habit, and replaced the price value with the learning value. In addition, there are two variables added from the TPC model, namely the task-technology fit and utilization variables.

The proposed conceptual framework is intended to support the successful adoption of digital learning technologies in the government sector. Empirical studies in this case can further validate the dominant factor of acceptance of learning technology by the State Civil Apparatus. This study supports policy makers, academics, the government, and society in understanding and reaping the benefits of learning technology and forms the basis for further research.

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## Analysis of the adoption of E-wallet to business principals in the food and beverage sector in Bandung city

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**ABSTRACT:** Digitalization renders all activities carried out by individuals and companies easier because of the assistance of the latest technology. The whole world has been digitalizing, and Indonesia has become one of the countries that have participated in digitalizing. This made the government take one concrete step by creating the program named “Making Indonesia 4.0” by choosing five priority sectors – the textile, automotive, electronic, chemical, and food and beverage sectors. The result of the Indonesia Industry 4.0 Readiness Index (INDI 4.0) survey shows that the readiness of business principals to adopt technology is at a value of 2.47, with the optimal value of 3.51–4.00. This is in contrast to data on E-wallet users in Indonesia, which tends to increase every year with an estimate of 202 million users by 2025. The purpose of this study is to find out about the factors that influence the adoption of the use of E-wallets for the food and beverage sector to business principals in Bandung using the UTAUT-2 model and the addition of the trust variable.

### 1 INTRODUCTION

Financial technology, often known as FinTech, is a term derived from the words “financial” and “technology”, and it refers to the technology used to improve financial products and services (Alam et al. 2021). One of the benefits of integrating FinTech can be seen in the increasing adoption of E-wallets. According to FinTechAsia.com (2021), in 2020, the number of E-wallet transaction reached USD 28 billion with a transaction volume of 1.7 million times. The total number of E-wallet users in 2020 was 63.6 million users, and the number is expected to increase to 202 million by 2025.

The government has made five priority sectors for digitalization – textile, electronic, chemical, automotive, and food and beverage sectors, and is made it into the program called “Making Indonesia 4.0”.

The Indonesia Industry 4.0 Readiness Index (INDI 4.0 2019) is a survey conducted to determine the level of readiness of an entrepreneur to carry out digital transformation.

The results of the INDI 4.0 in 2019 for the food and beverage sector have a value of 2.47, which is at the mature readiness stage, which has not shown the optimal stage, namely the stage of implementation which is at an index value of 3.51–4.00. The results of this index are valid for three years, so the results from 2019 can be valid until 2021.

The problem with this study is that an increase in E-wallet users is not in line with the INDI 4.0 results. In other words, the readiness of an entrepreneur to carry out digital transformation has not been at the optimal stage.

### 2 LITERATURE VIEW

#### 2.1 *Extended Unified Theory of Acceptance and Use of Technology (UTAUT)*

According to Venkatesh et al. (2003), UTAUT is a theory of technology acceptance used to identify the motivation for using the technology. There are four constructs that influence the intention of using technology, including effort expectancy, performance expectancy, social influences, and

facilitating conditions. Furthermore, according to Tak and Panwar (2017), UTAUT is a model developed to analyze the use and acceptance of technology. The following are the variables of UTAUT.

Performance Expectancy (PE): PE is defined as “how much the use of technology in specific activities will benefit consumers” (Venkatesh et al. 2012). Salimon et al. (2019) stated that PE is the degree to which there is pleasure or the joy that comes from using a technology. This matter refers to the execution process that is felt by the user even though there is no real benefit obtained. Therefore, we hypothesized that:

H1: PE has a positive and significant effect on intention behavior (IB).

Effort Expectancy (EE): It is the level of comfort with the use of a particular technology and it determines how much effort is needed to learn to use technology (Venkatesh et al. 2012). EE refers to the level of comfort with the use of a technology, thus this makes effort expectancy in definition as how much effort or effort expended by users to learn about the use of a technology (Farzin et al. 2021). Therefore, we hypothesized that:

H2: EE has a positive and significant effect on intention behavior (IB).

Social Influence (SI): The extent to which the customer understands that other important people such as friends and relatives believe he/she should use certain technology is known as a SI (Venkaesh et al. 2012). Singh et al. (2021) stated that social influence refers to the degree to which a person's strategies persuading others to influence behavioral decisions to using a technology. In this, social factor is also defined as the level of where the individual assumes that a person can convince himself that he had to use the new system. Therefore, we hypothesized that:

H3: SI has positive and significant effects on intention behavior (IB).

Facilitating Condition (FC): Customers' perception of available resource and support to perform the behavior (Venkatesh et al. 2012). FC leads to consumer perceptions when availability of resources or tools that can be used to support the use of a technology (Vankatesh et al. in Farzin, 2021). Therefore we hypothesized that:

H4: Facilitating Condition (FC) has positive and significant effect to Intention Behavior (IB).

Intention Behavior: The extent to which a person will use certain technology in the future (Farzin et al. 2021). The extent to which a person will use certain technology in the future (Indrawati & Utama 2018). Therefore, we hypothesized that:

H5: IB has positive and significant effect on Actual Use (AU).

Actual Use: Real conditions of users of an application or information technology (Vankatesh et al. 2003).

## 2.2 *Extended Unified Theory of Acceptance and Use of Technology (UTAUT2)*

To make the UTAUT model more consumer-focused or consumer-centric, an advanced model is made, namely UTAUT2 with additional constructs, namely Hedonic Motivation, Price Value, and Habit (Venkatesh et al. 2012). Furthermore according to Alalwan et al. (2017), UTAUT2 is specifically aimed at clarifying technology acceptance from a consumer perspective. The following are the variables of UTAUT2.

Hedonic Motivation (HM): A person's level of pleasure in using technology is an important factor in determining the acceptance and use of technology (Venkatesh et al. 2012). Hedonic Motivation refers to an individual's emotional needs that mainly intended for the pleasure and necessity of using technology and has been shown to play an important role in determining acceptance and use of technology (Farzin et al. 2021). Therefore, we hypothesized that:

H6: HM has positive and significant effect on intention behavior (IB).

Price Value (PV): The level of comparison between the users' perceived benefits and the costs of using technology (Venkatesh et al. 2012). PV is defined as a consumer's perspective on benefits derived from using technology and associated with costs incurred and included in several factors such as mobile internet costs, device cost, service cost, and transaction cost (Farzin et al. 2021). Therefore, we hypothesized that:

H7: PV has positive and significant effect on intention behavior (IB).

Habit (H): People tend to perform behaviors automatically because of the experience and knowledge gained over time (Venkatesh 2012). Habit is defined as individual who repeatedly uses the technology is due to the experience that has been felt. When a individuals already know how to use a tool and already understand how to operates it will become a habit (Farzin et al. 2021). Therefore, we hypothesized that:

H8: H has positive and significant effect on intention behavior (IB).

### 2.3 Trust

Trust is defined as a form of credibility and benevolence from the target trust itself where consumers face a level of risk when carry out financial transactions, so that credibility and transparency are needed to build trust. Trust is used in a variety of psychology and sociology and become a crucial part of strengthening customer relationships (Sankaran & Chakraborty 2021). Furthermore, according to Saparudin et al. (2020), trust is an important aspect in online adoption banking because trust can increase the level of consumer adoption. Trust is the foundation of business through transactions between two or more parties can happens if they all have trust for each other. Therefore, we hypothesized that:

H9: Trust (T) has positive and significant effect on intention behavior (IB).

## 3 CONCEPTUAL FRAMEWORK

The proposed framework illustrates the combined UTAUT-2 Model as PE, EE, SI, FC, HM, PV, and H with T as an additional variable as follows:

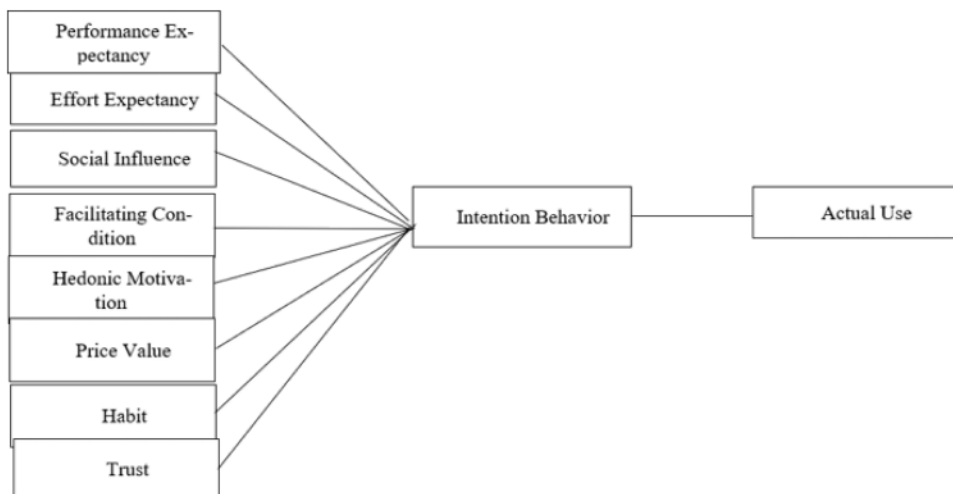


Figure 1. Conceptual framework.

## 4 CONCLUSIONS

The results of the study reveal that the acceptance of technology could be influenced by eight factors – expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, habit, price value, and trust. These factors may influence the user’s intention behavior, which may lead to the user’s actual use of the technology.

This study develops a conceptual framework for describing all the factors that influence user acceptance of technology. For better understanding, further research is recommended to use empirical research.

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# The effect of social media marketing with digital platform as the communication media of brand awareness on SME products

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**ABSTRACT:** Information and communication technology affects the business aspect on digital transformation in the trade sector of Indonesia. Until now, people are buying and selling activities from using conventional to using digital platform. SMEs in Indonesia have not yet carried out digital transformation, which makes development of their products difficult because they still use the conventional platforms. This study seeks to identify the effect of digital transformation performance – social media marketing – when applied to SME products as a communication medium. The digital transformation in this study refers to how the content uploaded by SMEs' digital platform affects customer brand awareness because it is important for SMEs to know customer perceptions of SME products.

**Keywords:** Social Media Marketing, Digital Platform, Communication Media, Brand Awareness, SMEs.

## 1 INTRODUCTION

The information technology revolution impacts various aspects, one of which is the business. According to Rizaldi and Hidayat (2020), one of the real impacts of the information technology revolution is the habit of marketing communication media from conventional to digital-based or commonly called social media marketing.

Only 1.3 million SMEs have entered the digital platform, which means that there are still many SMEs that have not yet undertaken digital transformation (Kompas 2021). To examine the effect of social media marketing on brand awareness, many theories have been put forward. For instance, theories on the various components that make up social media marketing, include entertainment (Bilgin 2018; Kim & Ko 201), interaction (Bilgin 2018, ElAydi 2018), informativeness (Yunita et al. 2019; Rukuni & Maziriri 2020), advertisement (Duffett & Alalwan 2017; Tritama 2015; Vulkasovic 2013), and e-word of mouth (e-WOM) (Ahmed, 2014; Wicaksono & Seminary 2016). This study refers to previous research on social media marketing by adopting existing models and making modifications to obtain new research results. Therefore, this study aim to identify the effect of social media marketing with digital platform as the communication media on brand awareness when applied to SME products by asking the following questions:

1. Can social media marketing affect brand awareness in SME products?
2. What are the most influential factors that affect the digital platform on brand awareness in SME products?

## 2 LITERATURE REVIEW

### 2.1 *Social media marketing*

Kotler and Armstrong (2018) stated that social media is an online social network that has an independent and commercial nature for people to gather, socialize, and share messages, opinions, videos, and other content. In addition, Gunelius (2011) found that social media marketing includes all aspects of marketing that can be used directly or indirectly to build brand awareness, industry, goods and services, individuals, and other entities.

### 2.2 *Entertainment*

Entertainment is an important component that drives participant behavior and continuity of follow-up, which creates positive emotions/feelings about the brand in followers' minds (Bilgin 2018).

### 2.3 *Interaction*

Interaction is how far customers can be facilitated by social media to share content with other companies and customers (Yadav & Rahman 2017). According to Bilgin (2018), many businesses have used online interactions between users by encouraging their customers to share their product purchasing experiences using social media channels.

### 2.4 *Informativeness*

Informativeness is the availability of information about products and their alternatives that can address customers' concerns when purchasing a product (Yunita 2019). According to Hamid (2016), social media is the latest source of information for customers because the information is shared in real time on social media.

### 2.5 *Advertisements*

Advertising is all forms of non-personal presentation and promotion of ideas, goods, or services that are paid for through an identified sponsor (Tritama et al. 2016). Advertising on the internet makes a big contribution to brand competition in the market (Vulkasovic 2013).

### 2.6 *E-Word of mouth*

According to Ahmed (2014), as in the journal article by Wicaksono and Seminari (2016), WOM is a powerful way to target marketing distribution. WOM can influence other people, their images, thoughts, and decisions.

## 3 METHODOLOGY

Kim and Kan (2012) explained that social media marketing is divided into several parts, namely entertainment, interaction, trendiness, customization, and e-WOM. Furthermore, Yadav and Rahman (2017) stated that social media marketing activities have significant effects on brand awareness with influential variables, including interactivity, informativeness, customization, trendiness, and e-WOM. In addition, Wicaksono and Seminari (2016) state the influence of social media marketing variables on brand awareness variables, namely advertising and WOM has a positive relationship. In contradiction, Bilgin (2018) found trendiness in social media marketing has the smallest value of all the components of the variables. This research indicates that trendy is the component that consumers consider the most.

Based on the definition of customization, namely the provision of information uploaded by social media and the definition of informativeness, namely the extent to which a brand or company offers accurate information (Mahendra & Nugrahani 2021). Yadav and Rahman (2018); Seo and Park (2018); Kim and Ko (2012); and Bilgin (2018) found that social media marketing did not include these informativeness and customization simultaneously. Because both are related to information, the author only includes one of them, namely informativeness as a representative variable in this study.

#### 4 CONCEPTUAL FRAMEWORK

The proposed framework is illustrated in Figure 1, and is modified from previous research by Yadav and Rahman (2017), Wicaksono and Seminari (2016), and Kim and Kan (2012).

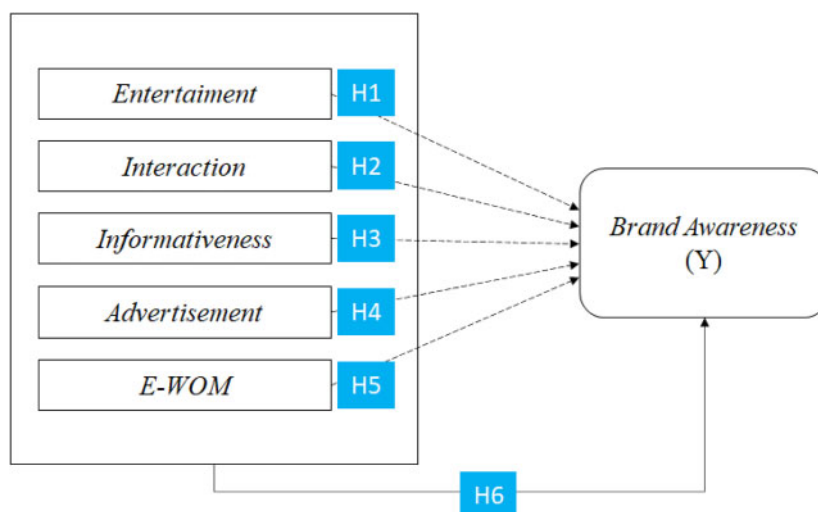


Figure 1. Conceptual framework.

#### 5 CONCLUSIONS

Because social media marketing is still rarely used in the MSME sector, this study seeks to integrate the model with a new conceptual framework to determine the influence of social media marketing with digital platforms as a communication medium for brand awareness on SME products to adapt to digital transformation so that MSME products can target more people. This study is beneficial for SME players to increase their income by using digital platforms.

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## Core competencies of automotive manufacturing company in industry 4.0: A qualitative analysis (case: PT XYZ)

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**ABSTRACT:** The readiness of organizations in Indonesia to implement industry 4.0 can be measured by referring to the INDI 4.0 index which is part of the Making Indonesia 4.0 roadmap. The People and Culture Pillar in INDI 4.0 has a greater value weight than the other pillars. In Indonesia, the readiness of human resources in a company's shift to Industry 4.0 determines its success or failure. The main factor is that the company must have core competencies, which are skills and behaviors required to compete and retain supremacy. It aims at assisting companies in achieving a competitive advantage and winning market segmentation in Indonesia in the industrial 4.0 era and contributing to the implementation of industry 4.0 in Indonesia. The research objective is to identify the company's core competencies, as the basis for the competence of all employees, which are needed by the company to facilitate the implementation of industry 4.0. This study uses a qualitative approach that includes a literature review on industry 4.0 competencies in the manufacturing industry, a review of the company's internal documents, and interviews with related informants. The strategy is to employ a case study of PT XYZ, an Indonesian automotive manufacturer that is one of five types of industries prepared by the government to compete with other state-owned enterprises in the industry 4.0 era. The research results were classified into four core competencies based on the characteristics of the research objects, such as Brand Value, Understanding Oriented, Efficiency Oriented, and Spirit of Improvement. However, if there was a potential change in organizational goals and industry trends in the future, it would be able to produce different core competencies as well.

**Keywords:** core competencies, industry 4.0, organization, manufacturing company

### 1 INTRODUCTION

Currently, the automotive industry in the world is undergoing a massive transformation. According to a recent report by Capgemini, the automotive sector is the industry most enthusiastic about setting up smart factories. The Indonesian government has prepared 5 industries for the Industrial Era 4.0: electronics, automotive, chemical, food and beverage, and textile and apparel. One of the stages of implementing the Making Indonesia 4.0 roadmap is known as INDI 4.0. Each company evaluates its capabilities in areas related to the fourth industrial revolution in this index. The People and Culture pillar in INDI 4.0 has a greater value weight than the other pillars because, in Indonesia, the success or failure of a company's transformation to Industry 4.0 is very dependent on the readiness of the human resources in it (Kemenperin RI 2019).

This study focuses on the human resources readiness to succeed in its transformation. The object of the case study is PT XYZ, with the following facts: a company engaged in automotive manufacturing in Indonesia that is currently transforming to company excellence in the current era, has not followed the INDI 4.0 index assessment but will be heading there. One of the contributions of the HR Department to the People and Culture pillars at INDI 4.0 is to create competency standards to facilitate employee assessment as a process of implementing company transformation. Referring to the organizational competency framework, the hierarchy of competency models starts from the top, namely an understanding of the company's goals, then defines core competencies as the basis of

competence, which is the root of all company activities (Campion et al. 2011). The formation of the company's core competencies is expected to help contribute to PT XYZ as part of the preparation of People and Culture. The study aims at helping the organization to establish core competencies based on their characteristics to compete in the current era.

2 LITERATURE REVIEW

Human resource management is a strategic approach regarding the importance of managing roles and labor relations to achieve organizational goals. By maximizing the potential of its workforce, the organization will quickly achieve success and be able to survive in any conditions (Hamali 2016; Schuler 1992). Competence is a person's characteristics related to superior performance in work. This performance can be measured and validated based on the competency standards owned by the organization to achieve a sustainable competitive advantage for the organization (McClelland 1973; Spencer & Spencer 1993). The company's core competencies are fundamental competencies that all employees must possess, referring to the company's knowledge structure and how it is integrated with various technologies to create products and services to contribute significantly to the company's competitiveness as well as strengthen its position in the market (Bonjour & Micaelli 2010; Edgar & Lockwood 2021; Kawshala 2017; Prahalad & Hamel 1990). Core competencies have 4 dimensions, namely: skills and knowledge base, technical systems, managerial systems, values, and norms (Dorothy 1992).

The industrial revolution was born from the impetus of global business competition and the demand to adapt quickly to the ever-changing market needs (Zhong et al. 2017). The main objective of the industrial 4.0 concept is to increase automation, thereby contributing to the effectiveness and efficiency of the company's operations (Oluyisola et al. 2020).

3 RESEARCH METHODOLOGY

This research uses a qualitative approach with a descriptive type of research. The research stages are Qualitative Design Assumptions, Types of Design, Researcher Roles, Data Collection Procedures, Data Recording Procedures, Data Analysis Procedures, Verification Steps, and Qualitative Narratives (Creswell 2014). This study uses an approach with a descriptive type of research. Framework design Refers to the core competency tree concept of Prahalad & Hamel (1990) and the core competency analysis of William B. Edgar and Chris A. Lockwood (2021), as well as the design of the competency of Eric Bonjour and Jean-Pierre Micaëlli (2010). Of the three concepts, this research sorts out the parts that are only suitable to be implemented with the case study. The industry 4.0 competency domain is added as the basis for the competency literature to be formed. In collecting data, the researcher used documentation instruments and semi-structured interviews. The flow is shown in Figure 1.

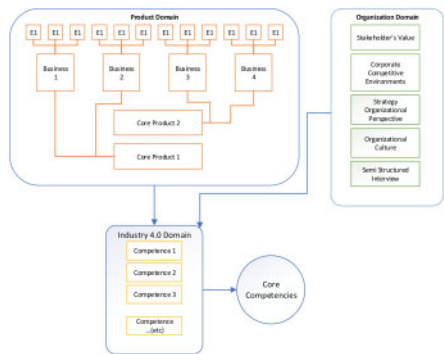


Figure 1. Framework core competencies in industry 4.0.

Figure 1 explains that there are three domains needed to form a company's core competencies in the industrial era 4.0: product domain, organizational domain, and industry 4.0 competency domain.

#### 4 RESULT AND DISCUSSION

The object of this research is PT XYZ, a representative company in Indonesia from a large company in Japan that manufactures transportation equipment. The brand is synonymous with sports and off-road motorcycles, focusing on the two-wheeled automotive industry, particularly motorcycle assembly. This research has several stages, namely:

1. Primary data and secondary data in the organizational domain. Here, the official company documents needed are the vision and mission, company values, work culture, business strategy, messages from the company president, and the history of the development of the products being marketed. Meanwhile, the interview document contains the company's strengths, weaknesses, opportunities, and current threats.
2. List of industrial competencies 4.0 as a competency domain. There are 109 competencies obtained from several scientific articles related to the competencies needed by the automotive and manufacturing industries. However, it turns out that many of these competencies have almost the same purpose, so summarizing activities are carried out to combine competencies that have the same goal. In other words, the list of 43 competencies will be used as the basis for making core competencies.
3. The big tree is implemented at this stage. The information collected on summary end products, business units, and core products is conducted by grabbing data from reliable and accountable sources, including written documents and interviews with PT XYZ. Each end product manufactured by PT XYZ describes its uniqueness, advantages, features, designs, and different technologies. The end products that have been marketed by the company consist of four categories, while the supporting products are apparel products, component products, and after-sales services as part of sales products and services. Three core business units have been identified, namely the production unit, the QA and After Sales unit, and the Spare Part & Sales Promotion unit. Finding a company's core product takes time and effort, as researchers must evaluate and compare all previous products marketed by PT XYZ. Using the help of qualitative data processing application software to document information related to the identification of core products, namely based on: All versions of product variants produced, details of features possessed by all product variants, and details of technology developed by the company to be embedded in its products. As a confirmation stage of the analysis results, semi-structured interviews with members of company management were conducted after obtaining specific product points. Following that, permission was granted for PT XYZ's six primary products.
4. The relationship of each meaning contained in the organizational domain and product domain to the competency domain of the industrial era is analyzed with the help of qualitative data processing application software. Some of the competencies with the highest frequencies will be utilized as the basis for general competencies reference that all employees must acquire. Then, a more meaningful description and explanation were made of the expectations and characteristics of PT XYZ. The following core competencies are obtained:
  - a. Understanding Oriented with five aspects, namely: Rider Feeling; Community feedback; ICT Literacy; Environment such as street, nature, society; Company State such as condition, culture, regulations.
  - b. Brand value, quality, and technology from Corporate Group, with five aspects, namely: Brand Heritage, Brand Style, Build Quality Manufacturing, Product Durability, Trend Leader.

- c. Efficiency Orientation, with two aspects, namely: Just In Time and Cost Efficiency. PT XYZ has indeed implemented the Just In Time manufacturing method, coupled with the company's strategy to realize profits while maintaining a healthy financial condition.
- d. Self-improvement, with 2 aspects, namely: sustainable mindset and innovative way.

These core competency items comply with three criteria, including being able to enter various markets, and providing benefits felt by customers from the end products, and these core competencies are difficult for competitors to imitate due to harmonization with these four items.

## 5 CONCLUSION

Based on the results of the study, several important things can be concluded, namely: compiling a list of competencies needed by the world automotive industry is facing the industrial revolution 4.0., then analyzing the characteristics of the products marketed by PT XYZ, where six core products have been obtained that greatly contribute to the value of the end product, and the last is a deeper study of the goals and characteristics of the company and their relationship to the end product and a list of industry 4.0 competencies. The results obtained specifically for PT XYZ are four core competencies with 14 detailed aspects. This form of core competency can help explain the basic competencies of PT XYZ in a way that is fast and easy to understand. These competencies can help companies achieve a competitive advantage and win the Indonesian market segmentation in the industrial era 4.0, as well as make a positive contribution to the implementation of Making Indonesia 4.0. However, if there is a potential change in organizational goals and industry trends in the future, it will result in different core competencies.

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## The effect of e-service quality on application reuse intention among Codashop users

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**ABSTRACT:** The use of smartphone continues to increase, particularly for entertainment and gaming. In Indonesia, usage of smartphones is 125.6%. Public spending for mobile game transactions also continues to escalate over the years, making this market high in opportunities for business players engaged in game credit top-up services. However, companies in this industry have not paid adequate attention to e-service quality that received low ratings and reviews, along with complaints by customers on Google Play. One of them is Codashop application. With regard to this, an in-depth analysis and a theory-based study are essential to understand the reasons consumers use online services. This study aims at measuring customer satisfaction in the reuse of a service, wherein e-service quality is measured using four dimensions, namely customer service, security and privacy, fulfillment, and design apps. Hypotheses were developed to describe the relationship between variables. The proposed conceptual framework of the extended e-service quality model determined and assessed consumer behavior in reusing an online service. This study employs non-probability sampling with quantitative data collection using distributed questionnaires. The data analysis technique devised was structural equation modeling (SEM) with the support of SmartPLS 3.2.8 software.

### 1 INTRODUCTION

The growing number of smartphone users in Indonesia is a driver the mobile applications. Using mobile applications is more familiar compared to using browsers (Anestia 2016). Public spending for mobile game transactions also continues to escalate over the years. In 2019, it rocketed with a value of US\$ 86 billion; contests for mobile games were even predicted at US\$ 38.7 billion in 2021. Based on the number of data installations, Codashop holds the first place among other similar applications, marked by the total number of users who have installed Codashop, amounting to approximately 5 million users. Moreover, in terms of rating, Codashop was only rated 3.3 out of 5.

The large number of smartphone users in Indonesia is a great opportunity to develop online mobile applications. This is crucial considering the role of digital marketing in today's business development trend (Suh & Chow 2021). To achieve maximum profitability, marketing methods with digital concepts can propel e-business in developing countries (Melović et al. 2020). Shabrina Nurqamarani et al. (2020) state that companies that can provide quality services to customers will lead to customer satisfaction. This is supported by a statement from Sidik and Indrawati (2019) who suggest that customers' interest in reusing a service is immensely determined by the experience after buying or using the service. This study aims at revealing the construct that describes the relationship between variables. The proposed conceptual framework of the extended e-service quality model will determine and assess consumer behavior in reusing online services to answer the following questions:

1. How do respondents evaluate the variables of application design, security and privacy, compliance, e-service quality, and customer satisfaction of Codashop?
2. How do respondents respond to the reuse of Codashop?

This study is to conceptually propose e-service quality framework that can describe the dimensions of application design, which is defined as all elements of the consumer experience related to the platform, navigation, search for info, taking orders, delivery, product availability, prices offers, personalization, and platform availability (Rita et al. 2019). The customer service dimension usually uses web-based synchronization media, such as live chat facilities, online help desks, and social networking sites (Turel & Connelly 2013). Moreover, the security and privacy dimension refers to the security of payments using credit cards and the privacy of shared information during or after the sale, while the fulfillment dimension refers to steps taken to ensure that customers receive what they order (Rita et al. 2019).

This study is described from the perspective of widely supported and validated e-service quality theories. Based on the research objectives, the type of research used is descriptive, while based on the research background, this research is a non-contrived setting. Because the population in this study is not known with certainty, the method used is non-probability sampling, while the sampling method used in this study is purposive sampling based on the selection of respondents based on criteria that can represent the population accurately. To determine the sample size in this study, the Lemeshow formula was used with a minimum sample of 269 respondents. The data collection method used in this study is quantitative data using a questionnaire with the distribution of the questionnaire conducted online through social media. The data analysis technique used is structural equation modeling (SEM), with the help of SmartPLS 3.2.8 software.

## 2 LITERATURE REVIEW

In a study conducted by Parasuraman et al. (2005), e-service quality was examined using seven dimensions, namely efficiency, reliability, compliance, privacy, responsiveness, compensation, and contacts. Barnes and Vidgen (2002) also have a new electronic service quality measurement called WebQual. This model was used by Gounaris et al. (2010) in their study on the effect of service quality and satisfaction on WOM, site return visits, and purchase intentions in the context of internet shopping. Moreover, Blut (2016) claims that the e-service quality measurement in existing studies lack service provider assessment criteria that it cannot accurately explain customer dissatisfaction and the ability to predict customer behavior. Thus, he developed an e-service quality model by covering 16 attributes that were assigned to four dimensions, namely web design, customer service, security and privacy, and fulfillment. This concept was adopted in the study by Rita et al. (2019), who measured e-service quality on customer satisfaction within the scope of online shopping habits.

### 2.1 *Application design*

Mobile application design is key to user satisfaction with mobile devices because the interface is often the first point of contact (Lee & Chung 2009). Therefore, it is essential for users that the application is attractive, understandable, and logically structured that the design has a strong positive significant influence on user satisfaction (Birkmeyer et al. 2021). Indicators in application design have a positive effect on customer satisfaction behavior after using the services so that customers reuse their services (Shabrina Nurqamarani et al. 2020). Therefore, the hypotheses are formulated as follows:

H1: Application design has a significant positive effect on e-service quality

H2: Application design has a significant positive effect on customer satisfaction

### 2.2 *Security and privacy*

Security and privacy play a fundamental role in establishing an electronic service because it provides comfort and security in transactions. Security and privacy is a key factor of e-service quality that affects customer satisfaction and customer loyalty (Sidik & Indrawati 2019). Based on this, the hypothesis is formulated as follows:

H3: Security and privacy has a significant positive effect on e-service quality.

### 2.3 Fulfillment

This fulfillment factor has the highest impact on the overall service quality that it remains as one of the key factors in building e-service quality (Rita et al. 2019). In a study by Kusdinar and Ariyanti (2020), it was found that the fulfillment of e-service quality had a significant influence on online buying experience. For this reason, the hypothesis is formulated as follows:

H4: Fulfillment has a significant positive effect on e-service quality.

### 2.4 Customer service

Customer service refers to service levels and handling/return policies during and after sales. According to Blut (2016), this factor can contribute to e-service quality. Therefore, the hypothesis is formulated as follows:

H5: Customer service has a significant positive effect on e-service quality.

### 2.5 E-Service quality

The majority of studies conducted on e-service quality suggest that customer satisfaction is the main determinant of e-service quality. A study by Wirapraja et al. (2021) reveals that e-service quality had an effect on customer satisfaction. Thus, the hypotheses are formulated as follows:

H6: E-service quality has a significant positive effect on customer satisfaction

H7: E-service quality has a significant positive effect on reusing application through the customer satisfaction mediation variable.

### 2.6 Customer satisfaction towards reuse apps

When customers receive high-quality service, they display high continuance intentions (Tran et al. 2019). A study conducted by ().Daassi and Debbabi (2021) proves that consumer attitudes, which are generated after shopping for products, affect their behavioral intentions. The same result was also found by Nurqamarani et al. (2020), where there is a positive and significant effect between customer satisfaction on repurchase and reuse intentions toward Gojek application. Thus, the more positive a person's attitude toward an application, the more likely he/she is reuse the application. On this account, the hypothesis is formulated as follows:

H8: Customer satisfaction has a significant positive effect on application reuse.

## 3 CONCEPTUAL FRAMEWORK

The proposed framework that described the model of customer satisfaction in its relation to the reuse of a service where e-service quality was measured using four dimensions, namely customer service, security and privacy, fulfillment, and design apps, is as follows:



Figure 1. Conceptual framework.

## 4 CONCLUSION

This study presents a new understanding of e-service quality of online business. These findings provide insights for managers to better understand how e-service quality is formed and the importance of each attribute and dimension of e-service quality to ensure customer satisfaction, which will keep the customers. In addition, this study also suggests that a service will be reused when customers are satisfied with the service they have experienced, where the service is not only measured by the ease of use but also from the security, suitability of the product, customer service, and design of the product.

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## Analysis of E-commerce adoption for MSMEs in food and drink sector in Garut Regency

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**ABSTRACT:** Micro, Small, and Medium Enterprises (MSMEs) play a very important role in the national economy, as well as in the Go Digital 2024 program launched by the government. The COVID-19 pandemic poses a big challenge for MSMEs to digitize immediately, in addition to the expectation in the future from digitizing MSMEs. While the government is intensively socializing MSMEs for digitization, MSME actors in the food sector in Garut Regency still feel that they do not have sufficient knowledge and have difficulty understanding the benefits of using e-commerce. This study bridges by integrating the two models to determine the factors that influence MSMEs to adopt e-commerce. To examine the factors that influence the adoption of e-commerce, the study was conducted by collecting data from MSMEs in the food sector in Garut Regency using an online survey. The sample size is 130 MSME respondents who have adopted e-commerce. The data collected was analyzed using structural equation modeling (SEM) and analyzed by LISREL. The results of this study how each variable influence each other and what factors can influence e-commerce adoption. This study is also expected to provide tangible benefits for both theoretical and practical e-commerce adoption.

### 1 INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have an important and strategic role in national economic development. MSMEs have also been shown to be unaffected by the crisis. When the crisis hit in the 1997–1998 period, only MSMEs were able to stay strong (Sarwono 2015). During the COVID-19 pandemic, almost all economic sectors were affected, including MSMEs. This pandemic has resulted in disruption of supply and demand as well as supply chains so that the wheels of the economy in the MSME sector have stalled (Humas dan Advokasi Hukum Kementerian Koperasi dan UKM 2020). Facing the challenges of the COVID-19 pandemic so that MSMEs can survive, one of them can be done by digitizing (Antara News 2021). The survey results from Google and Temasek noted that Indonesia's digital economy in 2025 is projected to be the largest in Southeast Asia with a transaction value of IDR 1,826 trillion. Meanwhile, the results of a Bank Indonesia survey in 2020 recorded the value of digital economic transactions through e-commerce to reach Rp. 253 trillion in 2024 (Berita Satu 2021). One part of digitizing MSMEs is the adoption of electronic commerce. According to (Laudon & Traver 2017), "E-commerce is the use of the internet and websites to conduct business transactions". Furthermore, the authors conducted a phenomenon test of 18 SMEs in the type of food and beverage business. The question material presented aims to determine the readiness of MSME actors in the food and beverage sector to adopt e-commerce. From this phenomenon test, 66.7% of company owners do not have good knowledge related to e-commerce. Then, as many as 55.6% of company owners find it difficult to understand or explain the benefits of using e-commerce. Based on the results of the phenomenon test, there is a gap between the government's desire and the condition of the MSME actors in the field. When the government is intensively socializing MSMEs for digitization, MSME actors in the food and beverage sector still feel they do not have sufficient knowledge and have difficulty understanding the benefits of using e-commerce.

The question for the research is what are the influential and the most influential factors (MSMEs) in the food and beverage sector in adopting e-commerce by integrating UTAUT2 and TOE. The purpose of this research is to examine the influential and the most influential factors (MSMEs) in the food and beverage sector in adopting e-commerce by integrating UTAUT2 and TOE.

## 2 LITERATURE REVIEW

### 2.1 *The Unified Theory Acceptance and the Use of Technology 2 (UTAUT2)*

The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) is specifically proposed to clarify technology acceptance from the customer perspective (Alalwan et al. 2017). UTAUT was validated by Venkatesh et al. (2003) with Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Condition (FC). Later, UTAUT was extended with three constructs and reintroduced as UTAUT2 (Venkatesh et al. 2012); the three independent constructs/variables that are incorporated are Hedonic Motivation (HM), Price Value (PV), and Habits (HT). According to Venkatesh et al. (2012), behavioral intention (BI) and facilitation condition (FC) were both identified as major predictors of e-commerce adoption behavior. Behavioral Intention (BI) is the mediating variable, while Use Behavior (UB) acts as the dependent variable.

### 2.2 *Technology-Organization-Environment (TOE)*

The TOE framework classifies technology, organization, and environment as three sets of factors that influence organizations to adopt innovation (Baker 2012). The TOE framework has a strong theoretical foundation and strong empirical support, and has been employed to study technology adoption for innovation (Oliveira & Martins 2011). Tornatzky and Fleischer's (1990) TOE framework assumed a common set of factors to predict the likelihood of e-commerce adoption (Awa et al. 2015b). The theory states that adoption is influenced by technological developments (Kauffman & Walden 2001); organizational conditions, business, and organizational reconfiguration (Chatterjee et al. 2002); and the industrial environment (Kowtha & Choon 2001).

### 2.3 *Combine UTAUT2-TOE model*

Venkatesh et al. (2012) proposed UTAUT2 because it was shown that this model is robust in predicting technology adoption (Mitzner et al. 2016), as the extension of UTAUT2 is appropriately theorized to explain technology acceptance from a customer perspective (Venkatesh et al. 2012). Furthermore, existing scientific arguments reveal that the core UTAUT variable may not be strong enough to predict the acceptance of new technologies (Kim & Garrison 2009; Salimon et al. 2021). Therefore, synthesizing the variables in UTAUT2, with selected constructs from the organizational context (based on the TOE model) would be appropriate to predict e-commerce adoption. This study integrates the UTAUT2 model (Venkatesh et al. 2012) with the chosen construct, namely e-commerce knowledge from the organizational context of TOE (Tornatzky & Fleischer 1990) to explain e-commerce adoption among MSMEs. To examine the factors that influence adoption and determine what factors highly influence food and beverage MSMEs in adopting e-commerce, the main construction of UTAUT2 is proposed as a direct determinant of the intention to adopt e-commerce for SMEs. Unlike what has been proposed by Venkatesh et al. (2012), this study model does not consider the role of habits. This is because to test the role of habit, the actors must have rich experience in using the technology (Alalwan et al. 2017). The hypothesis of this study comes from a technology adoption model developed by Venkatesh et al. (2012) and Tornatzky Fleischer (1990). For hypotheses derived from the UTAUT2 model, several studies have put forward their hypotheses, which were later adopted in this study, namely study by Alalwan, Dwivedi, Rana, & Algharabat (2018); Alalwan et al. (2017); and Dutta & Shivani (2020). For

the E-commerce Knowledge hypothesis, this study employs the study hypothesis conducted by Salimon et al. (2021). Hypothesis development will be discussed in depth, as follows:

- H1: Performance Expectancy (PE) positively influences Behavioral Intention (BI).
- H2: Business Expectation (EE) positively influences Behavioral Intention (BI).
- H3: Social Influence (SI) positively affects Behavioral Intention (BI).
- H4: Hedonic Motivation (HM) positively affects Behavioral Intention (BI).
- H5: Facilitating Conditions (FC) positively affect Behavioral Intention (BI).
- H6: Facilitating Conditions (FC) positively affect Usage Behavior (UB).
- H7: Price Value (PV) positively affects Behavioral Intention (BI).
- H8: Knowledge of e-commerce (ECK) positively affects Behavioral Intention (BI).
- H9: Knowledge of e-commerce (ECK) positively affects Usage Behavior (UB).
- H10: Behavioral Intention (BI) positively affects Usage Behavior (UB).

### 3 CONCEPTUAL FRAMEWORK

The hypothesis means that MSMEs believe that using e-commerce will allow them to achieve an increase in their business performance. This finding is consistent with previous studies using the UTAUT2 model (Ameri et al. 2020; Nikolopoulou et al. 2020).

The hypothesis also supports a significant relationship between EE and BI to adopt e-commerce. This means that MSME actors have focused their attention on the level of ease or difficulty in using e-commerce. In the previous technology adoption literature, most have argued that an individual's perception of a system's usefulness is strongly influenced by the degree to which the system is easy to use and does not require too much effort (Alalwan et al. 2017).

The significant influence role between SI and BI is shown by Ameri et al. (2020) like the hypothesis of this study. This result means that MSME actors believe that opinions from the closest or most influential people can influence them in adopting e-commerce.

The hypothesis shows the favorable effect of FC on BI and UB for e-commerce adoption. MSME actors seem to have paid more attention to the existence of the facilities needed to use e-commerce in their business activities. This is consistent with other results obtained in previous technology adoption studies (Alalwan et al. 2016; Alalwan et al. 2017).

Next is HM, which is proven to have an impact on BI in the hypothesis of this study. It can be concluded that MSME actors feel comfortable or pleasant in using e-commerce, which allows them to use it more often. This finding is in line with research by Alalwan et al. (2017) and Nikopoulou et al. (2020).

The hypothesis confirms the significant path between PV and BI in adopting e-commerce. In other words, if the benefits obtained match or even exceed the price paid, MSME actors are more likely to be motivated to adopt e-commerce, this is in line with the opinion of Venkatesh et al. (2012). In addition to the construct from UTAUT2, ECK also has a positive and significant effect on UB but has a positive and significant effect on UB as reported by previous studies (Salimon et al. 2021) although this study focused on the adoption of e-commerce.

BI is the most important predictor for UB in this hypothesis research model, which was also found by Ameri et al. (2020), Alalwan et al. (2017), and Nikopoulou et al. (2020). This means that SMEs in the food and beverage sector intend to continue to use e-commerce in their business activities. The proposed framework illustrates the combined UTAUT2 and organizational construct from TOE Model with a hypothesis, as follows:

### 4 CONCLUSION

This study is expected to bridge the gap by integrating two models, namely UTAUT2 with the organizational construct of TOE to determine the factors that influence and the most influence

MSMEs to adopt e-commerce. Based on this study, many limitations and shortcomings can be observed. Some of them are related to determining the minimum number of sample sizes that are too minimal. Furthermore, considering that this research is quantitative, the results can be generalized. It is recommended for future studies to conduct research with qualitative and quantitative approaches. Such an approach is expected to produce more comprehensive findings. This study is also expected to provide benefits for MSME actors, government, and academics, both in terms of practice and scientific development for effective adoption of e-commerce.

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## Acceptance analysis of e-HRM for employees using UTAUT-1 model

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**ABSTRACT:** Digital transformation has now become a necessity for all existing business sectors, especially during the COVID-19 pandemic. One of them is used in Human Resource Management (HRM), namely electronic Human Resources Management (e-HRM). However, based on previous studies, it was found that only 19% of Indonesian workers possess and apply digital skills in their work in 2020, and the HR Skill Gap is the main obstacle to technology adoption (55.40%). Furthermore, other studies found that the highest percentage of internet users in Indonesia in 2019 was aged 17-25 years, which is 85.4%, followed by users aged 26-35 years. This was quite representative that digital transformation was more adaptable for employees with an age range of up to 35 years, making digital transformation of the company certainly experience its own obstacles. This study aimed to determine whether the corona fear and age can moderate the acceptance of e-HRM technology by employees and find out the most influential factors in the acceptance of e-HRM technology in a company using the UTAUT-1 model.

### 1 INTRODUCTION

The COVID-19 pandemic has made companies encounter a fairly severe threat, which then pushes them to tackle things that have not been touched before and deal with them head-on while changing employees in terms of technology, physical, and socio-psychological (Vahdat 2021). In the World Economic Forum (2020), 91.7% of companies implement policies to work from home and 75% accelerate digitization in their work processes. Based on a survey by Katadata (2021), the main reason employees work from home (WFH) was the fear of the risk of being exposed to COVID-19 while commuting or in the office environment, which was 58%. In its implementation, WFH practice must be supported by digitalization, which has begun to be implemented by the company. With increasingly massive digital developments, business processes from upstream to downstream have begun to undergo a digitalization process.

Within a company, one of the significant trends affecting HR and employees is technology. With constant advancements in technology and work processes, companies are under competitive pressure to implement, if not develop their own technology, to further streamline their operations (Mello 2011). For example, Yusliza and Ramayah (2012) state that there is a new wave of Human Resource (HR) technology in Human Resources Management (HRM), one of which is known as electronic Human Resource Management (e-HRM), which is now starting to develop. E-HRM technology is a way to implement HR strategies, regulations, and practices. E-HRM supports HR functions to meet the company's HR needs through web-based technology. E-HRM provides a portal that allows managers, employees, and HR professionals to view, extract, or modify information that is critical to managing corporate HR. In addition, the use of e-HRM reduces the need for HR professionals because e-HRM eliminates Human Resource intermediaries (HRIs).

Based on a survey conducted by Amazon Web Services (2021), only 19% of Indonesian workers possess and apply digital skills in their work in 2020. Therefore, Indonesia needs 946 million digital training in the next five years. Digital training aims to increase the use of digital capabilities of domestic workers in their daily work. In line with this, the World Economy Forum (2020)

report entitled The Future of Jobs Report 2020 proves that the HR skill gap is the main obstacle to technology adoption (55.4%).

The use of e-HRM technology certainly changes the HR work system in a company. However, e-HRM, which is mandatory, requires all employees to implement this system inevitably. Statista (2022) notes that the percentage of internet users in Indonesia in 2019 was mostly 17-25 years old, which was 85.4%, followed by users aged 26-35 years, which was 65.60%. Meanwhile, the number of internet users aged 55-65 years in Indonesia is 19.60% (Statista 2022). This is enough to represent that digital transformation is more adaptable for employees with an age range of up to 35 years, making companies' digital transformation certainly experience its own obstacles.

Due to the problems mentioned above, this study used the Unified Theory of Acceptance and Use of Technology (UTAUT) method. UTAUT is a technology acceptance model developed by Venkatesh et al. (2003). UTAUT combines the successful features of eight leading technology acceptance theories into a single theory that is more successful at explaining 70% of user variance (Venkatesh et al. 2003). Previously, the UTAUT model has been widely used and has satisfactorily described technology acceptance in various institutions that require the use of a technology (mandatory setting), namely the use of LMS in universities (Raza et al. 2021), the use of smart work for employees in the public services sector in Korea (Eom et al. 2016), the use of language standards in technology (Heikkilä & Smale 2011), the use of HRIS in banks in Bangladesh (Rahman et al. 2016), and the use of e-HRM in companies (Kwan et al. 2019). In addition, the core constructs in the UTAUT model, namely performance expectancy, effort expectancy, social influence, social isolation, and facilitating condition along with moderation age and corona fear were considered relevant for the study. The use of UTAUT in this study was to help organizations understand how users, in this case employees, react to the introduction of new technologies. The integration of the UTAUT model aimed to answer the following questions:

1. What is the most influential factor in the adoption of e-HRM?
2. Can the Power of Corona Fear and Age accelerate technology adoption?

## 2 LITERATURE REVIEW

### 2.1 *Performance Expectancy (PE)*

Venkatesh et al. (2003) define performance expectancy as the degree to which an individual believes that using the system will help employees to attain improvement in job performance. For this variable, the researchers formulated the following hypothesis:

H1: Performance expectancy positively influences behavior intention

### 2.2 *Effort Expectancy (EE)*

Venkatesh et al. (2003) define effort expectancy as the degree of ease associated with the use of the system. For this variable, the researchers formulated the following hypothesis:

H2: Effort expectancy positively influences behavior intention

### 2.3 *Social Influence (SI)*

Venkatesh et al. (2003) define social influence as the degree to which an individual perceives that others believe he or she should use the new system. Social influence as a direct determinant of behavioral intention is represented as a subjective norm in TRA, TAM2, TPB/DTPB and C-TAM-TPB, social factors in MPCU, and image in IDT. For this variable, the researchers formulated the following hypothesis:

H3: Social influence positively influences behavior intention

## 2.4 Facilitating Condition (FC)

Venkatesh et al. (2003) define facilitating condition as the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system. This definition captures concepts embodied by three different constructs: perceived behavioral control (TPB/ DTPB, C-TAM-TPB), facilitating conditions (MPCU), and compatibility (IDT). For this variable, the researchers formulated the following hypothesis:

H4: Facilitating condition positively influence use behavior

## 2.5 Social Isolation (SIS)

Raza et al. (2021) define social isolation as individuals' absence or the low number of meaningful ties with other people, thus making them socially isolated. For this variable, the researchers formulated the following hypothesis:

H5: Effort expectancy positively influences behavior intention

## 2.6 Behavior Intention (BI)

Venkatesh et al. (2003) define behavior intention as a key predictor to predict behavior. For this variable, the researchers formulated the following hypothesis:

H6: Behavior intention positively influences use behavior

## 2.7 Moderating variables

In this study, the variables of corona fear and age were used as moderating variables. Based on previous studies, corona fear and age define social isolation as individuals' absence or the low number of meaningful ties with other people, thus making them socially isolated. For these variables, the researchers formulated the following hypotheses:

H7 a-f: Corona fear positively moderate PE, EE, SI, FC, SIS, and BI

H8 a-f: Age positively moderate PE, EE, SI, FC, SIS, and BI

# 3 METHODOLOGY

Based on the variables mentioned in UTAUT model, this can be calculated using multivariate analysis which can be done by Structural Equation Modeling (SEM) technique and can be performed with SmartPLS software, LISREL, AMOS, or others.

# 4 RESULT

This is the proposed framework illustrates the UTAUT model with two moderator variables as follows:

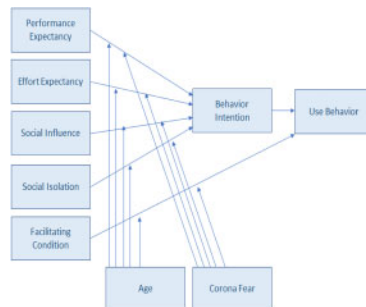


Figure 1. Conceptual framework.

## 5 CONCLUSION

This study seeks to know that whether corona fear and age could moderate the acceptance of e-HRM in some companies. It is expected to provide further insight to develop business strategies in the context of digital transformation adoption. For the companies, the study is expected to serve as a reference or input regarding the adoption of digital transformation so that they can develop their digital programs and digital applications better. In addition, the extent to which age and corona fear moderate technology acceptance could provide insight to the company, specifically on identifying which employees could be given training in technology acceptance so that the requirement of these employees could be specifically given. It is recommended for future studies to use various moderating variables, namely job tenure, gender, experience, and job level to obtain broader characteristics of technology acceptance for employees in a company.

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## The accuracy of the Fama-French five-factor and momentum models on returns in the Indonesia stock exchange

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**ABSTRACT:** From 2015 to 2020, the accuracy of the Fama-French five-factor and momentum was compared with the Fama-French five-factor model. A total of 272 firms from the Indonesian stock exchange were selected as the participants of this study. The accuracy of the models was tested using in-sample and out-of-sample data. Data were analyzed using the regression, mean absolute deviation, mean squared error, and t-test. The results showed that the Fama-French five-factors and momentum accurately explain the variability of stock returns than the other two models. Meanwhile, the three models evaluated a forecasting test using Mean Absolute Deviation (MAD) and Mean Squared Error (MSE). The t-test results showed that there was no significant difference between the actual and expected stock returns. Also, it helps investors to determine the most accurate asset pricing model while making capital decisions in a firm.

**Keywords:** Fama-French five-factor model, momentum factor, capital asset pricing model, asset pricing model

### 1 INTRODUCTION

From 2015 to 2020, the Indonesian capital market including the number of investors increases by 32.9% yearly. In 2015, the total stock exchange value was recorded at IDR 1.406 trillion, while it reached IDR 2.229 trillion or an upturn of 58.5% in 2020. Accordingly, this capital market does always experience a fluctuating increase yearly. These accretions show the high interest of Indonesian investors in-stock instruments.

Return and risk are the most important factors that need to be considered while making capital decisions in a firm. The capital asset pricing model (CAPM) is one of the methods used to determine these returns and risks. Several models including the Fama-French three-factor, the Fama-French five-factor, the Carhart four-factor, and the Fama-French five-factor and momentum were used to calculate the stock returns. This study aims to examine if the five-factor and momentum are more accurate than the Fama-French five-factor and capital asset pricing model.

### 2 LITERATURE REVIEW

Historically, the capital asset pricing model (CAPM) which has market risk emerges from the economic theory formulated by Sharpe (1964), Lintner (1965), Treynor (1961), and Mossin (1966). In 1993, Fama and French developed a three-factor by adding a CAPM, size, and the book-to-market ratio (B/M). This model is designed to capture the relationship between the average return and size, as well as the price ratios. The results showed that the success of this Fama-French three-factor helped to shape the relationship between risk and return. However, this model failed to fully explain the different patterns of stock returns in a firm. This brings about the continuous search for better asset pricing models in the last three decades. Several variations and extensions of this three-factor are motivated by stock characteristics excluding the size and book-to-market related to the returns (Chai et al. 2019). For instance, Carhart (1997), Liu (2006), Hou, Xue, and Zhang (2015), as well as

Fama and French (2015) develop four-factor, liquidity-added CAPM, q-factor, and the five-factor model respectively.

In 1997, Carhart added momentum to the three-factor model to evaluate mutual fund performance. This momentum is proxied by Winners Minus Losers (WML) based on the previous 1 to 12-month returns. Carhart (1997) showed that mutual funds tend to be explained by their loading or sensitivity to market momentum. In 2015, Fama and French added two new factors including profitability and investment. However, this five-factor model failed to capture the low average returns on small stocks despite being performed better than the previous three.

### 3 METHODOLOGY

A total of 272 firms in the Indonesian stock exchange were selected as the participants of this study. The criteria used in the sample selection include the firms: 1) listed in IDX from 2015 to 2020, 2) without a negative book-to-market ratio, 3) without a negative operating profit, 4) without a negative total asset growth, and 5) that actively involved in a trade. However, the Fama-French five-factor and momentum, Fama-French five-factor, as well as capital asset pricing models were compared to assess the accuracy of stock returns. The terms and variables used in this study include risk-free, market return, size, book-to-market, operating profitability, investment, momentum, and excess return. Meanwhile, the BI-7 Day Reverse Repo Rate (BI7DRR) is risk-free (rf), while the return on the market (Rm) used was the Jakarta Composite Index.

Firm size is measured by differentiating the average return of twelve small stock portfolios from the large one using the market capitalization that is proxied by Small Minus Big (SMB). Meanwhile, the book-to-market ratio (B/M) is represented using the High Minus Low (HML). The profitability is proxied by referring to the monthly difference between the high return of two stock portfolios with the low one using the Robust Minus Weak (RMW). Furthermore, the investment factor is measured by referring to the monthly difference between the conservative return on the two portfolios with the aggressive one using the Conservative Minus Aggressive (CMA). In this study, the momentum describes the portfolio's past performance and it is proxied by referring to the difference between the return on the winners/up a stock portfolio with that of losers/down using the Up Minus Down (UMD). The following equation is used to formulate the Fama-French five-factor and momentum model.

$$R_{pt} - R_{ft} = \alpha_i + \beta(R_m - R_{ft}) + \alpha_i \text{SMB}_t + \alpha_i \text{HML}_t + \alpha_i \text{RMW}_t + \alpha_i \text{CMA}_t + \alpha_i \text{UMD}_t + \epsilon_{it}.$$

The estimation test (forecasting) on each model is represented by out-of-sample, while the history is represented by in-sample data. Estimation and model selection plays an important role in forecasting. Mean Absolute Deviation (MAD) and Mean Square Error (MSE) is calculated while conducting the test. Furthermore, a t-test was used to examine if there is a significant difference between expected and actual returns.

### 4 RESULT AND DISCUSSION

The number of samples used in this study varied due to the repeated criteria required yearly.

Table 1. Number of samples.

|       | July 2016–<br>June 2017 | July 2017–<br>June 2018 | July 2018–<br>June 2019 | July 2019–<br>June 2020 | July 2020–<br>June 2021 |
|-------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Total | 171                     | 212                     | 243                     | 272                     | 261                     |

A multiple linear regression test was examined to produce the intercept and slope of each independent variable based on the dependent one. The  $R^2$  value needs to be analyzed to acknowledge the accuracy of the tested models. In the Fama-French five-factor and momentum, the  $R^2$  is obtained from the results of four large portfolio groups including the size-BM, OP, INV, and MOM. The results showed that the  $R^2$  value of the Fama-French five-factor and momentum was 59.53% greater than that of the other two models. This indicated that the Fama-French five-factor and momentum is the most accurate model while calculating stock return.

Table 2. Average  $R^2$  of the asset pricing models

| Portfolio | Average $R^2$                  |                                |                             |
|-----------|--------------------------------|--------------------------------|-----------------------------|
|           | Five-Factor and Momentum Model | Five-Factor and Momentum Model | Capital Asset Pricing Model |
| Size-BM   | 57.32%                         | 55.29%                         | 33.62%                      |
| Size-OP   | 60.00%                         | 59.43%                         | 36.85%                      |
| Size-INV  | 59.68%                         | 58.78%                         | 37.68%                      |
| Size-MOM  | 61.12%                         | 56.94%                         | 36.58%                      |
| Total     | 59.53%                         | 57.22%                         | 36.18%                      |

MAD and MSE were calculated based on the major portfolio groups including the size-BM, OP, INV, and MOM. The results showed that the average MAD for the Fama-French five-factors and momentum, the Fama-French five-factor, and the capital asset pricing model were 0.00384, 0.00376, and 0.00400 respectively. Meanwhile, the average MSE for the Fama-French five-factor and momentum, the Fama-French five-factor, and the capital asset pricing were 0.00026, 0.00024, and 0.00029 respectively. These results showed that the Fama-French five-factor was the highest model. The MAD and MSE values have no significant difference in the three tested models. This indicates that all these models tend to be used to estimate the stock return (forecasting). The result showed that the t-test value for the Fama-French five-factor and momentum, the Fama-French five-factor, and the capital asset pricing in each month was less than the t-table value (t table=3.355, n = 9, df = 8, critical limit = 1%).

Table 3. t-test of the asset pricing models for Size-BM (July 2020–June 2021).

|          |       |       |      |      |      |      |       |      |      |      |      |       |
|----------|-------|-------|------|------|------|------|-------|------|------|------|------|-------|
| FF5F+Mom | 0.46  | -0.04 | 0.65 | 1.42 | 0.44 | 2.81 | 0.42  | 2.11 | 1.45 | 1.66 | 0.21 | -0.96 |
| FF5F     | 0.46  | -0.24 | 0.70 | 1.24 | 0.07 | 3.45 | 0.99  | 1.81 | 1.08 | 1.23 | 0.05 | -0.66 |
| CAPM     | -1.10 | 1.19  | 2.40 | 0.40 | 1.55 | 2.90 | -2.88 | 1.50 | 2.68 | 2.16 | 0.72 | 0.23  |

## 5 CONCLUSION

Based on the result of the multiple linear regression test, the Fama-French five-factor and momentum tend to accurately calculate stock returns more than the other two models. The Fama-French five-factor and the capital asset pricing have an accurate estimation while using the MAD and MSE values that show no significant difference in the three tested models. Meanwhile, the t-test showed that there was no significant difference between the actual and expected stock returns. This study has limitations because it only uses four and one year for testing and estimation windows respectively. Further literature needs to extend the period used in producing the higher accuracy.

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## Fostering sustainability reporting to encourage profitability in Indonesian building construction industry

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**ABSTRACT:** The main objective of all business is to generate maximum profits as well as contribute to society and the environment. The society and environmental concerns can be demonstrated through sustainability reporting, an assessment indicator considered when making investment decisions. Therefore, the purpose of this study is to obtain empirical evidence on the effect of sustainability reporting on a company's profitability. It focuses on four Indonesian building construction as a consequence of deliberate purposive sampling techniques. The data collection is carried out using content business analysis to investigate the disclosure in sustainability reports. Furthermore, the analysis is conducted through panel data regression. The finding shows that sustainability reporting significantly affects profitability proxied by Return on Equity (ROE). Therefore, the companies in building construction subsector must comply with all aspects of sustainability report which consist of economic, social, and environmental comprehensively. Furthermore, investors should invest in firms that have adequately and honestly reported on sustainability to make a long-term return.

### 1 INTRODUCTION

Currently, the Indonesian government is focusing on the development of infrastructures, and it brings a good potential for the building construction sub-sector. According to data from the Ministry of Finance of the Republic of Indonesia and the Central Bureau of Statistics, in 2021, 417.4 trillion Rupiah has been allocated to support infrastructure development. This fund shows an increase of 48.4% from the previous year ([kemenkeu.go.id](http://kemenkeu.go.id), 2021). According to katadata, building construction is the center of Indonesia's stock exchange, and it is a crucial sector for national development. In 2021, this sector contributed 10.44% to the national GDP, reaching IDR 16.97 quadrillion. The contribution is also the fourth largest after the 19.25%, 13.28%, and 12.97% contributions of the processing industry, agriculture, and wholesale and retail trade (Kusnandar 2022).

Corporate Social Responsibility (CSR) is an important initiative to be applied in all business sectors in Indonesia. According to government regulation through Article 74 of Law No. 40 of 2007, businesses are required to implement CSR. The implementation can be assessed through the company's compliance with the obligation to publish sustainability reporting.

This research aims to determine the effects of sustainability reporting (economic, social, and environmental) on profitability. This is represented by the return on equity (ROE) of the building construction sub-sector companies registered in the Indonesia Stock Exchange for the 2016–2019 period. Furthermore, limitation among previous findings promotes this research. Lourenco & Branco (2013) in Brazil and Chen et al. (2015) in Sweden show that Sustainability Reporting supports the increase of company profitability, which ROE represents. However,

contradictory results occurred in the United States (Adams et al. 2012), South Africa (Movasaghi & Bramhandkar 2012), and India (Aggarwal 2013). Thus, the four hypotheses to be proven are:

- H1: Economic Aspect (ESR) of Sustainability Reporting has a significant impact on ROE*
- H2: Social Aspect (SSR) of Sustainability Reporting has a significant impact on ROE*
- H3: Environmental Aspect (LSR) of Sustainability Reporting has a significant impact on ROE*
- H4: All aspects (ESR, SSR, and LSR) of Sustainability Reporting simultaneously have a significant impact on ROE*

## 2 METHODOLOGY

A quantitative research method was applied through content analysis by investigating the disclosure of sustainability reports according to Global Reporting Initiative (GRI). Using the purposive sampling technique, the sample consists of four companies in the Indonesian building construction sector, i.e., Adhi Karya (Persero) Tbk, Total Bangun Persada Tbk, Waskita Karya (Persero) Tbk, Wijaya Karya (Persero) Tbk. The criteria of the purposive sampling technique are (1) Building construction sub-sector companies listed on the Indonesia Stock Exchange from 2016 to 2019; (2) Building construction subsector companies that publish annual reports within 2016 to 2019 and completed with notes to financial statements; (3) Building construction subsector companies that present sustainability reports within 2016 to 2019. The data were gathered from 2016 until 2019, and Panel-data Regression was applied as the analysis technique.

## 3 RESULTS AND DISCUSSION

Chow, Hausman, and Lagrange Multiplier tests provided the same result, and the Common Effect model is picked as the best. The equation of the panel data regression model that explains the influence of the social, environmental, and economic aspects of the sustainability report on the Return on Equity (ROE) in constructing sub-sector companies enlisted on the Indonesia Stock Exchange in the 2016-2019 period is as follows:

$$ROE = 0,094055 - 0,288353 ESR + 0,702141 SSR + 0,122487 LSR$$

A statistical t-test was carried out to assess the effect of the independent variable on the dependent. Furthermore, when the probability value  $< 0.05$ , the independent variable partially correlates with the dependent. Meanwhile, when the probability value is  $> 0.05$ , the independent variable partially has no significant effect on the dependent variable. Based on research, it can be interpreted that:

1. The variable economic aspect of the sustainability report (X1) has a probability (p-value) of 0.0262, smaller than 0.05 significance level then H1 is accepted. Therefore, the disclosure of the economic aspect of the sustainability report significantly affects Return on Equity (ROE) in constructing sub-sector companies.
2. The social aspect of the sustainability report (X2) has a probability value (p-value) of 0.0195, smaller than 0.05 significance level, then H1 is accepted. Therefore, the disclosure of the social aspect of the sustainability report partially significantly affects Return on Equity (ROE) in constructing sub-sector companies.
3. The variable environmental aspect of the sustainability report (X3) with a probability value (p-value) of 0.3289 is greater than the significance level of 0.05 significance level, then H0 is accepted. Therefore, the disclosure of environmental aspects of the sustainability report does not significantly affect Return on Equity (ROE) in building construction sub-sector companies.

A statistical F-test was conducted to assess the effect of all independent variables on the dependent variables. The independent variable is the disclosure of economic (ESR), environmental (LSR), and

social (SSR) aspects of the sustainability report, while the dependent variable is Return on Equity (ROE). Based on the results, the probability (F-statistic) has a value of 0.029227. Furthermore, when it is below the 0.05 significance level, then H0 is refused, and H1 is approved. Hence, the environmental, economic, and social disclosure significantly affects Return on Equity (ROE).

The coefficient of determination describes the magnitude of the independent variable in explaining the dependent. In panel data regression research, the magnitude of the coefficient of determination is shown by the adjusted R-squared value. Based on result, the adjusted R-squared value in this model is 0.393428. These results indicate that the ROE variable explained by the sustainability report is 39.34%, while other variables outside the study explain the remaining 60.66%.

#### 4 CONCLUSION

Based on the results, it can be concluded that the Economic (ESR) and Social Aspects of Sustainability Reporting have significant impacts on ROE, while the Environmental Aspect (LSR) has no significant impact. This result shows that H1 and H2 are accepted, while H3 is rejected. All aspects of Sustainability Reporting significantly impact profitability, hence H4 is accepted.

A limitation of this study is taking ROE as the only proxy of profitability. The results imply further research to use other proxies of profitability, such as Earning per Share or Net Profit Margin. Companies in the building construction subsector should focus on all factors to be disclosed in sustainability reporting to achieve higher profitability. Since all aspects of sustainability report simultaneously have significant impact on profitability, then the companies in building construction subsector must comply with all those economic, social, and environmental aspects comprehensively. Furthermore, investors should invest in firms that have adequately and honestly reported on sustainability to make a long-term return.

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## The effect of job satisfaction and employee engagement on turnover intention on Indonesian sharia banks

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**ABSTRACT:** In 2021, three Indonesian sharia banks, namely BRI Syariah, BNI Syariah, and Syariah Mandiri, were merged into Bank Syariah Indonesia (BSI). The strict competition, particularly in the banking sector, has demanded companies to optimize available resources to support the merging success, including by optimizing the role of employees. Unfortunately, after merging, BSI experienced an increase in the number of employees leaving, both voluntarily and involuntarily. The high employee turnover rate indicates fundamental problems leading to instability and uncertainty regarding employee conditions. This harms the company due to wasted time and costs to recruit and train new employees. Therefore, the company needs to improve employee management to reduce turnover by improving job satisfaction and employee engagement. Hence, this study aims to discover the level of job satisfaction, employee engagement, and turnover intention rate of employees post-merging. Data utilized in this study were collected through a questionnaire on 499 BSI employees. Data analysis employed the variance-based SEM with the LISREL software. In addition, the findings of the study demonstrated that job satisfaction and employee engagement significantly affected the turnover intention of BSI employees. Therefore, the company must improve employees' job satisfaction and employee engagement to reduce the turnover intention rate. Future studies can conduct further analysis on other factors affecting the turnover intention of company employees.

**Keywords:** Job Satisfaction, Employee Engagement, Turnover Intention

### 1 INTRODUCTION

Bank Syariah Indonesia is an Indonesian bank formed by the merger. During the merger transition period, with the increasingly strict competition in the banking sector, the role of employees becomes crucial in supporting the merger's success. Therefore, the management of human resources as a vital resource to achieve organizational goals must be considered. If employees are not well managed, their enthusiasm for working will decrease, leading to resigning or exiting the workplace (turnover).

Since its merger on 1 February 2021, the number of employees at Bank Syariah Indonesia has decreased monthly. Data acquired for employees resigning amounted to 536 people. There are various factors affecting turnover intention. According to Siagian (2014), it is affected by the high work stress level in the company, low drop satisfaction, and lack of self-commitment from employees to provide all their abilities for organizational advancement. Meanwhile, according to Sukwadi & Meliana (2014), turnover intention can be affected by the desire to acquire a better job.

In accordance, Robbins & Judge (2019) stated that job satisfaction is a positive feeling regarding one's job resulting from its characteristic evaluation. As mentioned by Ibrahim, Hilman & Kaliappen (2016), the job satisfaction level perceived by employees will affect their turnover intention. Besides job satisfaction, another reason is that employees do not feel engaged with the company, commonly called employee engagement. It is in line with the result of the study by Santhanam & Srinivas (2020) that employee engagement significantly affected turnover intention. This finding shows



that employees with engagement are more involved in their job and organization, showing turnover intention production.

Based on the following phenomenon, the study is aimed at discovering the effect of job satisfaction and employee engagement on the turnover intention at Bank Syariah Indonesia, so the research questions as follows:

1. What the employee job satisfaction rate at BSI?
2. What the employee engagement rate at BSI?
3. What the turnover intention rate at BSI?
4. What the effect of job satisfaction and employee engagement on turnover intention at BSI simultaneously and partially?

## 2 LITERATURE REVIEW

Robbins & Judge (2019) asserted that job satisfaction is a positive feeling about one's job resulting from its characteristic evaluation. According to Kreitner & Kinicki (2014), job satisfaction is the effectiveness or emotional response to various job aspects. This definition means that a person can be relatively satisfied with one aspect of their job and/or not satisfied with one or more aspects. Based on these expert opinions, it can be concluded that job satisfaction is fundamentally a positive individual feeling related to their job or individual matters where each individual has different satisfactory levels according to the applicable scoring system on themselves.

According to Sandhya & Sulphrey (2021), employee engagement is a positive or negative emotional engagement of employees about the job, colleagues, and organization that highly affects their willingness to learn and to perform in the workplace. Rachman & Dewanto (2016) suggested that employee engagement is emotionally, cognitively, or physically multidimensional. Based on expert opinions, it can be concluded that employee engagement is a positive attitude from employees in the organization where they work in the form of initiatives, measures, and persistence that leads to organizational goal achievement, conducted voluntarily to show their existence in the organization.

According to Mathis & Jackson (2004), turnover intention is related to job satisfaction and organizational commitment. Turnover intention is the process where employees leave the organization and must immediately be replaced. Following Sukwadi and Meliana (2014), the turnover intention is an individual tendency or intensity to leave the organization for various reasons, including the desire to acquire a better job. From the definition above, it can be concluded that turnover intention is when an employee of a company or organization opts to leave the organization voluntarily for particular reasons or a certain action to leave the organization where they work.

## 3 METHODOLOGY

The study employs a quantitative method with descriptive and verificative approach, the data sources used are primary data and secondary data and the scale used is the Likert scale and the sampling technique uses proportional random sampling. In this study, the data used were 499 samples and data were processed using Structural Equation Modeling (SEM) based on Linear Structural Relations (LISREL).

## 4 RESULT

### 4.1 *Result*

In evaluating the validity and reliability of study variable indicators, Confirmatory Factor Analysis (CFA) was employed. The Confirmatory Factor Analysis testing model results for variable job satisfaction, employee engagement, and turnover intention were already above the recommended

loading factor average of 0.5 and the t-value obtained for each manifest variable was more than 1.96 so it can be said that the manifest variable used was meaningful in measuring the Employee Engagement used. The loading factor for each indicator had a t-value > 1.96, so it can be said to be valid.

Assuming testing was undertaken using the robust maximum likelihood estimation approach and the results obtained through the structural equation can be seen that the relationship between the independent variable job satisfaction with the turnover intention variable that was negative at  $-0.600$ . The relationship between the independent variable employee engagement to the turnover intention variable was negative at  $-0.2400$ . Thus, it shows that there was a negative influence of job satisfaction and employee engagement on turnover intention. Based on the results of the goodness of fit model testing that had been carried out on the data obtained, it can be concluded that the model in this study was in line with expectations. This is indicated by the index values and the fit of the model, the majority of which were good fit.

The study result demonstrated that the job satisfaction variable had a negative and significant effect on the turnover intention with a  $t_{\text{calculation}}$  value =  $-5.3384$ . It indicates that employees' joyful sense of work must be improved to satisfy employees in their job. Hence, the turnover intention rate will decrease. Meanwhile, the employee engagement variable had a negative and significant effect on the turnover intention with a  $t_{\text{calculation}}$  value =  $-20499$ . In this case, in maintaining employee engagement, the company must always involve employees in each planned work program to foster participation in their job. Thus, it could contribute to improving engagement and decreasing the turnover intention.

#### 4.2 Discussion

Based on the data analysis result, the job satisfaction variable negatively and significantly affected turnover intention. A precedent study showed that job intention negatively and significantly affected turnover intention. The study results of Fauziridwan, Adawiyah & Ahmad (2018) revealed that job satisfaction had a negative effect on turnover intention. Thus, employee satisfaction can affect employee resignation significantly. The result of the study discovered that job satisfaction negatively and significantly affected turnover intention. It indicated that the higher the job satisfaction, the lower the turnover intention.

From the data processing result, the employee engagement variable also negatively and significantly affected turnover intention. It follows a preceding study, such as a study by Kristanti, Purnamasari & Widjaja (2017) showing that employee engagement negatively affected turnover intention. The company can offer employee engagement initiatives on programs such as health and fitness, recreational facilities, and proper work conditions, which will improve employees' sense of belonging and engagement. Therefore, companies must consider employee engagement since it is a factor that reduces turnover intention.

### 5 CONCLUSION

Based on the results of study, the conclusions were drawn:

1. The level of job satisfaction employees at BSI which consists of the dimensions of satisfaction with the job itself, salary, promotion opportunities, supervision, and colleagues from the results of descriptive analysis is in the high category with a percentage value of 83.6% and a value scale of 4.18.
2. The level of engagement employees at BSI which consists of the dimensions of vigor, dedication, absorption from the results of the descriptive analysis is in the very high category with a percentage value of 85.4% and a value scale of 4.27

3. Turnover intention at BSI which consists of thinking of quitting, intention to search, intention to quit from the descriptive analysis results in the high category with a percentage value of 69% and a value scale of 3.45
4. Based on the results of the research on the effect of job satisfaction and employee engagement on turnover intention at BSI as follows:
  - a. Job satisfaction variable has a negative and significant effect on turnover intention with a  $t_{\text{calculation}}$  value =  $-5.3384$
  - b. Employee engagement variable has a negative and significant effect on turnover intention with a  $t_{\text{calculation}}$  value =  $-2.0499$
  - c. The variables of job satisfaction, employee engagement, and turnover intention are based on the results of simultaneous testing using GOF as a substitute for the F-test on SEM, the computational results obtained from the overall model test, namely Chi-Square of  $51.83 <$  table value  $56.94$ , probability of  $0.11962$ , Goodness of Fit Indices (GFI) of  $0.980$ , Adjusted Goodness of Fit Index (AGFI) of  $0.967$  and Root Mean Square Error of Approximation (RMSEA) of  $0.030$ .

Therefore, this study is expected to provide further knowledge for future researchers. Follow-up studies are required regarding other factors affecting employee turnover intention besides job satisfaction and employee engagement.

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## The analysis of performance and determinant factors of exchange-traded funds in Indonesia stock exchange

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**ABSTRACT:** The research employed risk-adjusted measurement to analyze the performance of 42 exchange-traded funds (ETF) in Indonesia from 2016 to 2020 using the Sharpe ratio as the proxy. The research also explored the influence of the stock selection skill and market timing ability on ETFs' performance using data panel regression. The results showed that 21.43% of the ETFs outperformed the average market return, whereas the passive ETFs had better performance than the active ones. The regression analysis showed that only market timing ability had a positive and significant influence on ETFs' performance. The market timing ability was significant to the ETF with the underlying thematic index and factor index.

**Keywords:** ETF, Sharpe ratio, stock selection skill, market timing ability, investment

### 1 INTRODUCTION

Exchange-traded fund (ETF) is an investment instrument in the form of a contractual collectible investment that is traded on the stock exchange. As an investment alternative, the ETF structure is almost identical to common mutual funds but has the flexibility of stock in terms of how it is traded and owned. The Indonesia Financial Services Authority (OJK, *Otoritas Jasa Keuangan*) defines an ETF as a mixture of mutual funds and stock that could be traded regularly on the stock exchange (OJK 2015). Pagano et al. (2019) stated that an ETF is a type of investment product that track an index or sort of assets in the specific market segment which can be traded on the secondary market in daily basis. The ETF has the combination of open-end and closed-end characteristics of mutual fund. Based on how it is managed, the ETF could be grouped into two categories, namely (1) Passive ETF and (2) Active ETF. A passive ETF is created to imitate the performance of a benchmark which could be an index, obligation, commodity, or even cryptocurrency as long as the benchmark is legally established by a legitimate institution. The OJK regulation limits the assets under management (AUM) of an ETF in Indonesia to 80% at the minimum which established the underlying of its benchmark index (OJK 2015).

The existence of stock selection skill and market timing ability in investment portfolios, such as mutual funds and ETFs are still a sort of debate among academicians and practitioners. Some researchers argue that both mutual funds and ETFs managed in a passive model do not need superior market timing ability and stock selection skill. In addition, Alexandri (2015) conducted a regression analysis on the influence of market timing ability on mutual funds' performance in Indonesia. The research concluded that the investment managers needed to have more stock selection skill rather than market timing ability in maintaining portfolios' performance. Nikolic et al. (2009) studied 820 ETFs that were publicly traded in the US stock market and found that 15% of the samples showed significant influences of market timing ability on ETFs' portfolio performance. On the other hand, other studies considered that both stock selection skill and market timing ability were essential to the ETFs' performance in terms of getting a higher return from the investment. Therefore, it is significant to investigate ETFs' performance to explain the Indonesian market ETFs' performance from 2016 to 2020 and to describe the influence of stock selection skill and market timing ability on

the performance of the Indonesian ETF industry. More research regarding ETFs, especially in the Indonesian market, could increase Indonesian investors' understanding of alternative investments other than mutual funds and stock. Moreover, the findings of this research could provide additional information for the investors to analyze the stock market before making an investment decision.

## 2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1 *Sharpe ratio*

Sharpe ratio is the common method used in measuring a portfolio performance because of its convenience and simplicity (Bednarek et al. 2014). The method emphasizes the trade-off between the average excess return and the standard deviation of the portfolio (Sharpe 2011). The standard deviation of the portfolio is considered as the total risk embedded with the portfolio. If the ratio is negative, it means that the return does not exceed the risk-free rate; while the positive ratio signifies that the portfolio has overcome the risk and gets a return above the risk-free rate. The higher ratio indicates better portfolio's performance. Despite the simplicity of the Sharpe ratio compared to other measurement tools, Grau-Carles et al. (2019) argued that the Sharpe ratio is the primary tool in measuring portfolio's financial performance. Regardless of its limitation in using normal distribution, the Sharpe ratio is widely used in recent research. Lastly, Pulungan et al. (2019) used the Sharpe ratio as one of the tools in measuring the stock's performance of state-owned enterprise in Indonesia.

### 2.2 *Investment manager's ability*

Investment manager has the responsibility to build a portfolio of securities which help the investors in increasing the return on investment. Jensen (1968) stated that one dimension that could be used in evaluating a portfolio's performance was the investment manager's ability in predicting an asset price in the future. If the investment manager could predict the future value of an asset, then the manager could combine the assets into a portfolio which potentially has higher return in the future. The skill to choose an asset or stock in building a portfolio is known as stock selection skill. In accordance, Sari (2012) stated that to evaluate or to measure an investment manager's performance can be carried out by employing Treynor-Mazuy model. The model could explain a portfolio's performance by defining the coefficient of stock selection or alpha, the correlation between the portfolio and the market or beta, and the coefficient of market timing ability. Market timing is the ability to allocate stock or other assets in an effort to cope with the changes in market conditions to minimize the risk and maximize the return of a portfolio.

There are debates about the influences of stock selection skill and market timing ability on the performance of an investment portfolio in mutual funds or in ETFs. The market region, the time event, and the size of the institutional ownership create a different relation between the investment manager's ability and the portfolio's performance. It leads to the question of whether the stock selection skill and market timing ability also have an influence on the ETFs' performance in the Indonesian market given the expansion of the ETF industry in the last four years (2017-2020). This research proposed two hypotheses as follows:

H1: Stock selection skill has a significant influence on ETFs' performance; and

H2: Market timing ability has a significant influence on ETFs' performance.

## 3 METHODS

This research analyzed ETFs return on the Indonesia Stock Exchange from 2016 to 2020 as the object of the research. This research employed purposive sampling, in which all of the samples were based on categories which were actively traded during 2016 until 2020 and still exist when the

research was conducted. Forty-two ETFs were fulfilled the research requirement and were selected as the samples of the research. The research used the Sharpe ratio as a proxy for the variable of ETFs' performance whereas Jensen's Alpha model and Treynor-Mazuy model were used to measure the stock selection skill and market timing ability respectively. This model was also used in the prior researchs where Alexandri (2015), Putri (2021), and Rompotis (2009) employ Sharpe ratio to be the proxy of fund performances as for the dependent variable. The researches also used Jensen Alpha model and Treynor-Mazuy model as the proxy of stock selection and market timing skill respectively. The utilization of Sharpe ratio makes the fund performance measurement also include the embedded risk in the portfolio performance (Sharpe, 2011). This research employed the measurement of multiple regression models based on data panel to test the hypotheses.

#### 4 RESULTS AND DISCUSSION

The analysis of ETFs' performance using Sharpe ratio showed that the average ETFs' performance were below the market performance, only 21.43% of them earned a higher return than the market. The findings signified that in general the ETFs' return were below the risk-free rate. However, there were some ETFs with specific characteristics which had an outstanding performance among the ETFs in the Indonesian market. Passive ETFs had a better performance than the actively managed ETFs. The comparison analysis related to the performance based on the index classification found that ETFs with underlying factor index had the highest performance on average. However, when assessed individually, ETFs with underlying thematic index such as SRI-KEHATI and MSCI Indonesia ESG dominated the total number of the ETFs which exceeded the market performance.

Table 1. Results of hypothesis testing.

| Independent Variable | Dependent Variables |        |               |         |
|----------------------|---------------------|--------|---------------|---------|
|                      | Stock Selection     |        | Market Timing |         |
|                      | Coefficient         | Prob.  | Coefficient   | Prob.   |
| Sharpe Ratio         | 0.103262            | 0.6387 | 0.013376      | 0.0100* |

Note: \* Significant at 5%.

The regression data panel analysis presented in Table 1 showed that the reject the first hypothesis (H1) on stock selection since the regression test comes with not significant probability. Conversely, the market timing ability hypothesis (H2) shows significant probability number with a positive coefficient of 0.013376. The results were in accordance with Putri (2021) which found the ability of the investment manager to make portfolio adjustment by timing the market so they could earn excess return above the market return in the Indonesian market. Similar findings also found in banking (Sundar et al. 2015) and insurance industries (Awaluddin 2019) in Indian and Indonesian markets respectively. The latter research also found that the increase of the market timing ability was as a consequence of the tight regulations in supporting the financial prudence in Indonesia, especially in the passively managed fund. The investment manager could lower the downside risk in the bearish market by lowering the weight of their portfolio and maximizing the upside potential in the bullish market by weighing up the portfolio.

The lack of stock selection skill among investment managers in Indonesia was arguably caused by the strict regulation which limited the flexibility of investment managers in executing some investment strategies (Awaluddin 2019). The strict regulation, which was established to control the prudence and the integrity of management, made the stock selection skill inferior and heavily affected the passive ETFs. The passive ETFs, since the beginning of its invention, was obliged to own at least 80% of the stock or assets that formed the underlying index. However, the limitation

also increased investment managers' market timing ability as they could adjust the proportion of stock in the portfolio to anticipate the market volatility. Paramita et al. (2017) argued that the stock selection skill tended to be better in the bullish market after an economic crisis and it tended to deteriorate as the market came into the bearish market.

## 5 CONCLUSIONS

The research indicated that market timing ability was the only variable that had a significant and positive influence on the ETFs' performance in Indonesia. The influence was much stronger for the ETFs that followed passive strategies especially in the ETFs with underlying thematic index. However, the stock selection skill was indicated in the actively managed ETFs but there was not enough evidence to support the notion that stock selection skill influenced the ETFs' performance. Moreover, the research found that the regulations in Indonesia accommodated the possibility of passive ETFs to become more active in the market and it could be as an interesting topic to be studied in the future.

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# The effect of quality of auditors, corporate governance, leverage, and profitability on earnings management

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**ABSTRACT:** This study aims at examining the impact of quality auditor, corporate governance, leverage, and profitability on earnings management, which was obtained from the audited financial reports of the selected firms. The research method used is explanatory, which is designed to analyze earnings management practice for 5 years. The populations in this study are conventional banks listed in Indonesia Stock Exchange (IDX). Purposive sampling was done to determine the sample in this study. The data source used in this study is the annual financial statements published during the year 2016 to 2020. The data analysis tool uses reviews to test the hypothesis in this study using panel data regression analysis. The results of this study indicate that the quality of auditors has effect on earnings management, so do the good corporate governance variables consisting of independent commissioners and managerial ownership. However, the leverage and profitability variable has no effect on earnings management. These findings cross over all stakeholders in the company to create healthy financial institutions and a better economy.

## 1 INTRODUCTION

Scott (2000: 296) states that the choice of accounting policies made by managers for certain purposes is called earnings management. Scott (2008) divides the way to understand earnings management into two. First, see it as an opportunistic behavior of managers to maximize their utility in the face of compensation contracts, debt contracts, and political costs (opportunistic earnings management). Second, by looking at earnings management from the perspective of an efficient contract (efficient earning management), wherein earnings management provides flexibility for managers to protect themselves and the company in anticipating unexpected events for the benefit of the parties involved in the contract. One way to measure earnings management is to use the Discretionary Accrual (DA) proxy. DA is an accrual component that is included in the manager's policy; the manager provides their intervention in the accounting reporting process.

There are many big cases related to earnings management practices in Indonesia, for instance, Jiwasraya, PT, Tiga Pilar Sejahtera Food Tbk, Bukopin, and more. Many speculate that this is a factor in the occurrence of earnings management practices. In this case, several possible causes of earnings management are quality auditor, corporate governance, leverage, and profitability.

This paper chooses banking as the object of research because it has a very large role in driving the national economy. This is because banks play a role in all economic activities, including the main driving sector for Indonesia's Gross Domestic Product (GDP). When this happens in the banking world, the economy will become a problem. Therefore, banks must be healthy and have adequate profits so that they can develop and grow strongly, and are able to meet the needs of the community (Darmawi 2012).



## 2 A BRIEF REVIEW OF THE LITERATURE

### 2.1 *Quality of auditor and earning management*

According to Jensen and Meckling (1976), in Amijaya, a quality auditor functions to avoid low investor confidence in the company; moreover, the quality of auditors can also help determine the performance of managers in providing financial reports so as not to act opportunistically.

### 2.2 *Managerial ownership and earning management*

Managerial ownership is shares owned by management personally or owned by the subsidiaries of the company concerned and its affiliates (Susiana dkk 2007).

Earnings management is largely determined by the motivation of managers. Different motivations will produce different amounts of earnings management, such as between managers who are also shareholders and managers who are not shareholders. These two things will affect earnings management, because a manager's ownership will also determine policies and decision-making in the companies they manage. A certain percentage of share ownership by management tends to influence earnings management actions (Gideon 2005).

### 2.3 *Independent commissioners and earning management*

Fama and Jensen (in Ujiyantho & Bambang 2007) state that non-executive directors (independent commissioners) can act as mediators in disputes that occur between internal managers and oversee management policies and provide advice to management. An independent commissioner is in the best position to carry out the monitoring function to create a company with good corporate governance.

If the number of the board of commissioners is large, while the number of independent commissioners is small, then the supervision will be assessed as lacking, because the number of the internal board of commissioners is larger, so that it can allow the emergence of earnings management practices due to prioritizing their personal interests and those of the company.

### 2.4 *Leverage and earning management*

Houston (2010: 140) states that the leverage is "a ratio that measures the extent to which companies use financing through debt (financial leverage) so that we are able to see the company's ability to optimize debt". Increasing debt covenant motivation improves earnings management practices.

### 2.5 *Profitability and earning management*

Profitability has a positive and significant relationship with earnings management, the higher the profitability, the higher is the earnings management (Setiawan 2021).

## 3 DATA, METHODOLOGY, AND DESCRIPTIVE STATISTICS

### 3.1 *Hypothesis formulation*

Following the literature review, we can formulate the following hypotheses:

- H1: Auditor quality has a negative relationship with earnings management
- H2: Managerial ownership is negatively related to earnings management
- H3: Independent commissioner is negatively related to earnings management
- H4: Leverage is positively related to earnings management
- H5: Profitability has a positive effect on earnings management

### 3.2 *Research methodology*

In this study, secondary data related to banking listed on the Indonesia Stock Exchange (IDX) in 2016–2020 were obtained from the IDX's official website, namely [www.idx.co.id](http://www.idx.co.id), and the

official websites of the banks studied. Twenty-one companies meet the research criteria and serve as research samples.

#### 4 MAIN EMPIRICAL RESULTS

Table 1. Panel data regression estimation using random effect model (REM) test result.

| Variable              | Coefficient | Std. Error | t-Statistic | Prob.  |
|-----------------------|-------------|------------|-------------|--------|
| QA_X1                 | 0.067002    | 0.033224   | 2.016652    | 0.0464 |
| MO_X2                 | -0.153957   | 0.076979   | -1.999985   | 0.0482 |
| IC_X3                 | -0.172382   | 0.068905   | -2.501727   | 0.0140 |
| DER_X4                | -0.264128   | 0.553844   | -0.476900   | 0.6345 |
| ROA_X5                | -0.514465   | 0.328328   | -1.566926   | 0.1203 |
| C                     | 0.589451    | 0.103317   | 5.705274    | 0.0000 |
| Effects Specification |             |            | S.D.        | Rho    |
| Cross-section random  |             |            | 0.294358    | 0.9392 |
| Idiosyncratic random  |             |            | 0.074865    | 0.0608 |

The results of the research show that auditor quality has a significant impact on the increase in the company's earnings management numbers or in other words Hypothesis 1 (H1) is rejected.

The results of this study is in line with the research proposed by Cetenak (2012), the big 4 Public accounting firm does not limit earnings management in each developing country but the judicial system does. In other words, whether the big-four public accounting firms will provide good service quality or not, the audit environment is directly influenced by the legal environment and the effectiveness of the legal system, which is more important than audit quality.

The results of the research also show that managerial ownership has a significant impact on the increase in the number of corporate earnings management. This indicates that managerial ownership is the dominant factor that has an impact on the increase in the company's earnings management number, or in other words Hypothesis 2 (H2) is accepted.

Corporate governance is a system that regulates and controls companies to create added value for shareholders. The coefficient with a negative score means that there is a negative effect of the independent commissioner on earnings management. This indicates Hypothesis 3 (H3) is accepted. The lower the managerial ownership, the higher is the earnings management.

DER has no significant impact on the increase in the company's earnings management number. This indicates that DER is not the dominant factor that has an impact on the increase in the company's earnings management number, or in other words Hypothesis 4 (H4) is rejected.

The greater the company's debt, the greater is the risk faced by investors so that investors will ask for higher level of profit. The use of debt will determine the level of debt to equity of the company. As a result of these conditions the company will tend to practice earnings management. Companies that have a high level of debt to equity are suspected of practicing income smoothing because the company is threatened with default so that management makes policies that can increase revenue (Dewi 2012).

Return on asset (ROA) has no significant impact on the increase in the company's earnings management figures. This indicates that ROA is not the dominant factor that has an impact on the increase in the company's earnings management number, or in other words Hypothesis 5 (H5) is rejected.

The results of the study are in line with Omid et al. (2012), Anjum et al. (2012), and Tahir et al. (2011), which show that the negative effect of ROA on earnings management, which means that the better the company's performance as proxied by ROA, the better is the action of ROA and the earnings management is declining. This means that in companies that have good corporate

performance, the opportunistic behavior of the management, in this case earnings management actions, will decrease.

## 5 CONCLUSION

Based on the results of research conducted, the conclusions are as follows:

1. Auditor quality has an influence on earnings management. Using a reputable auditor does not necessarily guarantee that earnings management will decrease. The effectiveness of the legal system and legal environment in a country, especially a developing country, also affects the quality of the auditor. It is recommended for further research studies to include other measurement scales, such as independence, tenure, and others.
2. Corporate governance is measured by managerial ownership, where there is an influence on earnings management. While corporate governance is measured by independent commissioners, there is an influence on earnings management. Based on the results of research by measuring managerial ownership and independent commissioners, having good corporate governance can significantly reduce the occurrence of earnings management. The company, in this case the bank that is the object of the research, is advised to implement good corporate governance properly.
3. Debt-to-equity ratio has no significant effect on earnings management. The Basel Committee on Banking Supervision (BCBS), in an effort to limit the formation of excessive leverage in the banking system, has introduced an additional ratio, namely the leverage ratio as a non-risk based approach as a complement to the capital ratio according to the prevailing risk profile. Leverage in banking that has been studied, on average, has a safe leverage so that it does not motivate managers to carry out earnings management.
4. ROA does not have a significant effect on earnings management. The results of the study using ROA did not affect or motivate the practice of earnings management. It is recommended that further research can use other measurements such as total equity, market value of equity, and more.

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## Stock portfolio management in the old age security fund (JHT) at the social security agency for employment (BPJS Ketenagakerjaan)

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**ABSTRACT:** This study focuses on an in-depth analysis of stock portfolio management at the Social Security Agency for Employment (BPJS) to develop Old Age Security (JHT) funds, particularly on the asset allocation, security selection, market timing, and portfolio evaluation methods used by BPJS Ketenagakerjaan for the 2017–2018 period. This study employs mixed methods, including case studies, with the aim of obtaining the required qualitative data. Then, the qualitative data was processed into quantitative data and then analyzed using prescriptive models, namely the Mean-Variance Portfolio model. The results of this study indicate that the BPJS For Employment stock portfolio for the 2017–2018 period had portfolio risk and portfolio returns that were not optimized, with the risk represented by the standard deviation value of 17.81% while the expected annualized return was 6.7%. Based on the efficient frontier graph analyzed with that level of risk, the expected return can reach around 26%. Considering the long-term liabilities of JHT funds, this optimization provides low-risk exposure and adequate returns. So that this study can be useful for BPJS For Employment in terms of stock portfolio management so that it can provide optimal benefits for BPJS For Employment participants.

**Keywords:** Equity, Portfolio Optimization, Mean-Variance Portfolio, Prescriptive Model

### 1 INTRODUCTION

Old Age Security Fund (JHT – *Jaminan Hari Tua*) is one of the social security programs organized by The Social Security Agency for Employment (BPJS Ketenagakerjaan – *Badan Penyelenggaraan Jaminan Sosial Ketenagakerjaan*) in Indonesia. JHT funds are sourced from a set of funds mandated by workers in Indonesia who are JHT participants in BPJS Ketenagakerjaan. In this case, BPJS Ketenagakerjaan is in charge of managing JHT funds. These funds must be managed optimally by considering aspects of liquidity, solvency, prudence, security of funds, and adequate results.

In carrying out its duties, BPJS Ketenagakerjaan (hereinafter referred to BPJSTK) maximizes the return on JHT funds of its participants by placing these funds in several investment instruments. One of the investment instruments is stocks. BPJSTK stock investment in 2017–2018 has a weight of more than 20% with a nominal amount of more than IDR 50 trillion.

In 2017, BPJSTK could earn an 11.88% yield or Rp6.1 trillion with managed funds of Rp51.8 trillion. Meanwhile, in 2018, BPJSTK could earn returns of 5.86% or Rp3.27 trillion with managed funds of Rp55.88 trillion. From 2017 to the end of 2018, the rate of return or return on stock investment in BPJSTK decreased drastically, falling by –46.6%.

In addition to declining returns, the condition of unrealized loss in JHT funds increased from 2017 to 2018. It was shown by a net Rp-2.08 trillion in 2017, which consisted of Rp2.34 trillion in unrealized gain and Rp-4.43 trillion in unrealized loss, becoming a net of Rp-7.7 trillion in 2018, consisting of Rp737.8 billion in unrealized gain and Rp-8.49 trillion in unrealized loss. In other words, there was a Rp-5.62 trillion net increase. This case is, of course, the primary motivation for researchers to undertake this study. This study seeks to answer the following research question: Is

the portfolio risk management of JHT funds at BPJSTK currently optimal in terms of risk and rate of return?

Compared to the LQ45 index, BPJSTK stock portfolio is generally the closest to the stocks in the LQ45 index. In 2017, BPJSTK underperformed the LQ45 index, where in LQ45 the rate of return was 22.21% while BPJSTK was 11.88%. Unlike in 2018, the LQ45 index experienced a decrease in the rate of return indicated by the LQ45 rate of return being -8.69%. Meanwhile, BPJSTK outperformed the LQ45 index performance in 2018.

In further discussion, this study seeks to examine in more detailed the security selection carried out by BPJSTK. The risk of the stock portfolio on the return obtained by BPJSTK were then be examined to see whether it is on the efficient frontier line (Markowitz 1971).

Afterwards, this study also makes a benchmark to portfolio optimization methods according to the JHT funds liability profile, namely Mean-Variance Portfolio Optimization (Markowitz 1952). Furthermore, is Mean-Variance Portfolio optimization strategy ideal for maximizing portfolio performance on JHT BPJSTK funds were be evaluated using a risk/return-based evaluation method, namely the Sharpe Ratio, Treynor Ratio, and Alpha Jensen.

## 2 LITERATURE REVIEW

### 2.1 Portfolio management and optimization

The study of portfolio optimization has resulted in many advances in fund management for risk control and returns in dealing with uncertainty during the previous few decades. Since the inception of Modern Portfolio Theory (MPT) and mean-variance optimization (MVO) introduced by Markowitz (1952), the academic literature has grown on the fundamentals of improving portfolio management. Choosing the best assets for a portfolio and the weight of each asset in the portfolio is the essence of portfolio optimization. Each asset has an expected return and standard deviation calculated from historical data. The relationship between assets is the variance-covariance matrix (VCV), which shows the correlation between assets used to minimize portfolio variance. The expected return is the average return over several periods, and the risk of an asset is the standard deviation of the realized return over the same period. All of these variables are important to manage an investment portfolio.

### 2.2 Minimum variance portfolio

A minimum variance portfolio can withstand volatile investment types, but when combined, it creates a diversified portfolio with lower volatility than any individual share (Cai & Schmidt 2020). A minimum variance portfolio holds volatile individual securities that do not match each other. One security may be rising in value while another is rapidly declining. As a result, because of the low correspondence, the portfolio is considered to be less risky as a whole. Each investment with a low correlation with the other can form a minimum variance portfolio.

To calculate the minimum variance portfolio, the covariance of each level of return of each asset must be known first (Chen 2021). The mean-variance portfolio model is based on minimizing the objective function:

$$U_{MVT} = 0.5\lambda\sigma_p^2 - r_p, \quad (1)$$

where  $\sigma_p^2$  is portfolio variance

$$\sigma_p^2 = \sum_{(i,j=1)}^N w_i w_j \sigma_{ij}, \quad (2)$$

in which  $w_i$  is portfolio asset weights ( $\sum_{i=1}^N w_i = 1$ ), and  $r_p$  is mean portfolio return.

The risk aversion parameter  $\lambda$  is usually chosen to satisfy investor's decision to derive either minimum variance portfolio or maximum expected return.

### 3 RESEARCH METHOD

This study employs a quantitative method to support a qualitative method of case studies conducted by the researchers. According to Arikunto (2006: 12), a quantitative method is a research approach that starts with data collection, interprets the data, and presents the results with a strong emphasis on statistics.

Whereas in this study, the researchers would analyze stock portfolio management in depth, from the percentage of weight given to each of its shares to the discussion of portfolio evaluation such as the level of risk and the rate of return.

As explained in the background of the research, the researchers conducted research on BPJSTK related to the management of stock portfolios in JHT funds.

This study used primary and secondary data sources. Primary data were obtained from policies compiled by BPJSTK and internal data related to stock investment in BPJSTK. Then, secondary data were obtained from existing government regulations, BPJSTK annual report data available to the public, and historical data for each stock.

The following are the stages in conducting this research:

1. Identifying and describing qualitative data from various regulations related to the stock investment management process at BPJSTK
2. Conducting interviews for deepening information.
3. Analyzing qualitative data and processing the data into quantitative data in order to evaluate and optimize
4. Evaluating the existing BPJSTK portfolio
5. Optimizing the BPJSTK stock portfolio using the mean variance models using the Solver in Excel.

### 4 RESULT AND DISCUSSION

The researchers calculated the return, variance, standard deviation, and beta from historical data from 2015 to the end of 2017 on a daily basis from 34 (thirty-four) BPJSTK shares as follows in Appendix 4.1. Based on this data, the following portfolios were discovered, consisting of the variance portfolio, standard deviation portfolio, beta portfolio, and expected return portfolio, as shown in Appendix 4.2. In the table data, the stock portfolio consisting of 34 (thirty-four) stocks had a risk represented by a standard deviation of 17.81% with an expected return rate of 6.70% and a portfolio beta of 1.21. Then based on the data above, this study processes the risk/return of the portfolio as follows in Appendix 4.3.

The results of the data analysis above show that the stock portfolio managed by BPJSTK was not optimal based on the measurement through the calculation of the Sharpe Ratio of  $-0.027$ , Alpha Jensen of  $-0.007$  and Treynor of  $-0.004$ .

On that basis, this research then optimizes the portfolio above. The optimization used was the min-variance along with its efficient frontier line. In Appendix 4.4, the optimization results were obtained after using the Solver in Excel to conduct optimization with the aim of lowering portfolio variance. The results demonstrate that not all of BPJSTK's 34 (thirty-four) shares received an allocation to invest in order to reduce portfolio variation. Furthermore, there were only 2 shares that were discovered to have a substantial concentration of share allocation., namely BBKA shares with a 19.12% allocation and WSBP shares with a 32.44% allocation. In other words, half of the stock portfolio funds in the JHT program, or 50%, must be allocated to the two stocks, namely BBKA and WSBP, if the portfolio was optimized using the min-variance method.

In Appendix 4.5, the mean-variance portfolio resulted in portfolio performance. Based on the optimization results above, the variance value of the optimized portfolio, when compared to the existing BPJSTK portfolio, had decreased significantly, from a variance of 0.031731043 to 0.015879022. However, from the expected return of the optimized portfolio, it had decreased to 5.61% compared to the existing BPJSTK portfolio of 6.70%. Due to the decreasing expected return

value, the measurement through the calculation of the Sharpe Ratio, Alpha Jensen and Treynor automatically also experienced a decrease, namely  $-0.125$ ,  $-0.016$ , and  $-0.034$  respectively.

Therefore, it was necessary to analyze using the efficient frontier line to find out whether the portfolio in BPJSTK was on an efficient line. The researchers had analyzed the efficient frontier method. The efficient frontier graph is presented in Appendix 4.6. The graph shows an efficient frontier line, which was seen in the existing BPJSTK portfolio which had a standard deviation of 17.81% with an expected return of 6.70%. The condition of the stock portfolio in the JHT program at BPJSTK was far below the efficient front line above. With a risk level of 17.81%, the expected return of BPJSTK should be higher, which was more than 26% compared to the expected return in the existing condition of 6.70%.

## 5 CONCLUSION

The results demonstrated that the performance of MV Optimization depended on two factors, namely the constituent of the underlying JHT funds and its weighting. Only shares invested in JHT funds were used in the optimization model. The model eliminated several stocks to produce the lowest risk. However, even at the lowest risk level, the resulting Sharpe Ratio remained in a minus condition. Hence, the constraint, which was the level of risk from the existing portfolio risk, was added. This resulted in a positive Sharpe Ratio with the expected return portfolio increasing significantly. This research has limitations in data analysis, in terms of optimizing the existing portfolio, it requires a rebalancing process. In rebalancing, BPJSTK does not have flexibility because in the BPJSTK stock portfolio, there are shares with unrealized loss conditions.

BPJSTK has not been able to reduce the share portion in conditions of unrealized loss (cut loss), because no regulation regulates it. BPJSTK is only allowed to carry out the averaging cost down or wait and see strategies. Under such circumstances, it is certainly difficult to apply this optimization model. However, this optimization model is very helpful in controlling the level of risk faced by BPJSTK. With these conditions, of course, it is hoped that further research will include the cut loss variable and its regulations to carry out optimal stock portfolio management.

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# Understanding travel constraint: Analysis of intergenerational perceptions

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**ABSTRACT:** The Covid-19 pandemic has caused significant travel constraints whether structural, intrapersonal, or even interpersonal for domestic tourists traveling to local destinations in Indonesia. This study was conducted to determine whether there are significant differences in perceptions among domestic tourists of generations X, Y, and Z towards travel constraints during the Covid-19 pandemic. The online survey was conducted on 606 respondents from all three generations. The collected data were processed using One-Way ANOVA with Tukey post-hoc test. The results indicate that there are significant differences in perceptions of intrapersonal constraints among generations X and Z, as well as generations X and Y. Besides, the biggest travel constraint that hindered generations X, Y, and Z in traveling to local tourist destinations in Indonesia is an intrapersonal followed by structural and interpersonal one.

**Keywords:** Intrapersonal constraint, structural constraint, interpersonal constraint, generation X, Y, and Z

## 1 INTRODUCTION

The tourism and hospitality industry appeared to be the industry most directly affected by the Covid-19 crisis (Ivanova et al. 2020). Globally, the major decline in mobility is due to public fears of the severe Covid-19 pandemic impacts (Irawan et al. 2021). This has changed tourists' perceptions of traveling, which initially focused on pleasure, into health threat concerns implemented in the form of travel constraints (Karl et al. 2021). There are changes in consumers' behaviors, ranging from their perceptions, preferences, and travel conduct (Ivanova et al. 2020). Numerous tourists have decided to reschedule or even cancel their trips (Rachmawati & Shishido 2020) due to travel constraints during the Covid-19 pandemic.

Local tourists are certainly dominated by various generations starting from Baby Boomers, Generation X, Generation Y or Millennials, and Generation Z. Based on the survey results by Bloom Consultant, revealed by Bloom Consulting's Strategy Director Gonzalo Vilar (Kartajaya et al. personal communication, July 29, 2020), generation Y is the most courageous in terms of traveling, compared to their predecessors and successors, namely the Baby Boomers or generation Z. This study aims to discover any significant differences in domestic tourists' perceptions of generations X, Y, and Z regarding the travel constraints during the Covid-19 pandemic in Indonesia.

## 2 LITERATURE REVIEW

Public concern regarding travel which was labeled a 'high-risk activity' during the Covid-19 pandemic has led to a significant decline in travel demands (Rasoolimanesh et al. 2021). Ferreira et al. (2016) explained that travel constraints could negatively affect travel quality and prevent tourists from making further trips. Obstacles encountered by tourists during Covid-19 can be in the form of travel restrictions and roadblocks mandated by the government and self-isolation policies being



implemented at home (Jian et al. 2021). The Covid-19 pandemic may have changed tourists' perceptions of traveling, which initially focused on pleasure, into health threat concerns implemented in the form of travel constraints. Although the health threat due to Covid-19 will most likely dissipate after the pandemic, travel anxiety caused by Covid-19 may become a permanent travel constraint that affects tourists' decision making (Karl et al. 2021).

Travel constraints are factors that hinder tourists from participating in and enjoying leisure activities. There are three dimensions of constraints, namely (1) structural constraint related to cost, time, and space that hinder and affect tourist travel participation after preferences are formed (2) intrapersonal constraint, which is related to the tourists' psychological conditions (constraints originating internally from themselves) in line with their time activity preferences, including factors such as stress, depression, anxiety and attitudes of relative and non-relative reference groups (3) interpersonal constraint, the constraint on leisure time from social interactions and the tourists' interpersonal relationships (family, partner, friends) which have impacts on the tourists' preferences and travel participations. However, interpersonal constraints could vary depending on the travelers' current life stage, marital status, family size, and forms of recreational activities (Crawford et al. 1991; Jian et al. 2021; Khan et al. 2019).

Zilker et al. (2020) revealed that older travelers are more likely to avoid risk than younger travelers when they are confronted with risky choices. Older tourists will be more worried because of decreased physiological abilities, so they face more obstacles and worries in traveling than younger ones. Thus, safety is one of the primary considerations for older tourists when traveling. On this basis, the following hypothesis is proposed:

*There are significant differences in domestic tourists' perceptions of generations X, Y, Z on travel constraints in Indonesia.*

### 3 METHOD

Five Likert-Scale questionnaires were distributed online to 606 Indonesians aged 17 and above. The travel constraint indicators were adapted from Khan et al. (2019) and Jian et al. (2021), divided into three dimensions, namely structural, interpersonal, and intrapersonal constraints. The data obtained were processed using One-Way ANOVA and Tukey HSD Post Hoc Tests.

### 4 RESULTS & DISCUSSION

Most respondents in this study are women, who comprise 60.6%. In terms of age, it is dominated by Generation Y, aged 25-44 years at 41.7%, and most respondents are single (65.8%). Travel constraints are divided into three dimensions, namely structural, intrapersonal, and interpersonal ones (Crawford et al. 1991; Jian et al. 2021; Khan et al. 2019). Based on the overall mean obtained, it is known that the largest mean is found on the intrapersonal constraint of 3.98. It means the Indonesians agree that the biggest obstacle to traveling to local tourist destinations in Indonesia during Covid-19 is due to the tourists' psychological conditions, such as stress, anxiety, and depression. This is understandable considering that during the Covid-19 pandemic, Indonesians are worried if they will be infected by the Covid-19 virus when traveling to local tourist destinations. The second-largest mean is the structural constraint of 3.78. It means Indonesians agree with the government's recommendations not to travel, along with government rules and regulations, including roadblocks to be considered when someone decides to travel to local destinations within Indonesia. The slightest obstacle for Indonesians in traveling to local tourist destinations is caused by interpersonal constraints with a mean of 3.35, in which family and friends are not the primary consideration in their traveling decisions.

Based on One-Way ANOVA, there are significant differences in perceptions of travel constraints among generations X, Y, and Z in intrapersonal constraints, especially for TC 5 (it is not safe

to travel to local tourist destinations in Indonesia during Covid-19) and TC 8 (health becomes a consideration for traveling to local tourist destinations in Indonesia during Covid-19).

For TC 5 (it is not safe to travel to local tourist destinations in Indonesia during Covid-19), significant differences occur among generations X and Z, and among generations X and Y, where generation X feels more insecure to travel to tourist destinations in Indonesia compared to generations Y and Z that are younger. This can also be seen from the perception of generation X towards TC5, which shows 4.05, or more significant than the perception of generation Y of 3.73 and generation Z of 3.64. For TC 8 (health becomes a consideration for traveling to tourist destinations in Indonesia during Covid 19), a significant difference occurs among generations X and Z where generation X feels that health problems during Covid-19 are more of an obstacle to traveling compared to generation Z. This is also supported by the perception of Generation X towards TC8 which is 4.49 or bigger than Generation Z with 4.25.

When viewed from each generation, generation X has the biggest obstacle to travel to tourist destinations in Indonesia, followed by generation Z, then generation Y. This is supported by several studies conducted by Alexandris & Carroll, Li et al., and Nyaupane & Andereck (Khan et al. 2019) which found that a person's perception of travel constraints was influenced by age and gender. It is understandable that generation X has the biggest obstacle to travel because generation X is older and more risk-averse than younger generations. Generation X will prefer safety when there are safety and risky choices (Zilker et al. 2020). In addition, according to the Ministry of Health ([www.kemkes.go.id](http://www.kemkes.go.id)) generation X has a greater sense of anxiety; 45–54-year age group is more susceptible to being infected by Covid-19 than the younger group. On the other hand, generation Y has the slightest obstacles to traveling to tourist destinations compared to generations X and Z. This is in line with the results of survey by Bloom Consultant, which found that generation Y has the greatest courage to travel compared to the generations of Baby Boomers, X, and Z. This is considered surprising because logically generation Z is younger than generation Y that should be more willing to take risks to travel (Kartajaya et al. personal communication, July 29, 2020).

For all generations, the biggest obstacle is intrapersonal constraint, followed by structural and interpersonal ones. Intrapersonal constraint is the biggest and most crucial obstacle during the pandemic; with the Covid-19, people are more concerned about their health and always associate traveling with various health risks. Even though someone really wants to travel, a particular individual will doubt whether she/he can travel safely (Aziz et al. 2021). Safety and health become primary considerations in traveling to tourist destinations because of the unexpected situations that can occur when visiting new places and meeting new people (Bratic et al. 2021). Related to structural constraints, the existence of rules and regulations such as roadblocking, antigen and PCR tests, and so on, makes these obstacles important, especially when a person is going to be traveling overseas. When someone feels that the costs incurred to travel to tourist destinations are quite burdening, such as time and money, then someone tends to choose not to travel temporarily (Aziz 2021). The slightest obstacle is interpersonal constraint, which involves social interaction or relationship with other people, such as family or friends. Even if a person finds it unpleasant to travel alone to tourist destinations, family and friends do not want and are not interested in traveling; this obstacle is not too much of a hindrance if an activity can be carried out without friends. If someone is very interested and really wants to travel to tourist destinations, she/he will still travel even without friends. This can be seen in the increasing number of solo travelers (Aziz 2021).

## 5 CONCLUSION & RECOMMENDATIONS

Based on the conducted research, it can be concluded that there are differences in perceptions of travel constraints among generations X, Y, and Z. Generation X has the biggest obstacle in traveling to local tourist destinations in Indonesia during Covid-19 when compared to generations Y and Z. Another finding of this research indicates that sequentially, the biggest obstacles to traveling to local tourist destinations in Indonesia consist of intrapersonal constraints, especially health and safety, followed by structural, and lastly, interpersonal ones.

This research has several limitations. First, this research only focuses on the Indonesians' perception of travel constraints. Second, the research data was taken only during the Covid-19 pandemic. It is recommended for further research to expand the research population and carry out investigations after Covid-19 to get deeper insights and information to understand the travel constraints.

The research has broadened the knowledge of the industry, both tourist destinations, and hospitality marketers, and extended the understanding of why someone decides temporarily not to travel to local tourist destinations in Indonesia during Covid-19. As the practical implication of this study, tourism industries should concern about the issues related to safety and health. The practice of health protocol, cleanliness, and hygiene is not a choice but should be strictly enforced to build individual trust towards local tourist destinations in Indonesia.

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## Portfolio optimization of sharia based assets: Indonesia old age security fund (JHT)

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**ABSTRACT:** As the nation with the largest Muslim population in the world, Indonesian regulation mandates that social security must be administered in accordance with sharia principles. In November 2021, the Employment Social Security Administration (BPJS Ketenagakerjaan) introduced a sharia social security program comprising the Old Age Security (JHT) program. However, there is no specific investment guide for administering these sharia JHT funds, therefore they must be managed as conventional JHT funds domestically. In practice, the domestic Islamic capital market, which is dominated by fixed-income assets, continues to lag the global Islamic stock market. In addition, scholarly research discussing the appropriate management of JHT funds at institutions such as BPJS Ketenagakerjaan is relatively uncommon. Determining the optimal allocation for each asset class in the sharia JHT fund portfolio managed by BPJS Ketenagakerjaan is the purpose of this study. This study uses a quantitative method with a prescriptive model based on Modern Portfolio Theory. The data utilized is the Net Asset Value (NAV) of Islamic mutual funds that are categorized by asset class on the domestic (Indonesian) and international markets for the past five years (2016–2021). The results indicate that a portfolio with a 39.95% allocation to foreign assets has an annualized 32% greater expected return than a portfolio limited to domestic assets solely. In addition, the annualized systemic risk of the global portfolio is 5% less than that of the domestic portfolio. These results imply that investment management in Islamic JHT funds can be optimized if placement constraints on the domestic Islamic financial market are loosened. This study therefore suggests that these constraints be reevaluated in the future, particularly for institutional investors with big assets under management. The results of this study are also anticipated to be useful for other Islamic fund management organizations in identifying the optimal asset allocation for their portfolios, as well as for academics who intend to do further research on Islamic investment management.

**Keywords:** social security fund, Islamic assets allocation, portfolio optimization, sharia-compliant portfolio

### 1 INTRODUCTION

According to the 2021 Islamic Financial and Economic Report issued by Bank Indonesia (2022), one of the four priorities for developing the Islamic finance industry in 2022 is the implementation of sharia services in employment and social security, which was initiated by the Social Security Administrator for Employment (BPJS Ketenagakerjaan – *Badan Penyelenggara Jaminan Sosial Ketenagakerjaan*) and the National Committee on Sharia Economics and Finance in Aceh in 2021. In principle, the National Social Security System (SJSN – *Sistem Jaminan Sosial Nasional*) and BPJS Ketenagakerjaan do not substantively conflict with sharia principles, because the SJSN and BPJS Ketenagakerjaan as organizers are made for the benefit of human rights with the principle of mutual cooperation between participants, implementation with a non-profit concept, investment returns are entirely for participants and mandated funds, and investment returns are entirely for participants and mandated funds (Sukriyono 2019).

Furthermore, there is an issue of investment management, where the regulations governing the management of labor social security assets currently do not specifically regulate the placement of funds in sharia-based investment instruments. According to one of the regulations, the obligation to invest in social security funds is limited to the domestic financial market. It is established that the growth of returns on the domestic Islamic stock market, as represented by the Indonesian Sharia Stock Index, is significantly lower than that of the global Islamic stock market, as represented by the Dow Jones Islamic Market. However, in terms of the sukuk instrument, the growth of sukuk yields in Indonesia continues to outpace global sukuk yield growth. This demonstrates that Indonesia's Islamic stock market continues to underperform the global stock market. This condition causes the sharia Old Age Security Fund (JHT – *Jaminan Hari Tua*) portfolio's performance to be solely dependent on the sukuk instrument, raising concerns that it will not be competitive when compared to the returns on the conventional JHT portfolio. These are the primary concerns of the research objective that will be investigated in this study: to determine the effect on performance and risk if the sharia JHT fund portfolio is additionally invested in global assets that comply to sharia principles.

## 2 LITERATURE REVIEW

### 2.1 Old Age Security Program (JHT – *Jaminan Hari Tua*)

The Old Age Security Program (JHT) is one of the employment social security programs organized by BPJS Ketenagakerjaan in the form of mandatory savings (defined contributions) providing cash benefits, the amount of which is the accumulated contribution plus the return of the fund. Benefits must be paid immediately to members who: (a) achieve retirement age; (b) pass away; and (c) are diagnosed with permanent total disability. The amount of the contribution that must be made by the employer is 3.7%, while the employee's portion is 2%. Upon 10 years of membership, a portion of one's JHT benefits can be claimed prior to reaching the age of 56. The government guarantees the return value of JHT funds at a minimum average level of government bank counter-rate deposits, allowing BPJS Ketenagakerjaan to invest these JHT funds in a variety of instruments while prioritizing prudence, responsibility, transparency, and solvency (BPJS Ketenagakerjaan 2020).

According to the 2020 BPJS Ketenagakerjaan Audited Financial Report, the JHT's Assets Under Management as of December 2020 is Rp340.72 Trillion, a 9% growth year-on-year. In 2019, 47% of JHT funds were invested in bond instruments, 13% in sukuk, 21% in equity, 9% in time deposits and mutual funds, and the remaining in direct investment instruments (unlisted equity and property). Regulations requiring a minimum placement of 50% of government securities. In 2017, JHT funds gained a return of 7.83%, the highest percentage ever recorded. After that, however, the rate fell to its lowest point in 2020, which was 5.59%. BPJS Ketenagakerjaan's declared rate of return is always more than the average deposit interest rate of state banks (BPJS Ketenagakerjaan 2021).

## 3 RESEARCH METHOD

All local and international sharia mutual fund data were identified from the Bloomberg Terminal database. The mutual fund and ETF data identified cover four asset classes: Money Market, Equity, Fixed Income, and Alternative. Afterward, general sorting is conducted based on the following criteria: (1) Islamic Attribute; (2) Data Labeling; (3) Daily Pricing; (4) 5-years after the inception date; and (5) Minimum Returns. Then, special sorting was conducted based on the portfolio (local or global), including geographical focus and minimum Assets Under Management (AUM).

In addition, the solver function in Microsoft Excel is utilized for data processing for optimization. Finally, the optimal point of the portfolio, as shown by the intersection of the Efficient Frontier curve and the Capital Allocation Line, was identified in order to build a market portfolio using the

following equation constitutes optimization (CFA Institute 2016):

$$E(R_{port}) = R_{free} + \sigma_{port} \left[ \frac{E(R_{market}) - R_{free}}{\sigma_{market}} \right] \quad (1)$$

Meanwhile, the standard deviation and expected return were computed using the equation below (CFA Institute 2016):

$$\sigma_{port} = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i w_j Cov_{ij}} \quad (2)$$

The final step was done by calculating and comparing the historical performance of the two portfolios (domestic and worldwide) using industry-standard methods such as the Sharpe ratio, Jensen alpha, Treynor ratio, and information ratio.

#### 4 RESULT AND DISCUSSION

Based on the iterative procedure used to determine the ideal allocation, the following figures and tables are generated:

Table 1. Optimized allocation & performance comparison.

| Asset Class  | %Portfolio     |                | Total Return  |               | Annualized Return |               | Standard Deviation |              |
|--------------|----------------|----------------|---------------|---------------|-------------------|---------------|--------------------|--------------|
|              | Domestik       | Global         | Domestik      | Global        | Domestik          | Global        | Domestik           | Global       |
| Money Market | 10.00%         | 10.00%         | 2.68%         | 2.69%         | 0.55%             | 0.55%         | 0.26%              | 0.24%        |
| Fixed Income | 77.11%         | 50.05%         | 31.86%        | 20.41%        | 6.60%             | 4.23%         | 2.06%              | 1.43%        |
| Equity       | 12.89%         | 36.35%         | 8.57%         | 32.00%        | 1.66%             | 6.40%         | 1.70%              | 3.48%        |
| Alternative  | 0.00%          | 3.60%          | 0.00%         | 2.97%         | 0.00%             | 0.52%         | 0.00%              | 0.92%        |
| <b>Total</b> | <b>100.00%</b> | <b>100.00%</b> | <b>43.12%</b> | <b>58.06%</b> | <b>8.81%</b>      | <b>11.70%</b> | <b>2.69%</b>       | <b>3.88%</b> |

From Table 1, it can be inferred that the order of asset classes from largest to lowest remains the same in both portfolios, but there was a decrease in the share of global fixed income compared to the domestic ones, which was then exchanged for an increase in the portion of equity and alternative asset classes where assets were allocated in 2 and the class was entirely foreign assets. According to the initial, non-systematic measurements of return and risk (between portfolios), equity and alternative asset classes had higher annual returns and higher risks.

Table 2. Portfolios vs peers performance.

| Portfolio Statistics            | Global Sharia JHT | Domestic Sharia JHT | Old Mutual Albaroka Balanced Fund | Crescent Wealth Super-Balanced Fund |
|---------------------------------|-------------------|---------------------|-----------------------------------|-------------------------------------|
| <b>Return</b>                   |                   |                     |                                   |                                     |
| Total Return                    | 58.06%            | 43.12%              | 19.34%                            | 24.93%                              |
| Maximum Return                  | 1.18%             | 1.13%               | 5.57%                             | 4.67%                               |
| Minimum Return                  | -2.49%            | -1.43%              | -10.27%                           | -5.44%                              |
| Mean Return (Annualized)        | 11.70%            | 8.81%               | 7.52%                             | 7.71%                               |
| Mean Excess Return (Annualized) | 5.14%             | 3.23%               | -6.99%                            | -6.42%                              |
| <b>Risk</b>                     |                   |                     |                                   |                                     |
| Standard Deviation (Annualized) | 3.88%             | 2.69%               | 18.11%                            | 11.82%                              |
| Tracking Error (Annualized)     | 15.13%            | 15.88%              | 14.83%                            | 12.48%                              |
| <b>Risk-Return</b>              |                   |                     |                                   |                                     |
| <b>DJIMY 50% DJISUKUK 50%</b>   |                   |                     |                                   |                                     |
| Sharpe Ratio                    | 1.22              | 0.69                | 0.23                              | 0.37                                |
| Jensen Alpha                    | 0.03              | 0.003               | (6.83)                            | 0.55                                |
| Information Ratio               | (0.43)            | (0.59)              | (0.52)                            | (0.37)                              |
| Treynor Measure                 | 0.36              | 0.13                | 0.04                              | 0.11                                |
| Beta                            | 0.13              | 0.14                | 1.17                              | 0.40                                |



Figure 1. Total return comparison.

Table 2 presents that, from a return perspective, the entire calculation demonstrates that the global portfolio's performance was higher than domestic as in the total return and annual return was above 30%, as well as when compared to other pension fund peers. Global portfolio non-systematic risk (std deviation) was 40% higher than the domestic one but systemic (tracking error) was 5% lower.

Even though it was riskier than domestic, the global one was safer than other pension funds. Sharpe was 77% higher than the domestic portfolio and Jensen's alpha was approximately 10x, with a 3% lower beta of.

## 5 CONCLUSION

Based on the findings and discussions, the allocation of 40% of global assets in JHT sharia portfolio resulted in a 35% increase in total return (32% in annualized return) and a 5% decrease in annualized systemic risk, as well as a 5% excess return over risk-free assets, which was higher in risk-return measurements such as Sharpe, Jensen alpha, information, and Treynor than its pension fund peers. Consequently, the sharia JHT portfolio that allocates a portion of its funds to global sharia assets is more efficient than the portfolio that is solely invested in domestic assets. Systemic and non-systemic yearly risk levels in the domestic and global portfolios are efficient (1% difference), but the global portfolio results in a 32% rise in expected annual returns.

This imply the domestic Islamic financial market has not been able to fully absorb regulations prohibiting the JHT Sharia Fund. This research demonstrates that the global portfolio of JHT sharia funds is capable of mitigating global and domestic market risks, hence enhancing the function of JHT sharia funds as a buffer against shocks in global or domestic capital markets, or even both. Obviously, this conclusion also suggests that practitioners in the field of investment management should consider global Islamic assets, particularly in the equity asset class, as one of their investment strategies to enhance the performance and resilience of their funds. However, this analysis has a limitation in that macroeconomic variables are not included when establishing the optimal allocation. Further research is needed to include macroeconomic indicators as a variables or to quantify the impact on the national economy if JHT sharia funds have been legalized to be allocated abroad.

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# The influence of economic conditions on the penetration and density of life insurance companies in Indonesia for the period 2016–2020

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**ABSTRACT:** This study aims to determine the impact of economic conditions determined by Net National Income Per Capita (NNIPC), interest rates, and inflation rates on the development of life insurance companies in Indonesia. The impact was measured based on the penetration and density of life insurance companies in Indonesia from all registered life insurance companies in OJK in 2016 to 2020. The method used is the panel regression analysis. The analysis results show that NNIPC, interest rates, and inflation rates have an impact on the life insurance market penetration and life insurance market density.

## 1 INTRODUCTION

In Indonesia, based on insurance data from the Financial Services Authority (*Otoritas Jasa Keuangan*/OJK) during 2016 to 2020, life insurance gross premium growth was declining and reached negative figures in the years 2019 and 2020 (−0.1% and −4% respectively). The density of insurance in terms of gross premiums compared to the total population of Indonesia (270.2 million people) shows that an average premium is IDR 1,862,683,3 per person (*Otoritas Jasa Keuangan* 2020). The penetration rate was at the lowest at 4.38% and at the highest at 5.70%, whereas the penetration of insurance companies has only an average of 3% (*Otoritas Jasa Keuangan* 2020). Both life insurance density and penetration rates in Indonesia were considered low.

As we look into economic condition in 2016–2020 based on data from Indonesia Badan Pusat Statistik (BPS), growth of net national income per capita was declining from 0.1 to −0.04. Inflation rates, however, fluctuated and had been consistently not increasing and ranged around minus −0.2 to −10.0, which means the inflation was relatively low around that period. In addition, interest rates growth also showed fluctuations from −0.1 in 2016 to −0.05 in 2020. These data showed no significant changes in inflation and interest rates in Indonesia except the income per capita that had not been growing since 2016. National income data seems correlated with life insurance premium growth, which is also declining.

This study aims to determine whether there is an influence of economic conditions on the development of life insurance companies as measured by the penetration and density of life insurance companies in Indonesia. This research is limited to registered companies that report their financial condition to OJK in 2016 to 2020. The variables considered to determine the state's financial condition can only be measured quantitatively.

## 2 LITERATURE REVIEW

Penetration of life insurance companies is defined as the ratio of company premiums to GDP (Beck & Webb 2003). This ratio measures the company's activity to the size of the economy. Several other researchers also used penetration in their research (Pradhan et al. 2015, 2016; Sawadogo et al. 2018). The growth of Net National Income Per Capita (NNIPC) is expected to have a positive



influence on the market penetration of life insurance companies (Beck & Webb 2003 & Balcillar et al. 2020). The inflation rate is expected to have a negative effect on the market penetration of life insurance companies (Alhassan 2016; Beck & Webb 2003). Interest rates are expected to have a negative effect on market penetration of life insurance companies (Flores et al. 2021).

In addition to penetration, insurance activity is often measured using density, which indicates how much on average each person in a country spends on insurance (Beck & Webb 2003). Density measurement considers population, but ignores economic developments, such as GDP or income, while penetration relates the scale of the insurance market to the economy, it ignores population factors (Pradhan et al. 2015). Feyen et al. (2011) and Dragos (2014) also showed that there was a positive correlation between high income and the purchase of life insurance products. Feyen et al. (2011) also stated that the larger the population, the higher is the demand for insurance products.

### 3 RESEARCH METHOD

This study used secondary data obtained from company reports from the OJK for 2016–2020 and other sources. The data were taken using the population of life insurance companies in Indonesia in 2016–2020, which had five financial reporting periods. A total of 21 companies were considered.

Data on insurance in Indonesia were obtained from insurance statistics data accessed on the OJK website, Net National Income (NNI) and inflation data were from the BPS website, and interest rate data were from open data from Bank Indonesia.

#### 3.1 Research model

Below are the econometric models that were used in the panel regression analysis referred to the research by Balcilar et al. (2020):

$$LP_{it} = \beta_0 + \beta_1 NNIP_{Cit} + \beta_2 INF_{it} + \beta_3 IR_{it} + \beta_4 TA_{it} + \beta_5 ROA_{it} + \beta_6 ROE_{it} + \beta_7 D/E_{it} \quad (1)$$

$$LD_{it} = \beta_0 + \beta_1 NNIP_{Cit} + \beta_2 INF_{it} + \beta_3 IR_{it} + \beta_4 TA_{it} + \beta_5 ROA_{it} + \beta_6 ROE_{it} + \beta_7 D/E_{it} \quad (2)$$

with the following information:

|       |   |     |                        |
|-------|---|-----|------------------------|
| LP    | : Life Market Penetration               | TA  | : Total Assets         |
| LD    | : Life Market Density                   | ROA | : Return on Assets     |
| NNIPC | : National Net Income Per Capita Growth | ROE | : Return on Equity     |
| INF   | : Inflation Rate                        | D/E | : Debt to Equity Ratio |
| IR    | : Interest Rate                         |     |                        |

The variables in this study refer to the research by Balcilar et al. (2020) and Flores et al. (2021). The dependent variable consists of Penetration (P), which is obtained from Net Premium Income divided by NNI, and Density (D), which is obtained from Net Premium Income divided by Total Population.

#### 3.2 Data analysis

Panel regression model estimation was used to predict the parameters of the regression model, namely the value of the constant (intercept) and the regression coefficient (slope). Three techniques (models) are often offered in this case, namely the Common Effect Model, the Fixed Effect Model, and the Random Effect Model. The model was selected based on the analyses of Hausman Test, Chow Test, and Lagrangian Multiplier Test.

Classical assumption tests, namely Normality Test, Heteroscedasticity Test, Multicollinearity Test, and Autocorrelation Test, were also carried out. After that, the regression model was interpreted using the coefficient of determination, the F statistic test, and the statistical T test.

## 4 RESULTS

### 4.1 Model estimation and model fit

The results of the model fit test for the dependent variable of penetration and density showed that the most suitable estimation model for the variables was the common effect. In panel data regression, not all classical assumption tests in the OLS method were used, only heteroscedasticity and multicollinearity were needed. The result of the heteroscedasticity shows that  $p$  value is greater than the alpha value, which is 0.05. Hence, it can be concluded that the regression model is free from heteroscedasticity problems. The result of multicollinearity shows the correlation between the independent variables lies between  $-0.85 < x < 0.85$ , which shows that the regression model is free from the problem of multicollinearity.

### 4.2 Hypothesis testing results

Table 1 shows a summary of the hypothesis testing results.

Table 1. Summary of hypothesis testing results.

|                                    | Variable          | Coefficient | SE       | Effect   | t-Statistic | p-Value   | F statistic | p-Value   | Adjusted R <sup>2</sup> |
|------------------------------------|-------------------|-------------|----------|----------|-------------|-----------|-------------|-----------|-------------------------|
| Model I<br>(Market<br>Penetration) | NNIPC<br>Growth   | 0.204650    | 0.017612 | Positive | 11.61992    | 0.0000*** | 3172.366    | 0.0000*** | 0.995337                |
|                                    | Inflation<br>Rate | -0.036785   | 0.000258 | Negative | -142.7159   | 0.0000*** |             |           |                         |
|                                    | Interest<br>Rate  | -0.919642   | 0.021215 | Negative | -43.34804   | 0.0000*** |             |           |                         |
| Model II<br>(Market<br>Density)    | NNIPC<br>Growth   | 0.204650    | 0.017612 | Positive | 11.61992    | 0.0000*** | 508.5241    | 0.0000*** | 0.973473                |
|                                    | Inflation<br>Rate | -0.036785   | 0.000258 | Negative | -142.7159   | 0.0000*** |             |           |                         |
|                                    | Interest<br>Rate  | -0.919642   | 0.021215 | Negative | -43.34804   | 0.0000*** |             |           |                         |

\*Significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%

## 5 DISCUSSION

Based on Table 1 in model I, NNIPC growth had a positive and significant effect on market penetration of life insurance companies. These results are in line with research by Beck and Webb (2003) and Balcilar (2020). The inflation rate had a negative, but significant effect, on the market penetration of life insurance companies. The results of this study are in line with Beck (2003) and Alhassan (2016). Interest rate had a negative, but significant, effect on market penetration of life insurance companies. These results are in line with the research results of Flores et al. (2021).

Table 1 in model II shows that NNIPC Growth had a positive and significant effect on the market density of life insurance companies. These results are in line with the results of research by Olasehinde-Williams and Balcilar (2020) and Hatemi-J (2019). Inflation rate had a negative and significant effect on the the market density of life insurance companies. The results of this study are in line with the results of research by Beck and Webb (2003) and Olasehinde-Williams and Balcilar (2020). Interest rates showed a significant negative effect on the market density of life insurance companies. These results are in line with the results of the research of Flores et al. (2021).

## 6 CONCLUSION

The life insurance market in Indonesia still has low market penetration and density. Market developments in Indonesia are influenced by growth in net national income per capita, inflation rate,

and interest rates. When income per capita growth increases, it can make insurance products more affordable, and the company's premiums will increase in line with the increasing demand for insurance products. Insurance companies may also adjust company policies regarding product premium rates regularly to take into account the impact of inflation and interest rates. A low inflation rate can enhance the development of the life insurance market.

This study may contribute to research on life insurance sector activity in Indonesia specific. Non-life sector is excluded in this research considering its product lifespan is short. Further research can consider socioeconomic factors and demand factors that affect the life insurance sector.

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# Impact of FinTech lending on poverty reduction evidence from Indonesia

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**ABSTRACT:** The financial technology (FinTech) industry is one of the financial service innovations that is increasingly popular in today's digital era and technology. The concept of digitizing payments is one of the fastest growing areas in the FinTech industry in Indonesia. FinTech makes purchasing and payment systems more efficient and economical. We analyze the impact of FinTech on poverty reduction; evidence from Indonesia. We conducted data processing from BPS to see how FinTech makes an impact on poverty reduction evidence from Indonesia. The result shows that FinTech lending has a positive impact on poverty reduction.

**Keywords:** FinTech Lending, Poverty, Financial Technology

## 1 INTRODUCTION

Technology can provide various conveniences in all business activities with fast access. One of the technological developments, which is the driving force for business development today, is financial technology (FinTech). FinTech can offer considerable opportunities and potential in developing MSMEs in Indonesia. MSMEs generally face difficulties in financial and capital aspects. It is hoped that FinTech services can help MSMEs enhance convenience and efficiency in finance and marketing [1].

The existence of FinTech lending is increasingly relevant as a means of deepening financial markets in Indonesia, especially for groups of people who have not been served by available financial institutions. The role of FinTech lending in leveling the economy, especially MSMEs, can be seen from the increase in the distribution of FinTech lending to areas outside Java, which increased by 107% (year-on-year). Regarding the workforce, the results of the 2018 INDEF study show that the multiplier has a significant effect on the level of employment in the formal and informal sectors. With data developments and updates from December 2019, FinTech lending is expected to have an impact on the absorption of more workers. Moreover, previous research has confirmed the role of FinTech lending in driving public spending, where, in Indonesia, 57% of the economy is driven by household consumption.

Poverty in developing countries is a common problem. Poverty means inadequate financial resources and it is associated with low living standards, financial hardships, poor diet, and stigmatization; hence, efforts to end poverty in all aspects are very important for national and international policy makers, such as the UN. Development in the financial sector has an important role in poverty alleviation. This financial development will also increase the opportunities for the poor to access finance by solving financial market failure problems, such as information asymmetry and high borrowing costs for borrowers. This financial development helps the poor manage their savings to spend or to lend to micro-enterprises, generally to promote wider access to financial services, to create more jobs and increase income and also reduce poverty in the country. This means that this financial development can encourage economic growth, which indirectly reduces poverty levels. However, expanding financial services to the poor by traditional financial institutions remains a challenge, especially in Indonesia.

## 2 LITERATURE REVIEW

FinTech is a combination of technology and financial features or it can also be interpreted as innovation in the financial sector with a touch of modern technology [2]. FinTech is a new financial service model developed through information technology innovation [3]. FinTech makes it easy for consumers to use or utilize various financial services digitally, such as payments, loans, investments, and insurance. By using FinTech, consumers can make payment transactions without having to meet, get loans without having to visit bank branch offices, choose and find out which financial products best suits the needs, invest easily and get financial planning advice. FinTech is considered an important innovation for the financial industry, which is rapidly growing with the support of the sharing economy.

The issue of poverty is a complex and multifaceted issue, so it becomes a development priority. Thus far, the Indonesian government has had a poverty alleviation program. There are two strategies that need to be undertaken to reduce poverty: First, protect poor families and community groups by meeting the needs of various regions. Second, conduct training for them so that they can fight to prevent poverty. Poverty-alleviation efforts are carried out to realize the ideals of the state, creating a just and prosperous society [4].

Financial inclusion is an effort to incorporate people who are not familiar with banking into the formal financial system so that they have the opportunity to enjoy financial services, such as savings, payments, and transfers [5].

## 3 RESEARCH METHODOLOGY

The type of research used is an explanatory study. Explanatory studies go beyond descriptive studies and attempt to explain the reasons for the observed phenomena only by descriptive research studies. Research that investigates the relationship between two or more variables is also called correlational research [6]. The researcher will prove the hypothesis between the independent variable, namely FinTech lending, on poverty alleviation. This research uses a quantitative approach. This type of research is included in causality research, which examines the causal relationship between independent and dependent so that it can explain the impact of changes in value variations in 1 variable on changes in value variations in 1 or more other variables. In this study, the observed variable is the independent variable (X), namely the dependent variable (Y), namely poverty [7].

All figures and analyses were performed using the STATA statistical software. The design of this study using an empirical model is a symbolic form of a theory. Causal model, namely the model, shows a causal relationship between variables. After the data is collected using certain data collection techniques to form a sample, it will be used to test hypotheses. Hypotheses were tested using data through an empirical model. The coefficients on the empirical model show a causal relationship between the variables. These causal relationships indicate the hypotheses to be tested. The researcher estimates the effect of FinTech lending on poverty reduction (1), presenting the direct effect of FinTech lending, GDP, inflation, and third-party payments on people's per capita consumption in each province in Indonesia:

$$Incpc_{it} = b_0 + b_1 FL_{it} + b_2 Infl_{it} + b_3 Tpp_{it} + e_{it} \quad (1)$$

Explanation:

*FL*: FinTech lending, *Incpc*: Household per capita consumption, *Infl*: Inflation, GRDP: Gross regional domestic product, *Tpp*: Third-party funds,  $b_0$ : Constant, *Fintech*: Error term, *i*: Object (Province), *t*: Time (month). Based on this equation, it is expected that the consumption of the population per capita will increase accompanied by an increase in FinTech lending, inflation, GRDP, and third-party payments.

The independent variable causes an influence on the dependent variable. In this study, the independent variable studied was household consumption per capita, which was denoted by *cpc*. The formula used to calculate

$$cpc = \frac{Y}{CPI} \times 100\%$$

Independent variable (independent) consists of 4 variables, namely:

1. FinTech lending is the amount of capital and funds that have been successfully raised by FinTech lending in a certain period, namely 2019–2021. Data from the OJK
2. Inflation is an event that shows an increase in the general price level in every province in Indonesia and takes place continuously. The formula used is:
3. Indonesia Gross Regional Domestic Product is the GRDP of provinces throughout Indonesia in 2019–2021. Data is taken from BPS. The formula used is:
4.  $GRDP = C + I + G + (x - m)$
5. Third-party payments are the amount of funds that have been collected by FinTech lending from the public in the form of savings, deposits, and current accounts for the period 2019–2021. Data obtained from OJK.

#### 4 RESULT AND DISCUSSION

Researchers tested classical assumptions and tested outliers to produce better data with 213 data from 34 provinces and obtained results as shown in the table that are displayed on the screen. The table above shows the data before the outlier test and the table below describes the data after the outlier test. The normality test uses a statistical test, namely the one sample Kolmogorov Smirnov test using SPSS. It shows that the KS value is less than 0.05. So it can be concluded that we can reject the null hypothesis, which means the data is not normally distributed and after the sample is tested for outliers, the KS value is greater than 0.05. Hence, it can be concluded that we cannot reject the null hypothesis, which means the data is normally distributed.

The multicollinearity test shows that the independent variable shows a *tolerance* greater than 0.10, which means there is no correlation between the independent variables and the VIF value for the INF and GRDP variables < 10, while the TPP and FL variables have VIF > 10. Thus, it can be concluded that multicollinearity does not occur for all independent variables. Therefore, this regression model is still acceptable and it can be seen that the graph of the results of the heteroscedasticity test shows that the points in the graph spread without a clear pattern at the top and bottom or around the number 0, it can be concluded that there are no symptoms of heteroscedasticity. Hypothesis testing for the *Adjusted R<sup>2</sup>* is 0.618, this means that the disclosure of household consumption per capita can be explained by FinTech lending, inflation, gross regional domestic product, and third-party funds of 0.618 or 61.8% for the simultaneous significance test (F test) has a sig value less than 0.05. Therefore, it can be concluded that the regression coefficient is not equal to zero, or the four independent variables simultaneously affect the level of consumption. FinTech lending variable, GRDP, and third-party funds have a positive effect on household consumption per capita, while inflation has no effect and on the coefficients test, where all variables have positive values, which are FinTech lending, GDP inflation, and third-party funds can improve per capita household consumption practices.

#### 5 CONCLUSION

Based on the results of the previous research and discussion, conclusions can be drawn: FinTech lending has a positive effect on household consumption per capita, inflation variable has no effect on household consumption per capita, variable of gross regional domestic product has a significant effect on household consumption households per capita in Indonesia, and third-party funds have a significant positive effect on household consumption per capita.

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## Impact of social media marketing activities on brand equity and customer response of Shopee Indonesia on Instagram

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**ABSTRACT:** Shopee uses Instagram to stay connected with its users to form its brand equity. The brand equity can generate customer responses to Shopee. Despite the fact that Shopee is dominating of the e-commerce market in Indonesia, several indicators suggest that Shopee is falling behind its competitors. This study aims to acknowledge the influence of Shopee's social media marketing activities on Instagram on Shopee's brand equity, Shopee's brand equity on customer response, and Shopee's social media marketing on customer response. This study employs quantitative method with non-probability sampling technique by involving 485 respondents, which means it was unlikely for the entire population to be sampled. This research uses PLS-SEM. By using PLS-SEM, this research conduct two models to be tested; outer and inner model. The results revealed that social media marketing activities on Instagram had a significant impact on brand association, brand awareness, perceived quality, E-WOM, and commitment. Moreover, perceived quality had a significant impact on E-WOM and commitment, while brand association had a significant impact on commitment, but not on E-WOM. Lastly, brand awareness had no significant impact on E-WOM and commitment.

### 1 INTRODUCTION

The growth of e-commerce business in Indonesia transpires rather rapidly. This growth is supported by the number of e-commerce in Indonesia. There are five major marketplaces dominating e-commerce in Indonesia: Shopee, Tokopedia, Bukalapak, Lazada, and Blibli (Ramadhani 2021). Shopee as one of the largest marketplaces in Indonesia, devises Instagram as its platform of communication with its customers. The use of Instagram as its social media generates Shopee's brand equity. Subsequently, the brand equity generates customers' responses. Apparently, there are several things indicative of Shopee's lack of competitiveness compared to Tokopedia. Take its marketing on Instagram for instance, Shopee has fewer interactions with its customers than those of Tokopedia's. Moreover, Shopee's website visitors also appear less than Tokopedia. In terms of brand equity, some customers claim that the service quality is unsatisfactory. Another issue is that customer loyalty toward Shopee is less competitive than Tokopedia as it declined in 2021. Based on the phenomena, research objectives are formulated are as follows.

1. To acknowledge the influence of Shopee's social media marketing on Instagram on each element of Shopee's brand equity.
2. To acknowledge the influence of each element of Shopee's brand equity on each element of customer response to Shopee.
3. To acknowledge the influence of Shopee's social media marketing on Instagram on each element of Shopee's customer response.



## 2 THEORETICAL FRAMEWORK

This study uses research from Seo & Park (2018) and theory from Aaker & Joachimsthaler (2000:17). Seo & Park (2018) explained that social media marketing activities have five characteristics, namely: (1) entertainment; (2) interactions; (3) trendiness; (4) customization; and (5) perceived risk. Seo & Park (2018) also explained that customer response has two sub-variables, namely e-WOM and commitment. Aaker & Joachimsthaler (2000:17) explains that brand equity has four indicators, namely: (1) brand association; (2) perceived quality; (3) brand awareness; and (4) brand loyalty. However, this study does not use brand loyalty as a subvariable in brand equity. Because, brand loyalty does not fit the context if social media marketing activities can lead to brand loyalty.

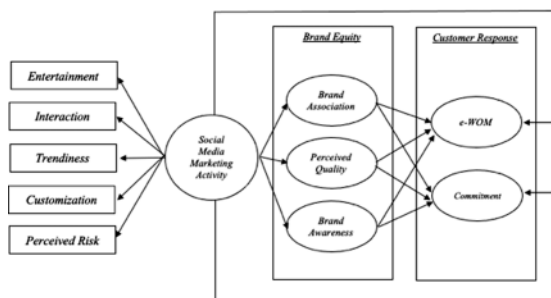


Figure 1. Theoretical framework.

Based on the theoretical framework above, the following hypotheses are formulated:

- H1: Social media marketing activities have a significant positive impact on brand association.
- H2: Social media marketing activities have a significant positive impact on perceived quality.
- H3: Social media marketing activities have a significant positive impact on brand awareness.
- H4: Brand association has a significant positive impact on e-WOM.
- H5: Brand association has a significant positive impact on commitment.
- H6: Perceived quality has a significant positive impact on e-WOM.
- H7: Perceived quality has a significant positive impact on commitment.
- H8: Brand awareness has a significant positive impact on e-WOM.
- H9: Brand awareness has a significant positive impact on commitment.
- H10: Social media marketing activities have a significant positive impact on e-WOM.
- H11: Social media marketing activities have a significant positive impact on commitment.

## 3 RESEARCH METHODOLOGY

The population of this study comprised Instagram users who were followers of Shopee Indonesia's Instagram account, amounting to 8.3 million as of September 2021. Besides, other criteria of the population is users who have made some purchases through Shopee. The sampling technique used was non-probability, which means it was unlikely for the entire population to be sampled (Indrawati 2015:169). Accordingly, determining the number of samples according to Indrawan dan Yaniawati (2017:103) was done using Slovin, resulting in 485 samples. data was collected by means of a survey through questionnaire. This study employed PLS-SEM.

#### 4 RESULT

In PLS-SEM, there are two models to be tested. Firstly, the outer model was conducted to test the validity and reliability. This stage implemented convergent validity with Average Variance Expected (AVE), discriminant validity with the Fornell-Larcker Criterion, and a reliability test with Cronbach Alpha and composite reliability. Based on the results of AVE, all variables met the convergent validity, because the generated AVE value was greater than 0.50.

Table 1. Convergent validity result.

| Variable | AVE   | Explanation |
|----------|-------|-------------|
| SMMA     | 0.605 | Valid       |
| BAS      | 0.711 | Valid       |
| BAW      | 0.769 | Valid       |
| PEQ      | 0.741 | Valid       |
| EWOM     | 0.763 | Valid       |
| CMT      | 0.810 | Valid       |

All variables had higher AVE square root values than the correlation values between variables. Therefore, based on the Fornell-Larcker Criterion test, all the variables of this study met discriminant validity.

Table 2. Fornell-Larcker criterion.

|      | BAS   | BAW   | CMT   | EWOM  | PEQ   | SMMA  |
|------|-------|-------|-------|-------|-------|-------|
| BAS  | 0.843 |       |       |       |       |       |
| BAW  | 0.835 | 0.877 |       |       |       |       |
| CMT  | 0.795 | 0.721 | 0.900 |       |       |       |
| EWOM | 0.657 | 0.609 | 0.756 | 0.873 |       |       |
| PEQ  | 0.830 | 0.750 | 0.827 | 0.721 | 0.861 |       |
| SMMA | 0.834 | 0.775 | 0.795 | 0.771 | 0.813 | 0.778 |

All of the variables being studied had been tested for reliability and were accepted because the values of Cronbach's Alpha and composite reliability were greater than 0.7.

Table 3. Reliability test result.

| Variable | Cronbach Alpha | Composite Reliability | Explanation |
|----------|----------------|-----------------------|-------------|
| SMMA     | 0.950          | 0.955                 | Reliable    |
| BAS      | 0.861          | 0.907                 | Reliable    |
| BAW      | 0.850          | 0.909                 | Reliable    |
| PEQ      | 0.883          | 0.920                 | Reliable    |
| EWOM     | 0.845          | 0.906                 | Reliable    |
| CMT      | 0.882          | 0.927                 | Reliable    |

All endogenous variables produced Q-Square values of more than 0. Thus, this model has predictive relevance. The R-Squared value for BAS was 0.696, implying that BAS could be explained by 69.6% using SMMA, while the remaining 30.4% was influenced by other variables. Next, the R-Squared for BAW was 0.600, implying that BAW could be explained by 60% using SMMA, while the remaining 40% was influenced by other variables. The R-Squared value for PEQ variable was 0.661, implying that PEQ could be explained by 66.1% using SMMA, while the remaining

33.9% was influenced by other variables. For EWOM, the calculated R-Squared value was 0.624, meaning that EWOM could be explained by SMMA, BAS, BAW, PEQ by 62.4% while the remaining 37.6% was explained by other variables. The R-Squared for CMT was 0.740, meaning that CMT can be explained by 74% by SMMA, BAS, BAW, PEQ variables, while the remaining 26% was influenced by other variables.

Table 4. Q-Square and R-Square result.

| Variable | Q-Square | R-Square |
|----------|----------|----------|
| BAS      | 0.490    | 0,696    |
| BAW      | 0.457    | 0,600    |
| CMT      | 0.594    | 0,740    |
| EWOM     | 0.461    | 0,624    |
| PEQ      | 0.4877   | 0,661    |

Table 5. Hypothesis testing result.

| Path        | Path Coefficient | P-Value | T-Statistics | F-Square | Conclusion   |
|-------------|------------------|---------|--------------|----------|--------------|
| SMMA – BAS  | 0.834            | 0.000   | 43.156       | 2.288    | H1 Accepted  |
| SMMA – PEQ  | 0.813            | 0.000   | 35.441       | 1.953    | H2 Accepted  |
| SMMA – BAW  | 0.775            | 0.000   | 30.400       | 1.501    | H3 Accepted  |
| BAS – EWOM  | -0.111           | 0.111   | 1.598        | 0.006    | H4 Rejected  |
| BAS – CMT   | 0.193            | 0.001   | 3.301        | 0.026    | H5 Accepted  |
| PEQ – EWOM  | 0.334            | 0.000   | 4.873        | 0.077    | H6 Accepted  |
| PEQ – CMT   | 0.431            | 0.000   | 6.518        | 0.185    | H7 Accepted  |
| BAW – EWOM  | -0.018           | 0.721   | 0.358        | 0.000    | H8 Rejected  |
| BAW – CMT   | 0.042            | 0.379   | 0.881        | 0.002    | H9 Rejected  |
| SMMA – EWOM | 0.606            | 0.005   | 2.584        | 0.241    | H10 Accepted |
| SMMA – EWOM | 0.251            | 0.000   | 10.535       | 0.060    | H11 Accepted |

Social media marketing activities have a positive and significant influence on the brand association, perceived quality, and brand awareness. This means that Shopee Indonesia's social media marketing activities on Instagram can affect Shopee brand associations, the quality of the Shopee brand perceived by respondents, and consumer brand awareness of Shopee. Brand association does not have a positive and significant effect on E-WOM. The brand associations owned by Shopee do not influence consumers to provide feedback about Shopee. Brand association has a positive and significant influence on commitment. The brand associations owned by Shopee affect the occurrence of consumer loyalty. Perceived quality has a positive and significant influence on E-WOM and commitment. The perceived quality of Shopee consumers can influence consumers to provide feedback about Shopee and the occurrence of consumer loyalty. Brand awareness does not have a positive and significant effect on E-WOM and commitment. This means that consumers' awareness of Shopee does not influence to provide feedback about Shopee and the occurrence of consumer loyalty. Social media marketing activities have a positive and significant influence on E-WOM and commitment. This means that Shopee Indonesia's social media marketing activities on Instagram can influence consumers to provide feedback about Shopee and the occurrence of consumer loyalty.

## 5 CONCLUSION

Social media marketing activities have a positive and significant influence on the brand equity elements. Brand association does not have a positive and significant effect on E-WOM. Brand

association has a positive and significant influence on commitment. Perceived quality has a positive and significant influence on E-WOM and commitment. Brand awareness does not have a positive and significant effect on E-WOM and commitment. Social media marketing activities have a positive and significant influence on E-WOM and commitment.

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## Measuring customer loyalty through relational benefit in a silver jewellery store

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**ABSTRACT:** There is a lack of consumer loyalty to silver jewellery sellers. One of the strategies to increase loyalty is to conduct relationship marketing, which has an impact on relational benefits. This study aims to measure the effect of relational benefits on customer loyalty at a silver jewellery store. Data collection in this study was carried out by distributing questionnaires to 300 respondents who were customers at a silver jewellery store and who had transacted at the store. The data analysis technique used was a simple linear regression. As one of the few studies discussing jewellery retail, the results of this study show that relational benefits have a significant and positive impact on customer loyalty, at 40.4 per cent. The company is also advised to increase the special treatment benefit to obtain a very good perception with a higher value for the relational benefit variable.

**Keywords:** Relational Benefit, Customer Loyalty, Silver Jewellery

### 1 INTRODUCTION

The Indonesian jewellery industry is one of the main sectors contributing to the national economy in terms of export value. This is because it can compete globally and offers products with a high added value. In 2020, amid the Covid-19 pandemic, domestic jewellery exports showed an increase of up to 24.21 per cent (Ministry of Foreign Affairs 2021). Jewellery is used to meet the needs of style or fashion (Anggrain & Angge 2016). Compared to gold, silver has never reached record prices, although the silver price showed a significant increase in early 2021, reaching IDR 12,947.94 per gram. This shows that silver can be considered an investment medium (hargaemas.org 2021). Jewellery is not only used to meet the needs of appearance but can also be used as a tool to show one's social status (Ubsgold 2016). This means the jewellery trading business has great growth potential (Pasha 2020).

On the other hand, customer loyalty, i.e. indicates a strong relationship between customers and the company, must also be a concern. Customer loyalty is obtained after customers buy products or acquire services from the company (Herawaty et al. 2019). Relationship marketing is a company's business strategy that focuses on maintaining and improving the quality of the company's relationships with existing customers rather than acquiring new customers (Prayoga et al. 2015).

Silver sales are associated with problems in the form of a lack of trust and customer loyalty to sellers or jewellery stores. Silver jewellery is only valuable if it is resold to the original store and cannot be sold to other silver jewellery stores. Therefore, this research was conducted to measure the influence of the relational benefit on customer loyalty at a silver shop.

### 2 LITERATURE STUDY

Tsimonis et al. (2020) state that relationship marketing is a relationship that occurs between companies and consumers that is developed in the long term and can last a long time. In addition, if the company has good relationship marketing, then the company can retain the customers it has served

over a long period, while it may also gain new customers (Rokhmah & Arieaba 2018). According to Triadinda et al. (2018), relationship marketing is a marketing strategy used by companies to forge good relationships with customers. The goal is that the company can continue to survive with the current business situation. According to Prayoga et al. (2015), relationship marketing is a strategy used by companies that focuses on maintaining the quality of the company-customer relationships.

Relational benefits occur when customers perceive that they get high value from the company that they cannot get from other companies (Badriah et al. 2020). The existence of relational benefits assumes that both parties involved in the relationship benefit. If both parties benefit from the relationship, they will likely expand their relationship with each other (Fatikhaturrohman et al. 2020). Relational benefits occur because the desires or expectations of customers have been fulfilled and they were satisfied with the company. This will generate a sustainable relationship between the company and its customers (Yaskun 2017).

Three types of relational benefits were validated by Gwinner et al. (1998), which is the benchmark study in the measurement of relational benefits. As explained by Dimitriadis (2010), these three types are social benefits, i.e. the creation of a customer's emotionally close relationship with the company through employees over a long period; confidence benefits, i.e. the creation of customer trust in the company and its services; and special treatment benefits, i.e. benefits that are felt by customers from companies that make them feel special. On the other hand, customer loyalty plays an important role in the company. To retain its customers, the company must improve its quality and performance to maintain its sustainability. According to Novianti et al. (2018), loyalty occurs because of the satisfaction felt by the consumers with the experience of transacting with the service provider. The customer thus does not need to look for another place or company. This will lead to a long-term relationship (Channa et al. 2020). Tjahyadi (2020) found that relational benefits have a positive and significant effect on student loyalty.

### 3 METHODOLOGY

This quantitative research performed a causal investigation by conducting a survey and collecting data through questionnaires. The independent variable in this study is the relational benefit, while the dependent variable is customer loyalty. The population in this study is 1,350, calculated from the average number of customers of a silver store every month. By using convenience sampling, the respondents were selected based on the convenience of the researcher (Sugiyono 2015). Taro Yamane's formula was utilised to calculate the number of samples, which resulted in 308.57 samples, rounded up to 300 respondents.

Furthermore, a validity test was carried out for the 16 questions on 30 respondents. It was found that all indicators of relational benefits and customer loyalty were valid. A reliability test was also conducted and the instrument was found to be reliable. For data analysis, this study used descriptive statistical analysis. The next stage was to test the classical assumptions so that the regression was free from classical assumptions and could obtain accurate data. After that, a simple linear regression analysis was carried out to determine the relationship between relational benefits and customer loyalty. To gather the value of the influence of relational benefit on customer loyalty, a determinant coefficient test was also conducted. Lastly, a t-test was performed to test the proposed hypothesis.

### 4 RESULTS AND DISCUSSION

The first results obtained were the characteristics of the respondents. Of the total respondents, 86.3 per cent were women and 13.7 per cent were men. Regarding age, 40 per cent of the respondents

were 31–40 years old and over, 31.3 per cent were 18–24 years old, and 28.7 per cent were 25–30 years old. Meanwhile, regarding the educational background, respondents with a senior high school education were the largest proportion with 50.7 per cent. The rest had a junior high school education, with 22 per cent, bachelor's degrees, with 16.7 per cent, others with 6.7 per cent, and elementary school with 4 per cent.

The results of the descriptive analysis consist of the respondents' responses to relational benefits and customer loyalty regarding the silver store. The social benefit dimension is perceived as very good at 85.2 per cent. Next, the confidence benefit dimension is perceived to be very good at 89.1 per cent. The last dimension, the special treatment benefit, is only perceived as good at 78.8 per cent, unlike the other two dimensions. The total response to the relational benefits variable is in the very good category, at 84.3 per cent, while the total customer loyalty variable is perceived as very good, at 86.1 per cent.

Moreover, the classical assumption test was carried out using the normality test and the heteroscedasticity test. The results of the normality test indicate that the data in this study are normally distributed. To determine the relationship between relational benefits and customer loyalty, a simple linear regression test was conducted, resulting in the equation  $Y = 3.446 + 0.258X$ . This equation means that the consistent value of the relational benefit is 3.466. For every one-unit increase in relational benefit, the predicted value of customer loyalty increases by 0.258. The regression coefficient is positive, indicating that the direction of the influence of relational benefits on customer loyalty is positive and shows an increase.

Based on the calculation of the coefficient of determination, the R-value is 0.636, while the R-squared value is 0.404. This figure means that the relational benefits influence customer loyalty by 40.4 per cent, while the remaining 59.6 per cent is influenced by other variables outside this study. Using SPSS, the result of the t-test shows that the t-count is greater than the t-table. Thus, it can be said that relational benefits affect customer loyalty.

The results of this study support Tjahyadi (2020), Rokhmah and Arieiba (2018), and Prayoga et al. (2015), who showed that relational benefits have a positive effect on customer loyalty. This study finds similar results from a different perspective, namely retail jewellery.

## 5 CONCLUSION

From this study, some conclusions can be drawn about the jewellery retail sector. At a silver jewellery store, customer perceptions of the relational benefit variable are in the very good category. In particular, the social benefit and confidence benefit dimensions are perceived as very good. Meanwhile, the special treatment benefit is only perceived as good, unlike the other two dimensions. The highest customer perceptions are in the confidence benefit dimension, followed by the social benefit dimension, and the special treatment benefit as the lowest perceived dimension. Furthermore, the customer's perception of the customer loyalty variable is also in the very good category. The results of the measurement of the influence of the relational benefit on customer loyalty indicate that the relational benefit has a positive influence on customer loyalty of 40.4 per cent.

If the company wants to obtain a very good perception with a higher value for the relational benefit variable, it is recommended that it works harder on the special treatment benefit, which is currently perceived as good, unlike the other two dimensions of relational benefit. The indicators that need to be improved are 'Customers get the best price', 'The store provides special prices to consumers who are known by the store', and 'The store provides discounted prices to loyal customers'. For further research, it is recommended to look for other factors that affect customer loyalty. This is because other factors that influence customer loyalty yet which are not examined in this study are still quite large, at 59.6 per cent. In addition, it is also recommended to distribute questionnaires to customers of other companies so that the pattern of relational benefit relationships on customer loyalty that occurs in the silver jewellery retail sector can be explored more comprehensively.

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# The role of online video reviews towards the purchase of E-commerce in Indonesia

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**ABSTRACT:** The rapid development of internet usage in the 21st century has led more consumers to use the internet in obtaining information about product features or specifications. Consumers are faced with a higher degree of uncertainty when making purchasing decisions on experience and credence goods compared to search goods among the three types in the SEC production classification framework. Therefore, this research aims to determine the effect of online customer reviews and the importance of retailer attributes on the purchase intentions of experience goods on Indonesian e-commerce marketplace platforms. The result showed that online video review has a significant positive impact on purchase intention but an insignificant impact on perceived risk. Furthermore, the importance of retailer attributes has a significant negative and positive impact on purchase intention and perceived risk, respectively.

## 1 INTRODUCTION

During the increasingly rapid development of the internet in the 21st century, more consumers are turning to the medium for information before making a purchasing decision. However, not all desired information about a product is obtainable even with the rapid development of Information Technology. Consumers cannot conduct product trial on physical retail stores to obtain more complete information about the product relevant attributes, which is specifically true when face-to-face activities are limited during the pandemic. Consequently, experience goods are the type of product category in terms of their level of difficulty in obtaining the product information mostly affected in the digital landscape among the three SEC product types.

To reduce the perceived risk of the experience goods to be purchased, consumers turn to eWOM to obtain more reliable information about the product. One of its forms that are currently getting the attention of many studies is the impact of “social eWOM” where information about a product is shared through social media. Huifeng (2021) showed that online consumer reviews significantly influence the perceived risk and visit intention of a restaurant. Hussain (2017) also stated that eWOM has influenced consumers’ perceived risk while purchasing food, implying that consumers rely on this technology to reduce the potential risks associated with purchase decisions.

Consumer interests in retail store attributes influence their intent to buy experience goods on online platforms. According to Girard (2010), the importance of a retail attribute had a significant relationship with consumer risk perceptions and purchase intention. This hypothesis is also supported by Lynch (2001), which examined the impact of site characteristics on online purchase intention, and the result showed that site quality, effect, and trust are variables that significantly affect purchase intention.

During the decision-making process, consumers can perceive various types of risk in determining a purchase decision. Keller (2019) stated that consumers will perceive higher risk when the product type is a high involvement type. According to Yang (2016), perceived risk is a significant determinant in making purchase intentions with the consumers’ main concern being that the product does not function as expected. This research will focus more on the dimension of financial

and performance risk, which has the most impact on purchase intention according to Kim (2005) and Huifeng (2021). With all of those arguments, this research will explore the question of how does online video reviews and retailer attributes can influence the online purchase of an experience goods. Therefore, this research aims to analyze the influence of Online Video Reviews on social media platforms and the importance of retailer attributes on the purchase intention of experience goods products on e-commerce platforms.

## 2 RESEARCH METHODOLOGY

The criteria for suitable respondents include the following: the respondents must have used an e-commerce platform to shop at least once, in the past year. Furthermore, the respondents must be active social media users, and have seen an online video review of an experience good. The filter question and retailer attributes are adapted from Girard (2010), then the measurement of online video review and purchase intention was adapted from Huifeng (2021). The respondents are asked in the context of purchasing an experience type product such as perfume, mattress, make-up, and automotive in an Indonesian e-commerce platform, and their responses were collected using a 6-point Likert scale. With the existence of a formative construct in the model variables it is suggested to analyze the model with partial least square structural equation modeling with SmartPLS 3 (Hair 2017). In addition, the research model is adapted from Huifeng (2021) visit intention and Girard (2010) online purchase intention component. The final model hypothesized is shown in Figure 3 and the hypotheses proposed are as such:

- H1: Online video reviews have a negative effect on perceived risk.
- H2: Online video reviews have a positive effect on purchase intention of experience goods on e-commerce.
- H3: Retailer attributes importance has a negative effect on purchase intention.
- H4: Retailer attributes importance has a positive effect on perceived risk.
- H5: Perceive risk has a negative effect on purchase decisions of experience goods on e-commerce.

## 3 RESEARCH RESULT

### 3.1 Measurement and structural model evaluation

The evaluation of the two-stage hierarchical component measurement model is first established. Furthermore, the reflective measurements namely online video review, perceived risk, and purchase intention were evaluated using composite reliability, average variance extracted, and the cross-loadings value. Subsequently, the formative measurement (Retailer Attributes) is evaluated using the metrics convergent validity, collinearity assessment, and outer loading significance and

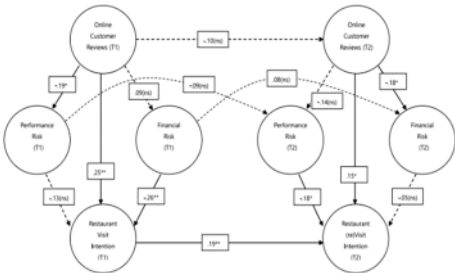


Figure 1. Huifeng research model (2021).

relevance testing. All the results were satisfactory, where the reflective variables have a composite reliability value greater than 0.7, an average variance extracted value of above 0.5, HTMT ratios of below 0.85 and the highest cross-loading on their assigned variable. The formative measurement also exhibits convergent validity with a path coefficient value of above a 0.7, no collinearity issues ( $0.2 < VIF < 0.5$ ), and the outer loading or weight for both the first and second stage measurement model evaluation were significant. The r-square value for the variables purchase intention and perceived risk are 0.093 and 0.111, respectively.

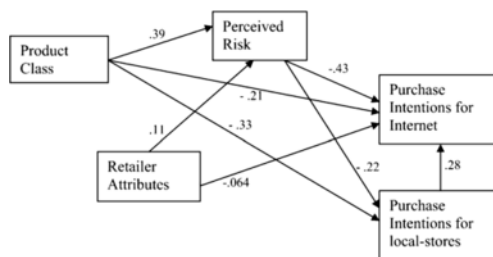


Figure 2. Girard research model (2010).

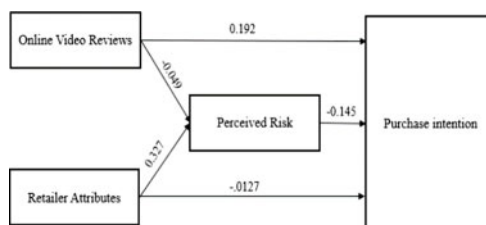


Figure 3. Final hypothesized research model.

### 3.2 Path coefficient result

The direct effect result is shown in table 1 below. The path coefficient value showed that online video reviews (OV) have a positive and significant impact ( $\beta = 0.186$ ,  $p < 0.05$ ) on purchase intention (PI), which confirms H2. We can see that of the three variables, online video reviews has the most influence on purchase intention by comparing the path coefficient values. However, a negative and insignificant effect ( $\beta = -0.039$ ,  $p > 0.05$ ) on perceived risk (PR), which reject H1. Retailer attributes (AR) also have a negative significant impact ( $\beta = -0.154$ ,  $p < 0.05$ ) on purchase intention (PI) and positive on perceived risk ( $\beta = 0.318$ ,  $p < 0.05$ ), thereby confirming H3 and H4. Furthermore, the perceived risk is shown to have a negative and significant impact on purchase intention ( $\beta = -0.143$ ,  $p < 0.05$ ), which validate H5.

Table 1. Path coefficient value of the direct effect.

| Direct/Indirect Effect | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics ( O/STDEV ) | P Values |
|------------------------|---------------------|-----------------|----------------------------|--------------------------|----------|
| AR -> PI               | -0.127              | -0.155          | 0.074                      | 1.728                    | 0.042    |
| AR -> PR               | 0.327               | 0.352           | 0.062                      | 5.284                    | 0        |
| OV -> PI               | 0.192               | 0.204           | 0.075                      | 2.566                    | 0.005    |
| OV -> PR               | -0.049              | -0.053          | 0.086                      | 0.575                    | 0.283    |
| PR -> PI               | -0.145              | -0.133          | 0.08                       | 1.812                    | 0.035    |

## 4 CONCLUSION

### 4.1 Discussion and managerial implications

The path coefficient result showed that online video reviews positively influence the purchase intention of experience goods but have an insignificant impact on consumer perceived risk. Therefore, marketers who intend to reduce the perceived risk of an experience good by stimulating online video reviews on social media should consider another method. It is suggested that using online video reviews can positively influence a consumer's purchase intention on an experience good that the general consumers perceive as having low financial and performance risk instead of an experience goods which is generally perceived as a high risk purchase such as automobiles.

Retailer attributes Importance has a significant negative and positive impact on purchase intention and perceived risk, respectively. This can most likely be explained by establishing the relationship as correlational rather than causal. A probable explanation of this relationship is that the more importance a consumer places on a retailer's attributes the more risk they perceived and need to be more cautious when purchasing experience goods. Therefore, marketers and e-commerce platforms seeking to increase the sales of experience goods are inclined to improve the quality of their online stores/platforms.

As hypothesized, perceived risk has a significant negative influence on online purchase intention of experience goods. This confirms that financial and performance risk reduces the intention of purchasing experience goods online. Thus, marketers who intend to sell an experienced product that the general consumer perceived as a high financial and performance risk should develop reassurance strategies to ensure the purchases are made.

### 4.2 Limitation and future research direction

This research provides results and suggestions in the practical implication of improving customer purchase intention on experience goods on the e-commerce platform. However, there are several limitations as well as directions for further research. The primary focus was on a generalized view of experience goods and future consumer criteria. Thus, future research on more specific goods and consumer segments might warrant further attention as the value and perceived risk of experience-type goods are highly subjective in nature.

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## Most wanted brand attributes: Student perceived values of private universities in Surabaya

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**ABSTRACT:** The rising quantity of private universities in Indonesia creates heightened competition in delivering the added values most wanted by, especially their potential students. Although most universities strive to create a point of distinction, the marketing department often communicates this advantage in a corporate-centric manner, neglecting the perspective of the recipients (i.e., the potential students). This study aims at finding out what students want in terms of added values and brand attributes. A series of in-depth interviews with university students was conducted. The findings revealed five major student perceived values: functional, social, epistemic, emotional, conditional, and three emerging values: monetary, symbolic, and pre-university experiential values.

**Keywords:** brand attributes, student perceived values, brand trust, brand satisfaction, enrolment intention, private university

### 1 INTRODUCTION

In 2019, private universities account for 68% of total higher education institutions in Indonesia [1]. They compete with their counterparts in public universities for prospective students. Strong private universities dominate the category not only on the perceptual level but also at the experience level that must be sufficiently differentiated and innovative enough to build their reputation (i.e., the brand). Unfortunately, the public relations department often uses a vertical approach (that is, from university to stakeholders) in promoting their differential advantages. This neglects the perspective of the prospective students on which brand attributes are advantageous for them among alternatives, which affects their trust and ultimately, enrollment intention.

Private universities can, to the rescue, adopt a horizontal approach where brand attributes are defined from the perspective of the top three audiences; current and prospective students as well as parents. This perspective is referred to as the perceptual strength in the minds of those audiences who make up a strong, favorable, and distinct associative network [2] with respect to a particular university in a specific enrollment consideration. This network of associations contains attributes that, hopefully, are strongly and uniquely linked to the respective private university brand. These attributes can significantly represent the unique values that are not only offered by the university but also experienced by the students, or in short, student perceived values, which bear consequences to trust and ultimately, enrollment intention.

### 2 LITERATURE REVIEW

#### 2.1 *Customer Perceived Value (CPV)*

Customer perceived value is the customer's overall assessment of a product's (or service's) usefulness based on perceptions of what is received and provided [3]. According to [4], there are five

dimensions of customer perceived value: functional value, emotional value, social value, conditional value, and epistemic value. In the educational context, tuition fees and benefits received from services, imperative, innovative, and valuable content of courses, and the contribution of lectures to the improvement of students' hard and soft skills have become an indicator to measure the perceived value of students at universities [5,6].

## 2.2 *Brand trust*

Brand trust is positioned as a key process variable that explains the causal flow of the influence of student perceived value on enrollment intention. Defined as the willingness of consumers to rely on the ability of a brand to perform the functions or promises it sets [7], brand trust is a key process for prospective students to build confidence in the ability, reliability, and integrity of a university/faculty in realizing the added value it communicates. In various previous studies [8-10]; at least two categories of customer perceived value (hedonic/emotional and functional/utilitarian) are essential antecedents of brand trust.

## 2.3 *Enrollment intention*

In the context of student enrollment in tertiary institutions, there are various determinants such as institutional characteristics, technology, and risk perception [11], demographic factors, such as gender differences and prospective student interests [5,12]; reputation factors, such as institutions, and perceived behavioral control [5,13]; and psychological, factors such as emotional aspects or communal experiences [6]. In the studies mentioned above, the researchers have narrowed their focus to a few key elements that influence enrollment intent, such as institutional reputation, risk perception, psychological factors, and teaching and learning processes.

## 3 METHOD

This study employs a qualitative study with a phenomenology method with an in-depth interviews approach to explore the lived experiences of the current students and focus on the students from the big three private universities. Predetermined themes guide the research using constructs from previous studies; student perceived values, brand trust, and enrollment intention. A series of in-depth interviews were conducted with twelve current students of universities in inquiry to find the underlying themes. The interviews, were conducted virtually and achieved saturation at the 8th informant. All the conversations were transcribed verbatim and then analyzed through three stages as prescribed by [15].

## 4 RESULTS

Five predetermined codes were found to represent the values that students perceived when they enrolled at the university. First, functional values were reflected in the codes of 1) current student testimonials and 2) the university's image and degree value. In addition to these two predetermined codes, the interviews also revealed the importance of popularity issues considered by the participants when they selected a program to enroll in. That is, the amount of the student body in a program was perceived as the indicator of its popularity, and more importantly, it was an early indication that the program was a preferred choice in the market. Moreover, the value that the participants perceived about the university had encouraged them to think positively about their study experiences with their friends. In higher education, functional value was related to students' expectations that their chosen course of study would gain them employment or career advancement [16,17]. Second, the social value represented the benefits derived through group interactions, and the value students received from forming friendships with their classmates [17,18]. Third, conditional value was related to the value perceived by students about teaching materials and campus facilities [16,17].

Fourth, emotional value portrayed students' sense of gladness and self-achievement in taking their course [17,18]. Fifth, epistemic value showed the benefits that were derived through an offering's ability of the university to arouse curiosity, provide novelty or satisfy students' desire for knowledge [17,18].

Table 1. Major findings.

| Predetermined Codes                   | Emerging Codes                                     | Themes                            |
|---------------------------------------|--|-----------------------------------|
| Current students' testimonials        | Positive word-of-mouth (WOM)                       | Functional value                  |
| University image & degree value       | Popularity   | Social value                      |
| Friends & family support during study |  | Conditional value                 |
| Campus facilities                     |  | Emotional value                   |
| Taking course boost self confidence   |  |                                   |
| Highly valuable course content        | International opportunities                        | Epistemic value                   |
|                                       | Specialized program or curriculum                  | Monetary value                    |
|                                       | Value for money                                    | Symbolic value                    |
|                                       | The internationalization of university core values |                                   |
|                                       | Bridging program                                   | Pre-university experiential value |

In addition to those five predetermined themes, the results also found three relevant emerging themes to the most-wanted attributes that students perceived when selecting a particular course or university prior to enrolment. The first emerging theme revealed was monetary value, which relates to the evaluation of a consumer on the educational fees spent compared to the benefits obtained and experienced. Literature has included monetary values as part of the functional value. However, this study saw it as an emerging theme. Functional values relate more to the product and service's utility, while monetary value is closely associated with efficiency (cost-benefit tradeoff). The second emerging theme was symbolic value, which represented the extent to which students would attach or associate psychological meaning to a product that appeals to their self-concepts and self-worth. Symbolic value was reflected in how the university's core values were embedded in the whole teaching-learning process and faculty members-students interactions, and such internalization can be seen by others [18]. The last emerging value that appeared was pre-university experiential value. The interviews revealed that it was important for potential students to have "trial" of experiences with the course or bridging program, such as living with the existing students in class or the labs before their enrolment at the university.

## 5 CONCLUSIONS

The findings of this study inform private universities in developing marketing messages with respect to the brand attributes central to the consideration of the potential students. Functional attributes such as university image, student testimonials, or popularity in terms of the quantity of the student body inside a particular faculty or specialized programs receive the most attention and mention in the conversations. The insight received suggests that instead of emphasizing this image, the "carrier" of this image be highlighted. Specifically, current students and alumni are the most effective messengers of trust when it comes to conveying the university reputation).

The emphasis on who should signal the value rather than what should be signaled supports the earlier suggested horizontal marketing communication approach. The participants in this study deliberately mention over and over again that it would be more trustworthy to show their current faculty experiences to their younger selves, especially when they are in the market for college enrolment. Private universities' marketing communications can also break through the clutter if they show experiences such as forming friendships with classmates or how entering a particular

faculty within a private university reflect the [potential] students' true potential and passion. This is because they can realistically visualize the communal activities and the pursuit or activation of personal potentials that they would encounter and realize within a faculty in consideration.

Finally, although students are largely "forgiving" when it comes to breach of promises, they would appreciate it if the university just walked the talk. For example, a bridging, such as experience day, can help distinguish college experiences from the high school ones. Additionally, any practical deviations from the core university values such as integrity, resilience, or excellence must be resolved thoroughly before they become the negative word of mouth. Hence, it is more effective to visualize these pre-college experiences in the core message rather than verbalize the university values in any form, such as taglines. Although our findings have revealed the most wanted brand attributes in terms of student perceived values, they also informed us that current students within a faculty can, together with the private university, co-create these values, and more importantly, they are the true reflection of these values. This suggests that private universities should consider adopting a more horizontal student-to-student approach in addition to the traditional university-to-stakeholder vertical approach in communicating brand attributes.

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# Influence of organizational culture and loyalty on employee performance in the pandemic era

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**ABSTRACT:** Over the previous 3 years, employee performance has been reported to fluctuate. According to the performance evaluation, employees did not fulfill the target set by the organization; however, the company has loyal employees with extended service periods. In addition, the company's organizational culture is still in crisis. This study aims at investigating whether the new living habits adopted in the company and the strong employee loyalty during the COVID-19 pandemic had an effect on employee performance. This study uses quantitative research methods and non-probability sampling technique. The sample used is 59 employees/saturated sample. Data were analyzed using multiple linear regression. The results of the study found that organizational culture was in the medium category, while employee loyalty and performance were in the high category. The analysis of the coefficient of determination showed an R-square value of 0.361, indicating that organizational culture and employee loyalty had an influence on 36.1% of employee performance. The results are expected to improve the organizational culture of the company.

**Keywords:** organizational culture, loyalty, employee performance

## 1 INTRODUCTION

PT. Arsade Inti Gasindo has had ups and downs in employee performance over the past 3 years, despite being one of the core sectors determined by the government to continue operating even during the COVID-19 pandemic. Employees rarely achieve their company's targets within 3 years. The highest value that can be obtained based on employee performance evaluation was 80%, thus indicating that the company's time and targets are rarely met.

There are still many elements of organizational culture that do not exist in the company, such as employees who do not know or understand the company's history, company profiles, logos, and uniforms that have begun to be abandoned. In addition, this phenomenon demonstrates that despite the company's commitment to uphold kinship and customer excellence, many elements of organizational culture remain undeveloped or ineffective.

In another phenomenon, even though the company has loyal employees who have dedicated themselves to the company for prolonged periods, according to Pambudi (in Soegandhi et al., 2013), one indicator is not doing well, namely loyalty.

The research objectives will be achieved by:

1. Knowing and analyzing the existing organizational culture at PT. Arsade Inti Gasindo.
2. Knowing and analyzing the loyalty of existing employees at PT. Arsade Inti Gasindo.
3. Knowing how the performance of employees of PT. Arsade Inti Gasindo.
4. Knowing how much influence organizational culture and employee loyalty have on the performance of employees of PT. Arsade Inti Gasindo partially and simultaneously.

## 2 LITERATURE REVIEW

Organizational culture refers to a set of values, opinions, assumptions, attitudes, and behaviors that have been institutionalized and manifested in the form of appearance, characteristics, and

actions that define an organization's identity (Sedarmayanti, 2017). According to Robbins and Judge (2018), organizational behavior is defined by the aspects of innovation and risk taking, attention to detail, results-oriented, people-oriented, team-oriented, aggressive, and creativity.

According to Widhiastuti (2012), loyalty is a parameter that measures an employee's commitment to the organization where he or she works. Based on Pambudi's definition of employee loyalty (in Soegandhi *et al.*, 2013), there are several dimensions of employee loyalty, including employee attendance, employee introduction to the ins and outs of the company, employees as assets, employee involvement, and employee pride.

Performance is the final result of a process that can be evaluated over a period of time based on the rules, regulations, and agreements that employees and the company have already signed. In addition, the performance dimensions used in measuring employee performance include the dimensions of target, quality, completion time, and adherence to principles (Edison *et al.*, 2018).

## 2.1 Conceptual framework

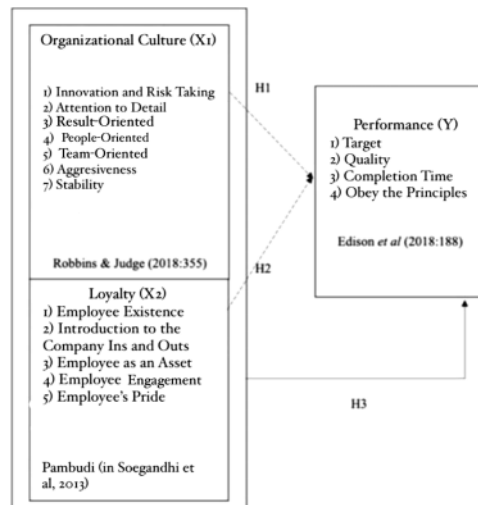


Figure 1. Framework.

Source: (Robbins & Judge, 2018), (Pambudi in Soegandhi, *et al.*, 2013), (Edison *et al.*, 2018).

From the framework above, the hypotheses proposed by the author are as follows:

- H1: Organizational culture ( $X_1$ ) has a partially significant effect on the PT. Arsade Inti Gasindo employee performance variable (Y).
- H2: Loyalty ( $X_2$ ) has a partially significant effect on the PT. Arsade Inti Gasindo employee performance variable (Y).
- H3: Organizational culture ( $X_1$ ) and employee loyalty ( $X_2$ ) has a significant effect simultaneously on the PT. Arsade Inti Gasindo employee performance variable (Y).

## 3 METHODOLOGY

This study uses quantitative method with descriptive research type. Respondents or samples in this study were 59 employees (saturated sample). The sampling technique was non-probability sampling, and the data were analyzed using multiple linear regression.

### 3.1 Validity

| Variable                    | Item Number. | R-Count | R-Table | Conclusion |
|-----------------------------|--------------|---------|---------|------------|
| Organizational Culture (X1) | 01           | 0.423   | 0.256   | Valid      |
|                             | 02           | 0.461   | 0.256   | Valid      |
|                             | 03           | 0.564   | 0.256   | Valid      |
|                             | 04           | 0.416   | 0.256   | Valid      |
|                             | 05           | 0.531   | 0.256   | Valid      |
|                             | 06           | 0.493   | 0.256   | Valid      |
|                             | 07           | 0.479   | 0.256   | Valid      |
|                             | 08           | 0.535   | 0.256   | Valid      |
|                             | 09           | 0.295   | 0.256   | Valid      |
|                             | 10           | 0.418   | 0.256   | Valid      |
|                             | 11           | 0.416   | 0.256   | Valid      |
| Loyalty (X2)                | 12           | 0.325   | 0.256   | Valid      |
|                             | 13           | 0.470   | 0.256   | Valid      |
|                             | 14           | 0.463   | 0.256   | Valid      |
|                             | 15           | 0.423   | 0.256   | Valid      |
|                             | 16           | 0.412   | 0.256   | Valid      |
|                             | 17           | 0.439   | 0.256   | Valid      |
|                             | 18           | 0.534   | 0.256   | Valid      |
|                             | 19           | 0.353   | 0.256   | Valid      |
|                             | 20           | 0.277   | 0.256   | Valid      |
|                             | 21           | 0.501   | 0.256   | Valid      |
|                             | 22           | 0.350   | 0.256   | Valid      |
|                             | 23           | 0.620   | 0.256   | Valid      |
|                             | 24           | 0.593   | 0.256   | Valid      |
|                             | 25           | 0.602   | 0.256   | Valid      |
|                             | 26           | 0.369   | 0.256   | Valid      |
|                             | 27           | 0.675   | 0.256   | Valid      |
|                             | 28           | 0.429   | 0.256   | Valid      |
|                             | 29           | 0.559   | 0.256   | Valid      |
|                             | 30           | 0.350   | 0.256   | Valid      |
|                             | 31           | 0.400   | 0.256   | Valid      |
|                             | 32           | 0.476   | 0.256   | Valid      |
|                             | 33           | 0.391   | 0.256   | Valid      |
|                             | 34           | 0.287   | 0.256   | Valid      |
|                             | 35           | 0.292   | 0.256   | Valid      |
|                             | 36           | 0.650   | 0.256   | Valid      |
| Employee Performance (Y)    | 37           | 0.691   | 0.256   | Valid      |
|                             | 38           | 0.378   | 0.256   | Valid      |
|                             | 39           | 0.543   | 0.256   | Valid      |
|                             | 40           | 0.448   | 0.256   | Valid      |
|                             | 41           | 0.668   | 0.256   | Valid      |
|                             | 42           | 0.491   | 0.256   | Valid      |
|                             | 43           | 0.555   | 0.256   | Valid      |
|                             | 44           | 0.307   | 0.256   | Valid      |
|                             | 45           | 0.264   | 0.256   | Valid      |
|                             | 46           | 0.627   | 0.256   | Valid      |
|                             | 47           | 0.517   | 0.256   | Valid      |
|                             | 48           | 0.545   | 0.256   | Valid      |

Figure 2. Validity result.

Source: Data processed by the author (2022).

All items from the three variables are declared valid, because from the results of the validity test, all items have a value of  $r\_count > r\_table$ .

### 3.2 Reliability

From the reliability test, it was found that the value of Cronbach's alpha for the organizational culture variable was 0.613, loyalty was 0.804, and employee performance was 0.753, where the results of the reliability test of all variables are reliable so that they can be used in research instruments.

## 4 RESULT

### 4.1 Result

Table 1. Determination test result.

| model summary |      |      |      |         |
|---------------|------|------|------|---------|
| 1             | .601 | .361 | .338 | 4.78956 |

a. Predictors: (Constant), Loyalty, Organizational Culture.

Source: Data processed by the author (2022).

Based on Table 1, it can be seen that the value of R-square is 0.361 or 36.1%. This means that 36.1% of the PT. Arsade Inti Gasindo employee performance is influenced by organizational culture and

loyalty. It consists of 7.9% influence of organizational culture and 28.2% influence of loyalty. In addition, it is also known that the correlation coefficient (R) is 0.601, where the value lies in the interval 0.600–0.799 with a strong category.

## 4.2 Discussion

In data analysis, organizational culture variables have a significant effect on the performance of employees of PT. Gasindo Core Arsade. This result is indicated by the t-count value of 2.167 with a significance value of 0.034.

In line with the results of data analysis, the loyalty variable has a significant effect on PT. Performance of Arsade Inti Gasindo employees. These results are also shown by the t-count value of 4.672 with a significance value of 0.000.

## 5 CONCLUSION

1. Organizational culture of PT. Arsade Inti Gasindo was in the medium category with a value of 63.7%.
2. Loyalty of PT. Arsade Inti Gasindo was in the high category with a value of 81.5%.
3. Employee performance of PT. Arsade Inti Gasindo was in the high category with a value of 80.3%.
4. Hypothesis testing revealed that organizational culture and loyalty had an influence on PT. Arsade Inti Gasindo's performance by 36.1%.

### 5.1 Recommendation

1. PT. Arsade Inti Gasindo needs to improve and develop the system for introducing organizational culture to employees by holding socialization activities of company cultural values to employees on a regular basis.
2. Employee loyalty needs to be increased; while many employees are loyal to the company, some of them do not understand the ins and outs of the company where they work.
3. If the training program given to employees does not go well, it is recommended that the company should review the policies about the targets.

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# The impact of customer experience on the intention to reuse and the indirect influence of customer satisfaction on bank XYZ customers

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**ABSTRACT:** In recent years, digital banks have carried out massive expansions to encourage customers to save and manage their assets digitally. This study aimed to analyze the impact of customer experience factors such as usefulness, convenience, employee-customer engagement, and security and the influence of customer satisfaction on intention to reuse. A survey was conducted using a questionnaire distributed to 220 private bank customers. Furthermore, multiple linear regression was used to test the hypotheses and the mediation effect of customer satisfaction. The results showed that the intention to reuse was affected directly by the four variables of customer experience and indirectly by customer satisfaction. This study contributes to the formation of customers' desire to reuse digital banks and provides knowledge for the practitioners to develop bank and customer management strategies.

**Keywords:** Customer Experience, Customer Satisfaction, Intention to Reuse, Digital Banking

## 1 INTRODUCTION

Databoks Katadata projects an increase in digital bank customers from 25% (47,722,913) to 31% (59,969,877) Indonesian adults between 2021 and 2022 (Jayani 2021). The survey institute also predicts an increase in digital bank users to 39% or 74,785,062 in 2026 (Jayani 2021). Furthermore, the feature selection facilitates public access to their deposits in digital banks. About 43.6% of customers use internet banking or m-banking features on their smartphones to access digital banking, while 25.6% use electronic wallets (e-wallets) (Databoks 2020). In addition, 42.4% of customers indicated that they used e-wallets, while 32% rarely use digital banking services (Databoks 2020).

The concept of applications as a banking modernization investment is relevant because it emphasizes that all activities are covered in a single channel so that customers' needs can be met in an integrated and consistent manner (Cotarelo et al. 2021). In addition, it is important to remember that the success of a digital banking strategy is dependent on the perception, positive effect, and usefulness it generates (Hamouda 2019). The digital banking experience has become increasingly interesting because it not only has tremendous communication power but can also be used to build stable and long-term relationships between customers and companies (Reydet & Carsana 2017).

A customer experience is an interaction consists of feelings that customers have when or after using a product (Shin 2021). Furthermore, customer experience can be used as a reference for others to use the same product because it provides value added when compared to other products. This is different from customer satisfaction, which is defined as a positive evaluation of the service quality that includes emotions and feelings (Shin 2021).

This study emphasizes the effect of customer experience on the intention to reuse by mediating customer satisfaction with digital banking products that build and maintain it. A similar study conducted by Jae Woo Shin (2021) covers the context of digital banking in South Korea but does

not specifically describe the objectives of a bank (Shin 2021). The four main customer experience variables (usefulness, convenience, employee-customer engagement, and security) related to digital banking services were selected and measured on customer satisfaction and intention to reuse. Thereafter, it was determined whether customer satisfaction mediates the relationship between customer experience variables and reuse intention.

## 2 METHODOLOGY

A non-probability technique was used to collect data from March to April 2022 using a 5-point Likert scale questionnaire. Individuals aged 18-41 years who had used the XYZ bank application for at least three months were eligible to participate in this study. The length of the customer's digital banking experience was estimated based on how long the XYZ digital banking application had been available (Shin 2021). Due to the pandemic, the survey was conducted with 220 respondents via online questionnaires created with Google Forms and distributed through Instagram, Line, and WhatsApp. The responses were analyzed using SPSS version 21, and multiple linear regression was used to test the hypotheses and the mediation effect. The hypotheses (H1–H9) were made into two parts: customer experience towards customer satisfaction (H1–H4) and customer experience and customer satisfaction toward intention to reuse (H5–H9). In addition, the Sobel test was used to analyze four mediation hypotheses (H10–H13):

### Part 1. Customer Experience towards Customer Satisfaction:

- H1: There is a relationship between usefulness and customer satisfaction among customers of Bank XYZ
- H2: There is a relationship between convenience and customer satisfaction among customers of Bank XYZ
- H3: There is a relationship between employee-customer engagement and customer satisfaction among customers of Bank XYZ
- H4: There is a relationship between security and customer satisfaction among customers of Bank XYZ

### Part 2. Customer Experience and Customer Satisfaction towards Intention to Reuse:

- H5: There is a relationship between usefulness and intention to reuse among customers of Bank XYZ
- H6: There is a relationship between convenience and intention to reuse among customers of Bank XYZ
- H7: There is a relationship between employee-customer engagement and intention to reuse among customers of Bank XYZ
- H8: There is a relationship between security and intention to reuse among customers of Bank XYZ
- H9: There is a relationship between customer satisfaction and intention to reuse among customers of Bank XYZ

### Mediation Hypotheses:

- H10: Customer satisfaction mediates a relationship between usefulness and intention to reuse among Bank XYZ customers
- H11: Customer satisfaction mediates a relationship between convenience and intention among reuse on Bank XYZ customers
- H12: Customer satisfaction mediates a relationship between employee-customer engagement and intention to reuse among Bank XYZ customers
- H13: Customer satisfaction mediates a relationship between security and intention to reuse among Bank XYZ customers

Table 1. R2 correlation coefficient.

| Correlation Coefficient (R) | Interpretation                    |
|-----------------------------|-----------------------------------|
| 0,00                        | No correlation                    |
| 0,01 – 0,09                 | Trivial correlation               |
| 0,10 – 0,29                 | Weak to normal correlation        |
| 0,30 – 0,49                 | Normal to strong correlation      |
| 0,50 – 0,69                 | Strong to very strong correlation |
| 0,70 – 0,89                 | Very strong correlation           |
| ≥ 0,90                      | Perfect correlation               |

Source: (Creswell & Creswell 2018)

The coefficient of determination ( $R^2$ ) is a measure that determines the ability of each variable (Creswell & Creswell 2018). This test can be seen in the SPSS regression results for the Model Summary table section R. Table 1 shows the interpretation of the correlation between variables. The Sobel test used to analyze the mediation effect (Hayes 2018) has the following formula:

$$z = \frac{ab}{sab}$$

(z) is the calculated value, (a) is the independent variable, and (b) is the regression coefficient of the mediating variable towards the dependent variable. The formula used to find the standard error of a and b (sab) as follows:

$$sab = \sqrt{b^2sa^2 + a^2sb^2 + sa^2sb^2}$$

(sa) is the standard error of the independent variable towards the mediating variable and (sb) is the standard error of the mediating variable towards the dependent variable.

### 3 RESULT

Table 2. The descriptive statistics.

| Demographics       | Frequency (n=220) | Percent (%) |
|--------------------|-------------------|-------------|
| <i>Age (years)</i> |                   |             |
| 18–22              | 38                | 17,3%       |
| 23–27              | 138               | 62,7%       |
| 28–32              | 34                | 15,5%       |
| 33–37              | 10                | 4,5%        |
| 38–41              | 0                 | 0%          |
| <i>Gender</i>      |                   |             |
| Male               | 105               | 47,7%       |
| Female             | 115               | 52,3%       |
| <i>Occupation</i>  |                   |             |
| Unemployed         | 10                | 4,5%        |
| Student/College    | 60                | 27,3%       |
| Civil Servant      | 24                | 10,9%       |
| Private Employee   | 87                | 39,5%       |
| Etc.               | 39                | 17,7%       |

Table 2 shows the descriptive statistics of respondents. The model of the study was built using validity and reliability tests, and all of the components are valid for measuring respondent responses.

The R-value of H1-H4 and H5-H9 (red circle) in Tables 3 and 4 below is 0.867, indicating a very strong correlation.

If the significance level (Sig.) is  $<0.50$ ; there is a relationship between the independent variable and the dependent variable (Hayes 2018). From the coefficient table of H1–H4 and H5–H9 (red square), all the significance levels of the variables are  $<0.50$ . Therefore, all the hypotheses (H1–H9) were accepted.

From the Sobel test used to analyze the mediation effect, if the z value  $> 1.96$ , the variable can mediate the influence of the independent variable on the dependent variable (Hayes 2018). in the result of every calculation (red line) is  $> 1.96$ . Therefore, customer satisfaction mediates consumer experience on intention to reuse and all hypotheses were accepted (H10–H13).

H10: Customer satisfaction mediates a relationship between usefulness and intention to reuse on Bank XYZ customers

H11: Customer satisfaction mediates a relationship between convenience and intention to reuse on Bank XYZ customers

H12: Customer satisfaction mediates a relationship between usefulness and intention to reuse on Bank XYZ customers

H11: Customer satisfaction mediates a relationship between convenience and intention to reuse on Bank XYZ customers

#### 4 CONCLUSION

Based on the results, the intention to reuse is influenced directly by the four variables of customer experience and indirectly by customer satisfaction. Customer experience and satisfaction have a significant relationship with the intention to reuse (very strong correlation). Furthermore, customer satisfaction can encourage reuse when there is a positive experience from using digital banking. The customer experience factors from this study (usefulness, convenience, employee-customer engagement, and security) can be applied as factors to measure intention to reuse.

It will be a reference for marketers, particularly in digital banking to comprehend the factors that may influence customers to reuse digital banking. Marketers can also influence the intention to reuse by strengthening these four primary factors of customer experience.

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## Would it be safe to travel domestically now? The analysis of perceived travel risk across generations

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**ABSTRACT:** The Covid-19 pandemic has harmed various industries, including tourism. Many individuals prefer staying at home to going on vacation, and this is due to the fright of the existing pandemic situation. This study is aimed to examine the level of travel risk perceptions of domestic tourists among generations X, Y and Z. One-way ANOVA statistical technique was applied to identify the differences in travel risk perceptions among the three generations. A total of 603 samples representing generations X, Y, and Z have participated in the online survey. The result shows that each generation has significantly different perception in viewing various types of travel risks. The findings are expected to offer recommendations for tourism service business managers to create a safe and comfortable quality travel experience.

**Keywords:** Perceived travel risk, Covid-19, domestic tourism, generations X Y Z

### 1 INTRODUCTION

The global tourism industry is one of the industries most affected directly by the Covid-19 pandemic (Zhang et al. 2020). Despite the various efforts made by the government, a lot of people are still reluctant to travel because the situation is still perceived unsafe. This is so called as perceived travel risk, which means the perception in tourist's mind of uncertainty and the possible negative consequences of using or choosing a travel offer (Zhang et al. 2020). Previous studies have explored the role of tourist demographic characteristics on perceived travel risk. Age is the most important demographic factor by tourism stakeholders because tourism demand can be predicted effectively through the age of the tourists (Kara & Mkwizu 2020). This study aims to analyze further the perceived travel risk of three different generations in Indonesia, namely X, Y and Z, regarding travel activities in local destinations within Indonesia during the Covid-19 pandemic. The results of this study are expected to contribute to stakeholders in the tourism industry to understand further the changes in domestic tourists' behavior in traveling to local tourist destinations during the Covid-19 pandemic.

### 2 LITERATURE REVIEW

Perceived travel risk is associated with the perception of uncertainty and the possible negative consequences of using or choosing a travel offer (Zhang et al. 2020). Perceived travel risk is divided into several dimensions, namely health risk, which is the possibility of a risk of contracting certain diseases; safety risk, which is a risk related to the security of particular activities; and social-psychological risk, which is the possibility that a person will be judged negatively based on his/her choice and not according to his self-image (Abraham et al. 2020; Desivilya et al. 2014; Kement et al. 2020; Khan et al. 2019; Liu et al. 2021; Seabra et al. 2020; Sohn et al. 2016; Teeroovendum et al. 2020; Zilker et al. 2020) revealed that older tourists are more risk-averse than younger tourists when choosing risky choices. Older tourists will be more anxious because of

decreased physiological abilities; therefore, they face more obstacles and worries in traveling than younger tourists. Thus, safety is one of the primary considerations for older tourists when traveling. On this basis, the hypothesis is formulated as follows:

*There are significant differences in the perception of traveling risk among generations X, Y and Z of Indonesia.*

### 3 METHOD

This study collected sample groups of generations X, Y and Z, living in several cities on Java Island. A total of 606 questionnaires were collected online. One-way ANOVA with the post-hoc technique chosen is the Tukey post-hoc multiple comparison test to examine whether there are significant differences in the perception of travel risk and more precisely, identify the differences in the travel risk aspects among the three generations of X, Y and Z in Indonesia.

### 4 RESULTS AND DISCUSSION

The participants of this study are dominated by females, as many as 60.6% of the total respondents. When viewed from the age group, this research is dominated by the age group of 25-44 years old or 41.7%, who are also part of generation Y. Table 1 shows that there are significant differences in perceptions among generations X, Y, and Z on the four travel risk indicators. This can be seen from the value because the significant value of the four indicators is smaller than the cut-off value of 0.05. The first indicator with a significant difference is the health risk dimension; The respondents agree to avoid traveling to tourist destinations if there is a risk of contracting Covid-19 virus. The Tukey's post-hoc test results show that a significant difference in risk occurs among generations X and generation Z. Meanwhile, there is no significant difference between generations X and Y, as well as generations Y and Z. It indicates that these generations share the same perception to avoid the risk of contracting the Covid-19 virus. This may be because generation X domestic tourists are in the 45–54-year age range where medically, the older age group (including the elderly) is more susceptible to contracting Covid-19 than the younger age group ([www.kemkes.go.id](http://www.kemkes.go.id)). These results confirm Zilker et al.'s study (2020), which revealed that when faced with choices that posed a health risk, older tourists would think more about travelling and avoid these risks; therefore, this would be a consideration for older tourists to travel.

Table 1. One-way ANOVA for perceived travel risk among three generations.

| Indicators   | Generation | n   | Mean | St. Dev | F value | Sig.  |
|--|------------|-----|------|---------|---------|-------|
| <b>Health Risk</b>   |            |     |      |         |         |       |
| HR1: Avoid traveling to tourist destinations if there is a risk of contracting Covid-19                      | X*         | 226 | 3.94 | 0.967   | 7.469   | .001* |
|  | Y          | 253 | 4.09 | 0.849   |         |       |
|  | Z*         | 127 | 4.31 | 0.720   |         |       |
| HR2: The visited local tourist destinations in Indonesia have ensured the implementation of health protocols | X          | 226 | 4.71 | 0.597   | 0.699   | .498  |
|  | Y          | 253 | 4.69 | 0.625   |         |       |
|  | Z          | 127 | 4.63 | 0.699   |         |       |
| HR3: Covid-19 is more dangerous than other viruses; the risk of getting infected is higher                   | X          | 226 | 3.96 | 0.979   | 0.387   | .679  |
|  | Y          | 253 | 4.01 | 0.964   |         |       |
|  | Z          | 127 | 4.05 | 0.991   |         |       |
| HR4: Worried about contracting Covid-19 if traveling to destinations in Indonesia                            | X          | 226 | 4.07 | 0.995   | 1.495   | .225  |
|  | Y          | 253 | 4.18 | 0.899   |         |       |
|  | Z          | 127 | 4.24 | 0.895   |         |       |

(continued)

Table 1. Continued.

| Indicators  | Generation | n   | Mean | St. Dev | F value | Sig.  |
|---|------------|-----|------|---------|---------|-------|
| <b><i>Safety Risk</i></b>   |            |     |      |         |         |       |
| SR1: Feeling anxious when seeing other people not wearing the mask at destination             | X          | 226 | 4.58 | 0.722   | 2.042   | .131  |
|   | Y          | 253 | 4.45 | 0.736   |         |       |
|   | Z          | 127 | 4.56 | 0.783   |         |       |
| SR2: Feeling anxious to travel to local tourist destinations in Indonesia due to the pandemic | X*         | 226 | 3.89 | 1.007   | 3.560   | .029* |
|   | Y          | 253 | 4.05 | 0.918   |         |       |
|   | Z*         | 127 | 4.15 | 0.817   |         |       |
| <b><i>Social-Psychological Risk</i></b>   |            |     |      |         |         |       |
| SP1: Traveling to local tourist destinations in Indonesia may lead to reputation demise       | X*         | 226 | 2.42 | 1.224   | 9.277   | .000* |
|   | Y*         | 253 | 2.79 | 1.275   |         |       |
|   | Z*         | 127 | 2.98 | 1.231   |         |       |
| SP2: Traveling to destinations does not fit with self-image                                   | X*         | 226 | 2.61 | 1.200   | 7.174   | .001* |
|   | Y*         | 253 | 2.92 | 1.204   |         |       |
|   | Z*         | 127 | 3.07 | 1.183   |         |       |
| SP3: Traveling to local tourist destinations in Indonesia may change other people's view      | X          | 226 | 2.8  | 1.294   | 2.026   | .133  |
|   | Y          | 253 | 3.01 | 1.276   |         |       |
|   | Z          | 127 | 3.02 | 1.282   |         |       |

Furthermore, in the safety risk dimension, significant differences were found among generations, specifically in the indicator when the respondents felt that it was unsafe to travel to tourist destinations in Indonesia due to the Covid-19 pandemic situation. The post-hoc test showed that based on the indicator 'feeling unsafe to travel to tourist destinations in Indonesia due to the Covid-19 pandemic', there were also differences for generations X and Z with a significant value of 0.033. Meanwhile, the Y and Z generations showed no difference in the perception of traveling. In line with generations Y and Z, generations Y and X also have no difference with a significant value of 0.597. Apart from the age group differences, a study by Neuburger and Egger (2021) explained that tourists were more concerned with their safety, and if they wanted to travel, tourists would consider various risks that existed even if these tourists really wanted to travel. Bractic et al. (2021) revealed that safety would be the primary consideration for tourists to travel because it when they visit new places, they could come across strangers they did not know before.

Third, when viewed from the social-psychological risk dimension, there is a significant difference between generations in the indicator that 'traveling to tourist destinations in Indonesia may lead to reputation demise,' with a significant value of 0.000. In addition, the post-hoc test showed the difference in generation X and Z can be seen in the indicator 'traveling to tourist destinations in Indonesia may lead to reputation demise'. While the Y and Z generations also showed a difference with a significant value of 0.004. Fourth, the indicator of traveling to tourist destinations in Indonesia does not suit the self-image. This has a significant value of 0.001 which means that this indicator also has a significant difference. The post-hoc test results provided data that there were also differences for generations Z and X in the indicators of 'traveling to tourist destinations in Indonesia is not suitable for self-image,' with a significant value of 0.001. Meanwhile, there is also a difference between generations Y and Z with a significant value of 0.013. Next, there is no difference between generation X and Y with a significant value of 0.465. This may be because the respondents from Generation Z are in the age group 17–24 years old, where most of this age group are still at school or studying in college or just entered the field of work; therefore, their reputation or self-image has not been a factor to be considered, especially when associated with tourist activities. On the other hand, the respondents of Generation X and Y, who are older than Generation Z, are mostly working, pursuing careers either through their own business or as a professional in a company. The demands in their field of work, especially as a leader and meeting business colleagues, give a 'social pressure' on generations X and Y to maintain their self-image. Travel decisions and activities while

the pandemic is still ongoing will be perceived as carelessness because of the risk of contracting Covid-19 virus which can lead to personal reputations; even the company's reputation where the respondent works can be adversely affected. On the other hand, Generation Z has characteristics that like to indulge in privacy through social media; thus, when they travel, Generation Z always shares their experiences through social media, even though the risk of contracting Covid-19 virus remains there (Aeni 2022).

On the other hand, there is no significant difference among the three generations in the other five indicators, namely: risk that the destinations do not implement the health protocols; risk of being infected and contracted by the virus; risk of meeting with people without health mask; and risk of being seen by others when traveling during the pandemic. In other words, the three generations have the same level of perceptions in viewing the travel risk of these five indicators.

## 5 CONCLUSION AND RECOMMENDATIONS

The results of this study reveal that there are significant differences in the perception of the traveling risk among domestic tourists of generations X, Y and Z on the health risk, safety risk, and the social-psychological risk dimensions. Several managerial suggestions are offered. Managers of tourist destinations in Indonesia are expected to consistently maintain the CHSE health protocol standards so that tourists feel comfortable and safe to travel to Indonesia. The management of tourist destinations also needs to think of creative strategies such as providing tour packages that are more private for generation X domestic tourists to increase the number of generation X domestic tourists who are brave and willing to travel. Meanwhile, future research is expected to dig deeper into the perception of the risk of traveling from the baby boomers or the elderly, considering that before the pandemic, the trend in the number of tourists from the baby boomer generation was increasing. However, due to the pandemic, this generation has the most vulnerable health risks due to the virus. Considering that the population of new generations will increase in the coming years, a strategy in providing tourism services must be prepared more carefully, starting from the research on their perceptions of the risks of traveling.

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# The effect of inflation, US Treasury yield, and credit default swap on USD denominated Indonesian government bond yield

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**ABSTRACT:** This study focuses to examine whether inflation, US Treasury yield and Credit Default Swap (CDS) spread have significant effects on USD denominated Indonesia government bond yield. The data used in this study were obtained from Bloomberg from January 2010 to December 2020. The study employs Ordinary Least Square (OLS) method to determine the influence of these independent variables on the 10-year USD denominated Indonesian government bond yield. Further regression methods such as Autoregressive Conditional Heteroscedasticity (ARCH) and Generalized Autoregressive Conditional Heteroscedasticity (GARCH) were employed to deal with autocorrelation issues. The results of the study reveal that Indonesia inflation, US Treasury yield and Government of Indonesia CDS level had significant effects on USD denominated Indonesia government bond yield. Contrastingly, US inflation had no significant effect on the 10-year USD government bond yield.

**Keywords:** bond yield, CDS, government bond, inflation, US Treasury

## 1 INTRODUCTION

Indonesia relies heavily on the issuance of government bond to finance its state-budget and its current account deficit. In 2020, it was estimated that Indonesia would be afflicted by a budget deficit of IDR 307 trillion (1.76% of its Gross Domestic Product), whereby IDR 458 trillion would be financed through the issuance of government bond (Kementrian Keuangan Republik Indonesia 2020a).

The heavy dependence of government funding on the issuance of bond requires the government to have an optimal assessment and measurement model to determine the appropriate level of return for every issuance of bond. On one hand, the government needs to maintain an attractive rate of return for investors by considering the risk profile of Indonesia (sovereign risk), while on the other hand, the government must also ensure that the level of return paid by the government to investors does not excessively burden the government's financial condition.

This study aims at examining several external factors that may affect the yield of Indonesia government bonds, especially those denominated in USD during the period 2010 to 2020. According to (CFA Institute. 2016) in its publication, CFA Curriculum 2017, the bond yield demanded by investors will be affected by several factors such as premium on inflation, the risk-free rate as well as a risk premium that reflects the compensation that investors demand for taking on a higher risk caused by the inability of the bond issuer to meet its obligations. With this in mind, four external variables were selected as independent variables to see their relationship with yields on USD denominated Indonesian government bonds, namely the inflation rate in the United States, the inflation rate in Indonesia, the US Treasury yield rate which represents risk-free rate, and the Credit Default Swap (CDS) rate from the Indonesian government representing the risk of default.

The findings of this study are expected to be useful for the government to determine the optimal yield rate of USD-denominated government bonds. The results of this study can also be used as a tool in formulating strategies for issuing securities that are optimal and adapted to the state's

financial conditions. Further, investors can determine a reasonable return on their investment in USD-denominated government bonds.

## 2 METHODOLOGY

This study employs multiple linear regression analysis based on time-series secondary data obtained from Bloomberg. The research method used in this study was Ordinary Least Square (OLS).

Prior to performing Ordinary Least Square procedures, the data were analyzed to examine its classical assumptions including (1) linear relationship between variables, (2) autocorrelations to ensure independence of observations, (3) homoscedasticity to ensure similarity of variances are consistent along the best fit output from the model, (4) multicollinearity to ensure there are no independent variables that is highly correlated to each other, (5) normality of the error's distribution, and (6) stationarity test to ensure that the time-series data have constant mean, variance and covariance.

When the issues pertaining to autocorrelation has been identified, correction measures should be employed to ensure robustness of the model. One of the approaches that can be used to address issues related to autocorrelation is ARCH/GARCH method (Gujarati, 2009).

ARCH/GARCH models are especially useful in analyzing financial time series, such as stock prices, inflation rates, and exchange rates. A distinguishing feature of these models is that the error variance may be correlated over time because of the phenomenon of volatility clustering that is, periods in which their prices show wide swings for an extended time period followed by periods in which there is relative calm (Gujarati 2009). This study uses significance level ( $\alpha$ ) of 5%.

The study used the following government bond yield model to test the hypothesis:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Whereby Y represents the USD denominated government bond yield,  $\beta_0$  represents intercept, while  $X_1$  to  $X_4$  represents each of the independent variables being the subject of this study (United States inflation, Indonesian inflation, credit default swap rates and US Treasury yields).

## 3 RESULTS

The results of the multiple regression generated by the OLS procedure showed that the yield on Indonesia government bonds denominated in USD was only affected by the yield on the US Treasury and the CDS rate for the Indonesian government.

Table 1. OLS model result.

| Variable     | Coefficient | Std. Error | z-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| Y            | 0,071971    | 0,084721   | 0,849506    | 0,3972 |
| INFLATIONUS  | -0,031411   | 0,020848   | -1,506651   | 0,1344 |
| INFLATION ID | 0,010669    | 0,011927   | 0,894501    | 0,3727 |
| UST 10Y      | 0,974211    | 0,028462   | 34,22802    | 0,0000 |
| INDOCDS10Y   | 0,007807    | 0,000336   | 23,26296    | 0,0000 |

Source: E-views

The classical assumption test performed on the model showed that the data met all the standard requirement for classical assumptions except for autocorrelation issues. Using the Breusch-Godfrey autocorrelation test, the  $p$ -value of the F-statistics and the  $R^2$  were found to be below 0.05,

which means that autocorrelation existed. Following the identification of autocorrelation issues, ARCH/GARCH approach was employed to fix problems related to autocorrelation.

The ARCH/GARCH models showed that Indonesia's inflation rate, the rate of return on US Treasury yields and the CDS rate also had a significant effect on yields on Indonesian government bonds denominated in USD. Employing the ARCH/GARCH method, the inflation rate in the United States appeared to have no significant effect on yields on Indonesian government bonds denominated in USD. In addition, the ARCH/GARCH models also showed that the residuals of the previous period had an effect on the yield on Indonesia government bonds denominated in USD for the current period.

In general, the results of the OLS test and the ARCH/GARCH models were in line with the hypotheses and the theoretical framework, and a high level of  $R^2$  indicated that both approaches could explain most of the variation in Y by using the independent variable.

ARCH and GARCH models showed stronger results with almost all variables, namely X2 (Indonesian inflation rate), X3 (US Treasury yield) and X4 (Indonesia CDS) being significant while in the ordinary least squares procedure, the coefficients X1 (US inflation rate) and X2 (Indonesian inflation rate) were not significant. In addition, the ARCH/GARCH models had a higher  $R^2$  compared to  $R^2$  in the OLS procedure.

Table 2. ARCH/GARCH model result.

| Variable     | Coefficient | Std. Error | z-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| Y            | 0.195057    | 0.068750   | 2.837215    | 0.0046 |
| INFLATIONUS  | -0.014844   | 0.024319   | -0.610379   | 0.5416 |
| INFLATION ID | 0.031548    | 0.015356   | 2.054400    | 0.0399 |
| UST 10Y      | 0.899616    | 0.029095   | 30.91956    | 0.0000 |
| INDOCDS10Y   | 0.007493    | 0.000326   | 22.95360    | 0.0000 |
| AR (1)       | 0.329720    | 0.085820   | 3.841985    | 0.0001 |

Source: E-views

The USD denominated government bond yield model based on ARCH/GARCH method was as follow:

$$Y = 0.195057 - 0.014844X_1 + 0.03154X_2 + 0.899616X_3 + 0.007493X_4 + 0.329720X_{et} - 1$$

#### 4 CONCLUSION

This study revealed that the yield on Indonesian government bonds denominated in USD with a tenor of 10 years was positively affected by the inflation rate in Indonesia, the rate of yield on the US Treasury and the Indonesian government's CDS level. Thus, these results were in accordance with the theoretical framework and earlier studies.

A study conducted by Miyajima et al. (2012) suggests that inflation has a significant influence on bond spreads in developing countries. In addition, a study conducted by Jaramillo and Weber, (2013) concludes that inflation has a very significant positive effect on bonds of developing countries.

However, this study also found that there was no significant relationship between inflation in the United States and yields on Indonesian government bonds denominated in USD. This might indicate that investors were more concerned with future inflation expectations rather than historical inflation data in determining expected yields on their bonds.

Furthermore, Miyajima et al. (2012) also found that US Treasury yields have a positive effect on bond yields in 11 developing countries including Indonesia. Meanwhile, in their study concerning Credit Default Swaps and credit spreads, Daniels and Jensen (2005) find that there is a significant



relationship between CDS levels and credit spreads and that the relationship between the two is positive.

This study proved that the models used could explain most of the variations in the yield of Indonesia government bonds denominated in USD by using the independent variables. The independent variables used in this study included domestic factors such as inflation in Indonesia and global factors such as the US Treasury yield rate and the Indonesian government's CDS rate. On that account, the models in this study can be used by the government, investors and academics in estimating the optimum yield of Indonesia government bonds denominated in USD with a tenor of 10 years.

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## The effect of career development and physical work environment on job satisfaction of millennial generation employees (a case study of BPJS Ketenagakerjaan Sumbagut Regional Office): A research framework

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**ABSTRACT:** Job satisfaction is an important factor to consider for human resources in realizing company goals. Job satisfaction must be adjusted to the generation because the factors for each generation are different, especially the Millennial. Millennial generation's job satisfaction affects the performance received by the company, considering that the company's leaders will soon be replaced by the millennial generation. Therefore, an in-depth analysis of theory-based research is very important to understand the main drivers of job satisfaction in the millennial generation. This study aims to develop a conceptual framework for millennial generation job satisfaction factors by taking career development and the physical work environment as a benchmark. Career development carried out as well as data on performance values that are owned become benchmarks for job satisfaction variables, namely the work itself, salary, promotion, leadership, coworkers, and working conditions. Hypotheses were developed to describe the relationship between variables. The proposed conceptual framework of career development and physical work environment determines and assesses employee behavior for job satisfaction in the millennial generation. This research is an effort to determine job satisfaction factors in the millennial generation, a case study at BPJS Employment at the Sumbagut Regional Office.

### 1 INTRODUCTION

In a period of 100 years, there are at least five different generations, wherein each generation has its own characteristic and hence has different job satisfaction criteria for each generation and studies the characteristics and behavior of its employees (Rahmawati 2018, p. 6). One of these is the millennial generation, which is categorized as a generation born between 1981 and 1995 (Parengkuan & Tumewu 2020, pp. 9–10). Based on percentage data from the Central Statistics Agency (BPS) by generation in 2020, the millennial generation is the second largest generation in Indonesia (Central Statistics Agency, 2021). The millennial generation includes people who were born when technology had begun to develop so it is known as a generation that demands changes in every aspect of life, where one of the changes that occur within the organization is organizational culture and the work environment of a company is one of the determinants of job satisfaction (Rahmawati 2018, p. 6). The millennial generation is known as a generation that is easy to move and change places of work if the work they do is not in accordance with the criteria and principles of life, so that with the phenomenon that occurs, companies are not only required to always follow market conditions, but are also required to pay attention to the needs and ways of working of their workers based on the generations in the organization (Parengkuan & Tumewu 2020, pp. 37-43). The Coordinating Ministry for Human Development and Culture stated that Indonesia is predicted to experience a demographic bonus by 2035 (KEMENKO PMK 2022). The demographic bonus in Indonesia can also be a problem for progress according to the IDN Research Institute (2019) report, stating that only 1 in 10 millennials said they wanted to work more than 10 years in a company, and only 3 out

of 10 millennials said they wanted to work 2–3 years in a company (BPS 2021) (Madiistriyatno & Hadiwijaya (2020, p. iii). The IDN report states that the main cause of millennial resignation is inappropriate personal facilities or development followed by salary and work environment factors (IDN Research Institute 2019). According to Parengkuan and Tumewu (2020, pp. 43–44), the influence of career development on the millennial generation has led this generation to continue learning, having career development that is in line with their expectations and having a good and fun work environment, which will motivate them. Therefore, companies need to understand and implement the right strategy to deal with the millennial generation. However, previous research did not describe the particular generation in question. This study aims to propose a conceptual framework that can describe the importance of understanding millennial behavior by analyzing the effect of career development and physical work environment on millennial generation's job satisfaction with a case study at BPJS Employment at the Sumbagut Regional Office.

Based on the data above, this research will answer the following questions:

1. What is the effect of career development on the job satisfaction of millennial employees at BPJS Ketenagakerjaan Sumbagut Regional Office?
2. How does the work environment affect the job satisfaction of millennial employees at BPJS Ketenagakerjaan Sumbagut Regional Office?
3. How does the career and work environment affect the job satisfaction of millennial employees at BPJS Ketenagakerjaan Sumbagut Regional Office?

The analytical model used in this study is SEM, because this model has the ability to estimate the relationship between variables. SEM does not ignore errors; however, it is still analyzed to ensure its accuracy in analyzing questionnaire data involving perceptions.

## 2 LITERATURE REVIEW

### 2.1 *Human resource management*

Kaswan (in Bukit et al. 2017, p. 11) defined human resource management as part of a management that includes organizing, planning, directing, and more. Edy Sutrisno (in Bukit et al. 2017, p. 13) mentions that the function of human resource management is to design, manage, maintain, direct human resources, and apply the right and appropriate way for the organization to run effectively, to achieve organizational goals for the common good.

### 2.2 *Organizational behavior*

Luthans (in Tewal et al. 2017, pp. 4–5) stated that organizational behavior is defined as the understanding to managing human behavior in an organization. Sobirin (in Purba et al. 2020, p. 5) mentions that the purpose of studying organizational behavior is to help leaders or organizations recognize and analyze problems that occur to produce the right solution by applying the right way.

### 2.3 *Career development*

According to Flippo (in Supomo & Nurhayati 2018, p. 63), development is education related to increasing general knowledge and understanding of our environment as a whole. Also, according to Dr. Jan Bella (in Supomo & Nurhayati 2018, p. 63), development is the same as education and training, which is a process of improving work skills, both technical and managerial. Education is problem-oriented theory, carried out in the classroom, lasts a long time, and usually answers. Practice-oriented exercises carried out in the field are of short duration, and usually answered.

### 2.4 *Physical work environment*

According to Widyaningrum (2019, pp. 56), in the world of work, the enthusiasm and job satisfaction of the workforce in doing their work is influenced by many factors, one of which is the work

environment where by paying attention to the work environment is expected to increase enthusiasm for work so that it can spur morale to work productivity so that it can achieve company goals efficiently. Also according to Nitisemito (in Widyaningrum 2019, p. 56), the work environment is all things that are around the workforce, which can affect workers in doing their jobs.

2.5 Job satisfaction

Dewi and Harjoyo (2019, pp. 142) mention that job satisfaction is an attitude of employees that can be seen from the results of the work undertaken based on the factors in the work carried out which relates to the work environment, both physical and non-physical, the rewards/facilities received, career development, and all things that can be used as benchmark for employee happiness/satisfaction in an organization. Yulk and Wexley (in Dewi & Harjoyo 2019, p. 144) defined job satisfaction as the employees’ feelings toward work.

3 CONCEPTUAL FRAMEWORK

This is the conceptual framework of this study (Figure 1). The proposed framework (Figure 1) is to identify all the variables by all aspects inside. These are attend training, transfer knowledge between sections, and promotion to a position in career development. The physical work environment is divided into lighting, color, cleanliness, air ventilation, noise/loudness, and security.

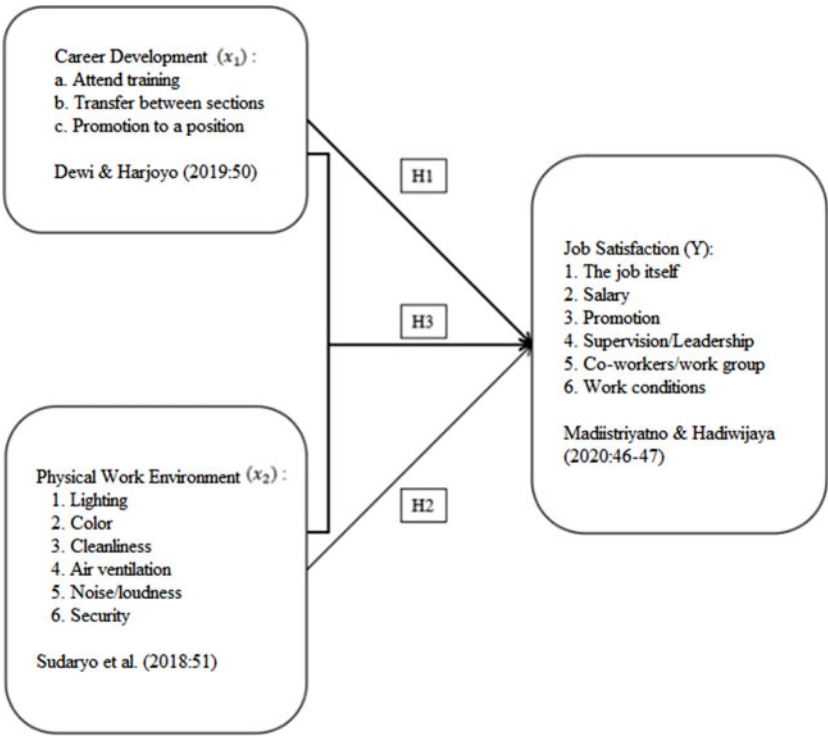


Figure 1. Conceptual framework.

Previous Research:

- The first research conducted by Stella Ngozi Anasi (2020) with the title perception of the influence of work relations, workload, and physical work environment on job satisfaction of

librarians in South West, Nigeria found that the physical work environment, especially the work environment, had a statistically significant relative influence on job satisfaction.

- The second study by Achmad Mohyi (2019) entitled job satisfaction: Through career development and work environment to determine the effect of career development and work environment partially or simultaneously on employee job satisfaction, which was conducted on 74 people or 50% of the population of Sengkaling Recreation Park employees. The results show that career development and work environment have a significant and partially significant effect on employee job satisfaction.
- The third research conducted by Joko Bagio Santoso and Yusuf Sidik (2019) with the title The Effect of Career Development, Work Discipline and Work Environment on Job Satisfaction found that there is an influence of career development variables on job satisfaction, also simultaneously career development, work discipline, and work environment have an impact on job satisfaction.

#### 4 CONCLUSION

This study develops a conceptual framework of research to describe instructions affecting the job satisfaction of millennials. The proposed conceptual framework is intended to support the company in human resource management so that it can help solve similar problems to manage the job satisfaction factor for each generation because each generation has different characteristics and levels of job satisfaction. This study uses online questionnaire survey that was analyzed by structural equations modelling (SEM) to obtain results.

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## Analysis of capital budgeting and risk management in the public–private partnership on the New Bali International Airport development project

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**ABSTRACT:** This study strives to describe the public private partnership (PPP) in analyzing the financial feasibility and risks related to the development of the New Bali International Airport. This study employs a descriptive qualitative approach, using Capital Budgeting to analyze financial feasibility and ISO 31000 to analyze risk. The data source uses primary sources through interviews with several office holders at PT Angkasa Pura I and secondary sources through historical data from the company. The study's results on the New Bali International Airport development project revealed decent results in terms of the feasibility indicators. In addition, 17 risks affected eligibility and were classified as high and very high risk. Thus, special treatment was needed from the company.

**Keywords:** airport, capital budgeting, public private partnership, ISO 31000, risk management

### 1 INTRODUCTION

In realizing the New Bali International Airport development project, PT Angkasa Pura I is required to spend an investment of Rp16 trillion, which is not a small amount. In addition, the company must be ready to deal with any risks that may occur in the project's implementation. The selection of public-private partnership (PPP) is one of the right solutions to bridge the financial gap. The Indonesian government can serve as a facilitator, reducing transaction costs (Carnis & Yuliatwati 2013). According to The Indonesian Aviation Law No. 1 of 2009, the Indonesian government will allow the private sector a bigger and more essential role in managing the country's infrastructure, including airports. Therefore, the private sector's involvement in the operation and financing of airports will be critical in the future in order to improve facilities and services.

PT Angkasa Pura I's management must first evaluate the feasibility of the project development plan, determining whether it is financially feasible to undertake using Capital Budgeting to analyze the data obtained. This is in line with the study conducted by Pawestri (2020), which examined the feasibility of the financial aspects of the Syamsuddin Noor Airport development project with the concept of aerocity in Banjar Baru, South Kalimantan. The results reveal that the cash flow of PT Angkasa Pura I (Persero) reflected the value of financial feasibility.

Financial feasibility studies are vital as an initial assessment of investment activities. This study can help the company's management make decisions before choosing whether the investment activities to be carried out will add value to the company, especially in the financial aspect. Based on the background, the researchers are motivated to conduct a study of financial analysis on the New Bali International Airport development project. In addition, a risk management strategy is also required to identify and assess risks. Thus, they can be properly understood and efficiently managed (Hillson 2002). In this study, the researchers conducted a risk analysis on the development plan of the New Bali International Airport using ISO 31000:2018 as a guideline for the evaluation. This was accomplished by reviewing previous studies that have used risk management analysis in corporate action.

## 2 METHOD

The object of this study was conducted at New Bali International Airport – Bali. This study employs qualitative methods to analyze data that is divided into two categories, namely primary and secondary data. The researchers used data from agreements related to PPPs in this discussion, especially the implementation of PPPs at Hang Nadim International Airport in Indonesia and Hyderabad International Airport in India, as well as term sheets and other documents, to conduct this research. Financial feasibility is analyzed using Capital Budgeting by calculating Payback Period, NPV, IRR, and PI (Ross et al. 2018) and risk management in this study using the Risk Breakdown Structure (RBS) method, namely through source-oriented project risk categorization that regulates and defines the total project risk exposure. This study also uses a top-down approach from PT Angkasa Pura I (Persero) Risk Management Guidelines Number: KEP.176/OM.02.05/2018. Data collection using an archive study and in-depth interviews with several position holders at the one and two levels under the Board of Directors of PT Angkasa Pura I.

## 3 RESULT AND DISCUSSION

The implementation of public-private partnership on airport infrastructure is not a new concept in Indonesia and in India. The comparison of the implementation of PPP at airports in the two countries is presented in Table 1.

Table 1. The implementation of public-private partnership on airport infrastructure in Indonesia and India.

| The Public Private Partnership | The Public Private Partnership in India Hyderabad International Airport   | The Public Private Partnership in Indonesia Batam International Airport   |
|--------------------------------|---|---|
| Cooperation Parties            | Ministry of Civil Aviation, Government of India & Hyderabad International Airport Limited                                     | Batam Free Trade Area and Free Port Concession Agency & Batam International Airport                                     |
| Joint Venture Companies        | GMR Group (63%) Malaysia Airports Holdings Berhad (MAHB) (11%) Airport Authority of India (13%) Government of Telangana (13%) | PT Angkasa Pura I (Persero) (51%) Incheon International Airport Corporation (30%) PT Waskita Karya (Persero) Tbk. (19%) |
| Time Period                    | 30 Years  | 25 Years  |
| Investment Type                | Greenfield  | Brownfield  |
| Cooperation Scheme             | BOOT (Build - Own - Operate - Transfer)   | BTO (Build - Transfer - Operate)  |
| Financial Contribution         | Concession: 4% from Gross Revenue   | Cargo Revenue Share: 65% from total cargo revenue<br>Variable Revenue Share: 35% from total operational revenue         |

Table 1 shows that the Implementing Business Entities of Hyderabad International Airport Limited and Batam International Airport have similarities in the presence of foreign capital which is less than domestic capital. The type of investment in the PPP at Hyderabad International Airport is greenfield so that the period of cooperation is very long, at 30 years, as opposed to the PPP at Batam International Airport, which is only 25 years, and the investment type is brownfield. The brownfield investment concession is valued at more than 35% of projected revenue for the year and 65% of cargo revenue. Whereas in the case of the Greenfield project, annual costs are only 4% of gross revenue. Therefore, based on the government's point of view, Brownfield airport would make a better PPP candidate than the airport Greenfield (Mishra & Mohanty 2009).

Financial feasibility analysis is a tool for evaluating the potential benefits of an investment. The purpose of conducting a financial feasibility analysis is to prevent wasting time and money on an activity that turns out to be unprofitable. The researchers analyzed the aspects of financial feasibility as measured by NPV, payback period, IRR, and PI. The summary of financial performance for 30 years and the results of the financial feasibility analysis with a 30-years projected period are presented in Table 2.

Table 2. Capital budgeting analysis.

| No | Capital Budgeting Analysis    | Unit   | Result        |
|----|-------------------------------|--------|---------------|
| 1  | Payback Period - Undiscounted | Year   | 16            |
| 2  | Payback Period - Discounted   | Year   | 24            |
| 3  | NPV                           | Rp 000 | 4,920,425,764 |
| 4  | IRR                           | %      | 14.55%        |
| 5  | Profitability Index           | x      | 1.61          |

Table 2 shows the New Bali International Airport Development Project was able to provide financial feasibility because the payback period was less than the projection duration (16 years to 30 years) in the undiscounted period and (24 years to 30 years) in the discounted period. In other words, it had positive results. The NPV generated from the project was able to provide a positive value of 4.92 trillion. The IRR obtained had satisfactory results, with a value of 14.55%, which was higher than the discount rate employed, which was 10.48%. The PI obtained had satisfactory results at 1.67 in which the value was greater than 1. The results of the financial feasibility analysis with a projection time of 30 years show satisfactory results for all feasibility indicators.

The risk breakdown structure approach was used in this discussion to identify risks in line with KEP.176, which has been regulated by the company. This makes it easy to categorize risks based on the types of categories the organization has been assigned. Risks were divided into six categories, namely strategic risk (STG), financial risk (FIN), operational risk (OPS), safety and security risk (C&C), compliance risk (KEP), and fraud risk (KCR). Based on the results of risk identification, there are six strategic risks, 14 financial risks, six operational risks, four safety and security risks, four compliance risks and three fraud risks. A risk analysis was then carried out on a total of 37 identified risks by multiplying the likelihood value by the severity to produce a new value in the form of a risk level. After that, a risk evaluation was carried out by categorizing the risks based on the matrix in Table 3.

Table 3. Risk evaluation matrix.

| TINGKAT RISIKO |    | IMPACT |   |        |        |    |        |   |  |        |        |
|----------------|----|--------|---|--------|--------|----|--------|---|--|--------|--------|
|                |    | VL     | L | M      | H      | VH |        |   |  |        |        |
|                |    | 1      | 2 | 3      | 4      | 5  |        |   |  |        |        |
| LIKELIHOOD     | VL | 1      |   |        |        |    | STG-04 |   |  | STG-05 | OPS-03 |
|                |    |        | 1 | 2      | 3      |    | OPS-02 | 4 |  | FIN-14 | 5      |
|                | L  | 2      |   |        |        |    |        |   |  | OPS-01 |        |
|                |    |        |   | FIN-04 | FIN-05 |    | KEP-02 |   |  |        |        |
|                | M  | 3      |   |        |        |    | KEP-03 | 8 |  |        | 10     |
|                |    |        |   |        |        |    |        |   |  |        |        |
|                | H  | 4      |   |        |        |    |        |   |  |        |        |
|                |    |        |   |        |        |    |        |   |  |        |        |
|                | VH | 5      |   |        |        |    |        |   |  |        |        |
|                |    |        |   |        |        |    |        |   |  |        |        |



Table 3 shows that there were 37 risks categorized into four risk categories, namely a single risk in the low-risk category, 19 risks in the medium-risk category, 15 risks in the high-risk category, and two risks in the extreme risk category. From the results obtained in the risk evaluation, an analysis was carried out to determine the treatment of these risks. One of the risk treatments was risk mitigation, which was a treatment in which measures were taken to lower the possibility of risk arising, reduce the impact of risk if it did occur, or both.

#### 4 CONCLUSION

The selection of Government Business Entity Cooperation (PPP) is one of the right solutions to bridge the financial gap. The Indonesian government can serve as a facilitator, reducing transaction costs. When the financial feasibility of the New Bali International Airport Development Project was analyzed over a 30-year projection period, the results suggested that it was financially feasible. Based on the results of the risk assessment for the New Bali International Airport Development Project, there were 17 risks that were at high and extreme levels.

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## The effect of cash holding to firm's performance during Covid-19 pandemic

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**ABSTRACT:** This study looks at how cash holding affects firm performance in the aftermath of the COVID-19 crisis. Using a differences-in-differences (DiD) approach, this study compares firms' performance before and after the COVID-19 pandemic as a function of their cash holdings one year prior to the crisis. As a result of the pandemic, firms face a significant negative shock. While firms with a large cash reserve will perform better in terms of investment and financing during a pandemic, firms with more cash will reduce their dividend payment ratio more than firms with less cash. This study also discovered that firms with more cash have higher profitability but lower asset growth than firms with less cash. This paper focuses on the risk management function of corporate cash holdings, which is critical in mitigating market volatility. This is the first study to look at how cash holdings affected a broader range of corporate performance indicators during Indonesia's COVID-19 crisis.

**Keywords:** cash holding, firm's performance, Covid-19, financial crisis

### 1 INTRODUCTION

The coronavirus pandemic has spread at alarming rates around the world. What is equally concerning is the severe economic impact of Covid-19. Due to government lockdowns, this unprecedented pandemic has a negative impact on firms' production capacity. The negative impact is exacerbated by a larger-scale demand shock, as jobless workers lose income and reduce their consumption of goods and services (Brinca et al. 2020). Indonesia, like other developing countries, is extremely vulnerable to the Covid-19 pandemic.

The Indonesian economy in 2020 is no less bleak than the rest of the world. According to several studies conducted in Indonesia, the Covid-19 pandemic has had a significant negative impact on Indonesian public companies. However, based on the research that has been conducted, there is still no research on how to minimize the impact of the crisis on company performance. To mitigate the financial impact of the crisis, researchers used a variety of approaches, one of which was to focus on cash management strategies in the company prior to the crisis (Lozano & Yaman 2020; Subramaniam et al. 2011).

Several studies have found that holding cash for precautionary reasons can reduce the impact of a worsening firm's condition when a crisis occurs (Fresard 2010). However, there are numerous papers that demonstrate the disadvantages of excessive cash holdings due to agency theory (Jensen 1986). Excess cash gives a manager an incentive to extract rent from shareholders and distorts a firm's optimal corporate policies. As a result, whether having a lot of cash is good for business becomes an empirical question.

Testing the effect of corporate cash holdings on the negative impact of the Covid-19 pandemic on company performance in Indonesia is relevant and significant because the economic crisis will always repeat itself. Looking back over the last three decades, aside from the economic crisis caused by the Covid-19 pandemic, Indonesia has been subjected to major economic crises in almost every

decade, including the monetary crisis in 1998 and the global financial crisis in 2008. As a result, the findings of this study are expected to inform companies in Indonesia about the role of cash holding policies in dealing with the financial crisis.

This is the first study to examine the impact of cash holdings on a broader set of corporate performance indicators during the COVID-19 crisis. It emphasizes the risk management function of corporate cash holdings, which is important in mitigating the overall market's negative impact.

## 2 RESEARCH METHOD

### 2.1 Research model

The data used in this study is derived from quarterly reports of non-financial companies that were listed on the Indonesia Stock Exchange (IDX) between 2018 and 2020. This study's data came from a variety of sources, including the Indonesia Stock Exchange (IDX), Thompson Reuters Eikon, Reuters Datastream, and related journals and articles. The companies that met the above criteria were found to be 395 companies with 3,555 observations.

### 2.2 Empirical design

Following Duchin et al. (2010) which later modified by Zheng (2021), I employ a DiD approach that considers the COVID-19 crisis as an exogenous shock and compares firms' operating performance conditional on their cash holdings one year prior to the crisis:

$$Firm\ Perf_{it} = \alpha + \beta_1 Cash_{i2018Q4} * After + \beta_2 After + \beta_5 CF_{it} + \beta_6 Lev_{it} + \beta_4 ROA_{it} + \beta_3 Size_{it} + \theta + \varepsilon_{it}$$

where  $i$  indexes the firm, and  $t$  indexes the year-quarter.  $\theta_i$  is firm-fixed effect. *After* is an indicator variable that takes the value of one if the calendar quarter falls after 2019Q4. A firm's cash position is measured only once within the sample – at the end of 2018Q4. Firm fixed effects subsume the level effect of cash, and standard errors are clustered at the firm level. This strategy assumes that the COVID-19 crisis is a truly exogenous event unrelated to a firm's characteristics, and that year-before cash positions are not positively correlated with unobserved within-firm changes in business fundamentals.  $\beta_1$  captures the added effect of cash holdings conditional on the crisis.

This model will be used repeatedly in research with modifications to the dependent variable *Firm Perf* which will be measured according to the proxy for each firm's performance measure. I measure investment with capital expenditure, and net working capital excluding cash. I measure operating performance using the return on equity, and asset growth. For financing activity, I proxy it using changes in short-term debt. Finally, I measure a firm's payout using dividends.

Included in the model are four control variables. *CF* measured by income before depreciation. *LEV* measured by long-term debt. *ROA* measured by operating income before depreciation. *SIZE* measured by natural logarithm of total asset. All measures are scaled by total assets.

## 3 MAIN EMPIRICAL ANALYSIS

Table 1 presents estimates from my baseline regressions using a set of firm's performance variables as the dependent variables. This table presents estimates from the firm-level quarterly OLS regression. Standard errors are corrected for heteroskedasticity and clustered at the firm level.

Based on Table 1, corporate investment, operating performance, financing activity, and payout policy are negatively affected by the pandemic, consistent with prior findings of the related literature (Fahlenbrach et al. 2020; Zheng 2021). The coefficients on *After* are negative and significant at the 1% level across all specifications, indicating that COVID-19 leads to a significant reduction in firms' performance.

Table 1. Prec-covid cash holding and firm's performance.

| Specification       | INVESTMENT |           | OPERATING PERFORMANCE |           | FINANCING<br>$\Delta ST\_DEBT$ | PAYOUT<br>POLICY<br>DIV |
|---------------------|------------|-----------|-----------------------|-----------|--------------------------------|-------------------------|
|                     | CAPEX      | NWC       | ROE                   | A_Growth  |                                |                         |
| <i>After</i>        | −0.002***  | −0.158*** | −0.027***             | −0.006*** | −0.004                         | −0.000***               |
| <i>After x Cash</i> | 0.002***   | 0.137***  | 0.030***              | −0.036*** | 0.014                          | −0.004***               |
| <i>CF</i>           | 0.001      | 0.064***  | 0.035***              | 0.009     | −0.006                         | 0.001***                |
| <i>Lev</i>          | −0.002*    | 0.325***  | −0.061***             | −0.000    | −0.034                         | 0.002***                |
| <i>ROA</i>          | 0.008***   | 0.231***  | 1.203***              | 0.651***  | −0.059                         | 0.000***                |
| <i>Size</i>         | −0.002***  | −0.037*** | 0.079***              | 0.266***  | 0.013                          | −0.001                  |
| Adj. R <sup>2</sup> | 0.639      | 0.968     | 0.899                 | 0.383     | 0.274                          | 0.964                   |

\*Significant at 10%, \*\* significant at 5%, \*\*\*significant at 1%

It is discovered that the coefficients of interest,  $\beta_1$ , are positive and significant in investment proxies. It suggests firms with abundant cash reserve invest more during the post COVID-19 crisis. A sufficient amount of cash reserve can mitigate the adverse effect caused by deteriorating market conditions. To gauge the economic significance, for example, one standard deviation increase in the pre-COVID cash reserve leads to an increase of capital expenditure and net working capital of the firm by 0.1 percentage point.

On operating performance proxies, the result of positive and significant relationship between variable *Cash x After* and *ROE* suggest that companies with larger cash reserves prior to the pandemic will be able to achieve better operating performance than companies with petty cash re-serves. Meanwhile, the variable *Cash x After* has a negative and significant relationship direction to *A\_Growth*. This means that the higher the level of cash held by the company prior to the pandemic, the lower the asset growth compared to companies with lower cash levels prior to the pandemic.

This can be explained by the fact that, while there is a positive and significant relationship between pre-pandemic cash levels and investment, there is also a portion of cash that is used as a buffer from the financial crisis's impact. Companies will prefer to finance themselves using internal funds, according to the pecking order theory (Myers & Majluf 1984). As a result, when the Covid-19 pandemic struck, companies with larger cash reserves were able to finance constrained operations more quickly than companies with smaller cash reserves. Because of the decrease in cash for operating activities, the decrease in company assets is greater than for companies that must wait for financing activities because they have less cash.

On column  $\Delta ST\_DEBT$ , the result demonstrates that companies with higher cash levels prior to the Covid-19 pandemic are more likely to obtain short-term loans than companies with lower cash levels. The explanation for the direction of this relationship is consistent with the findings of Harford (2014) research, which found that lenders consider refinancing risk as one of the factors they consider when making short-term loans. As a result, firms with higher cash levels will find it easier to obtain short-term loans because lenders believe the risk of refinancing from these firms is lower than the risk of lending to firms with lower cash levels.

Last, the result of DIV variable suggest the allocation of companies with higher cash levels to invest and maintain company liquidity may cause a decrease in dividends in companies with higher cash levels. This is demonstrated by the results of a significant positive relationship between capital expenditure as an investment and working capital as liquidity in dealing with uncertain situations. This motive is consistent with the precautionary motive, in which companies hold cash in anticipation of uncertain situations and the risk of missing out on investment opportunities (Keynes 1936). The findings of this study are also consistent with the findings of Krieger et al. (2020), who found that the Covid-19 pandemic reduced dividend amounts for 2020 significantly higher than in 2015.

## 4 CONCLUSION

According to the results of the study, the pandemic has a detrimental effect on the investment decisions of corporations, as well as their profitability, financing activity, and payout policy. These findings are in line with those discovered in prior research that was published in the relevant literature. The conclusion that can be drawn from the fact that there is a strong positive relation between the corporate pre-Covid cash reserve and investment, return on equity, and financing is that the motivation for keeping cash on hand in corporations is one of caution. The findings, in the meantime, lend credence to the Pecking Order Theory due to the fact that there is a robust inverse connection between the pre-COVID cash reserves of corporations and asset growth as well as payout policy. In other words, the Pecking Order Theory is supported by the findings because of this relationship. This result demonstrates that the advantage of the cash reserve may not be well understood if the unforeseen COVID-19 pandemic has not happened. This highlights the difficulty in estimating the optimal cash level when rare market shocks are incorporated.

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## Will digital literacy moderate the relationship between digital capabilities and the business performance of MSMEs in Indonesia?

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**ABSTRACT:** The digitalization of MSMEs is not the same as the digitalization of large companies because most of their assets, businesses, and capabilities are outside the company. Thus, it is still questionable whether the digitalization of MSMEs has a positive impact on organizational performance, especially business performance. This study explores the digital capabilities (comprising managerial capabilities and operational capabilities) of MSMEs that may improve their business performance. In addition, the study develops a model that incorporates digital literacy as a moderator to the relationship between digital capabilities and business performance. The study aims to provide a clear model for an effective MSME digitalization program.

**Keywords:** managerial digital capabilities, operational digital capabilities, digital literacy, MSME's business performance, MSME, Indonesia

### 1 INTRODUCTION

The number of Micro, Small, and Medium Enterprises (MSMEs) who joined e-commerce amounted to 64.2 million, 72.2 million, and 81.6 million respectively in 2018, 2019, and 2020 (Azka 2020). In addition, Deloitte Access Economics (2015) reported that 36% of SMEs in Indonesia were still offline. Among those who have already online, 37% had very basic online capabilities, 18% had intermediate online capabilities, and only 19% had advanced online capabilities. Furthermore, the report states that the use of digital technology for Indonesian SMEs can boost revenue increases by 80%, increase the likelihood of innovativeness by 17 times, increase competitiveness internationally, and increase the likelihood of employment opportunities by 1.5 times. According to Verhoef et al. (2021), the need to carry out digital transformation is driven by a large number of users of new digital technologies such as e-commerce, the competition that changes due to digital technology, and the consumer behavior that also changes due to the digital revolution.

Even though the report found a positive impact of digitalization of MSMEs, past empirical literature found that the relationship between the digital strategy of MSMEs and their business performance is still in question. For instance, even though Ukko et al. (2019) proved that digital business strategies in MSMEs encourage financial performance, they also found that, in terms of managerial and operational capabilities, digital business strategies are not enough to have a direct effect on financial performance. Cenamor et al. (2019) stated that digital platforms capabilities have indirectly positive influence on MSMEs' performance. According to Crupi et al. (2020), although digital technology can play an important role in the development of MSMEs, some of these companies remain cautious in adopting the solutions offered by emerging technologies.

This study indicates the ability of digital technology as one form of adaptation for MSMEs to continue to exist in the competition. Thus, the study poses two questions: (1) Do digital capabilities affect the business performance of MSMEs in Indonesia? (2) Does digital literacy moderate the relationship between the digital capabilities and business performance of MSMEs in Indonesia?

## 2 LITERATURE REVIEW

### 2.1 *MSMEs' business performance*

Business performance can be seen from turnover or increase in revenue or sales and existing costs (Stojkic & Bosnjak 2019). According to Saunila (2014), business performance comprises financial performance related to financial results such as profitability, while operational performance is the things that determine results such as productivity and quality. Financial performance is the ability of a company to generate revenue, generate profits, and increase market value (Abou-foul et al. 2021).

Some researchers suggested using subjective measurement than objective measurement when studying small firms (Henri 2006; Reijonen 2008). The term “subjective measures” refers to self-reported measures which may include measures such as personal satisfaction and achievement, pride in the job, and flexible lifestyle (Henri 2006; Reijonen 2008). Referring to Abou-foul et al. (2021) and Stojkic and Bosnjak (2019), this study measures business performance based on the perception of decision-makers in companies (in this case MSME owners-managers) towards sales, profits, and cost.

### 2.2 *Digital capabilities*

Digital capability is defined as a company's skills, talents, and expertise to manage digital technologies in the development of new products that include managerial (dynamic capabilities) and operations Helfat et al. 2019). Research by Westerman et al. (2011) revealed that digital capabilities are fundamental to which companies can transform customer experiences, operational processes, and business models. In the context of MSME, the role of managers is identical to MSME entrepreneurs because they are the main drivers of digital transformation in their business, and their capabilities are the key to success in digital transformation carried out (Li et al. 2018).

Several previous studies have proven that digital capabilities have a positive impact on digitalization performance (Joshi et al. 2022; Singh et al. 2021) and financial performance (Ukko et al. 2019). Singh et al. (2021) demonstrated that strategic alignment has a significant impact on digital transformation. While Joshi et al., (2022) found that the capabilities of the information technology governance process are positively related to the performance of information technology. Meanwhile, Ukko et al. (2019) proved that digital capabilities encourage MSMEs' business performance.

According to Ukko et al. (2019), digital capabilities have two dimensions, namely managerial capabilities, and operational capabilities. In line with that, the present study proposes two hypotheses, which are:

H-1: Managerial digital capabilities positively affect the MSMEs' business performance.

H-2: Operational digital capabilities positively affect the MSMEs' business performance.

### 2.3 *Digital literacy*

Digital literacy is the ability of entrepreneurs to adapt to technological developments to utilize media for communication, marketing, trend analysis, and demand for goods and services (Sariwulan et al. 2020). By Fauzi et al. (2020), digital literacy is defined more simply as the knowledge of the use of information and communication. Thus, the present study defines digital literacy as knowledge of the use and utilization of information and communication technologies in the business environment.

Previous studies found that digital literacy is related to the growth of MSMEs (Fauzi et al. 2020) and performance expectations (Jang et al. 2021). However, research by Ukko et al. (2019) discovered that digital managerial and operational capabilities are not enough to have a direct effect on financial performance. Additionally, Sariwulan et al. (2020) found that digital literacy has a direct and indirect effect on the performance of SME entrepreneurs. Therefore, the present study proposes three additional hypotheses, which are:

H-3: Digital literacy positively affects MSMEs' business performance.

H-4: Digital literacy moderates the relationship between managerial digital capabilities and MSMEs' business performance.

H-5: Digital literacy moderates the relationship between operational digital capabilities and MSMEs' business performance.

### 3 CONCEPTUAL FRAMEWORK

Figure 1 shows the conceptual framework of this study. This framework connects digital capabilities, digital literacy, and business performance.

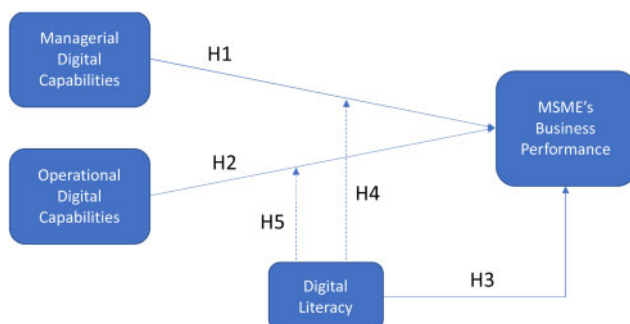


Figure 1. Conceptual framework.

### 4 CONCLUSION

In today's environment, MSMEs who want to increase their business performance should consider their capabilities, especially their digital capabilities. This means that MSMEs should improve their managerial digital capabilities as well as their operational digital capabilities internally. In addition, the relationship between digital capabilities and business performance will be stronger when MSMEs have a higher level of digital literacy. It is recommended to conduct further analysis to prove all the propositions.

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## Bitcoin mimicking portfolio

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**ABSTRACT:** Bitcoin fluctuates based on sentiment and speculation. Its price has dropped by 50% from its highest in April 2021 to its lowest in July 2021. It then reached a new high in November 2021 and depreciated again by more than 50% in January 2022. The high fluctuation is one of the main reasons of its fairly low institutional investor participation. This study analyzed stock allocation in portfolio that mimics Bitcoin to provide an alternative investment with the same yield as Bitcoin and a lower risk. Previous studies have created mimicking portfolios for bonds, REIT, and foreign asset but there has not been one to study cryptocurrency mimicking portfolio, especially Bitcoin. The portfolios created in this study consists of 19 selected US stocks and 45 stocks from Indonesia LQ45. The weight optimization is achieved with Markowitz Theory. Mixed result was found in portfolio returns and lower standard deviation compared to Bitcoin.

### 1 INTRODUCTION

Cryptocurrency is the new hype in the investment world with the collapse of stock markets around the world during the COVID-19 pandemic. Cryptocurrency is viewed as a high-risk asset with the ability to offer a high yield but is also regarded as having no fundamentals. Bitcoin price is believed to move based on sentiment and speculation, which is one of the reasons why institutional investors are avoiding investing in this asset. Zmudzinski (2021) stated that, in August 2021, institutional investors' participation in Bitcoin was only 7.85%. On the other hand, stocks are regarded as assets with fundamentals based on the company's financial performance and have less volatility compared to Bitcoin. This study is aimed at analyzing the construction of mimicking portfolio using US stocks and Indonesia LQ45 stocks.

According to Salzman (2021), Goldman Sachs studied the correlation between US stocks and Bitcoin in 2021. They found 19 most correlated stocks to Bitcoin, including Marathon Digital Holdings (MARA), Riot Blockchain (RIOT), Micro Strategy (MSTR), Silvergate Capital (SI), Square (SQ), PayPal Holdings (PYPL), Overstock.com (OSTK), Nvidia (NVDA), Investview (INVU), Ideanomics (IDEX), Tesla (TSLA), JP Morgan Chase (JPM), Visa (V), Bank of New York Mellon (BK), Facebook (FB), Mastercard (MA), Broadridge Financial Solutions (BR), IBM (IBM), and Coinbase Global (COIN). These 19 stocks were used to construct portfolios in this study.

Modern Portfolio Theory (MPT) was introduced by Markowitz by allocating assets optimized to achieve desired return with the lowest risk possible (Kinlaw et al. 2017). Previous studies on MPT by Bakar & Rosbi (2018) suggested that portfolio risk is lower than that of the individual asset. Furthermore, the Markowitz model was compared to the Enhanced Index Tracking Model by Loh et al. (2020) by constructing financial ETF and industrial ETF. They found that the Markowitz model is more efficient. A similar result was shown in another study by Varghese & Joseph (2018). They compared the Markowitz model to the Single Index Model by Sharpe and found that both models can be used to lower risk but the Sharpe model cannot take in the uncertainty in the stock market. Based on these findings, this study constructed the portfolios using the Markowitz model.

Mimicking portfolio has been studied by Lu & Vivian (2020) using domestic assets to mimic foreign indices. Foreign indices are believed to have a low correlation with local indices, hence

exposure to foreign indices will give investors a portfolio diversification. This study built 7 developed markets and 8 emerging markets mimicking portfolios using US stocks over the 1975–2013 period. The portfolio optimization was obtained using the Markowitz model. The researchers included the foreign currency returns, which resulted in increased exposure in the foreign market. They argued that it was a crucial step since investors take foreign currency profit and loss into account when they are going to make investing decisions.

Chiang et al. (2006) also studied REIT-based mimicking portfolio using CAPM and Fama-French three-factor model to study the ability of passive trading strategies to generate profits for portfolio managers. This study constructed three REIT-based mimicking portfolios calculated based on size, book-to-market, and average return. The researchers followed three passive trading strategies, including two strategies analog to the Fama-French strategy and one additional strategy analog to the Carhart momentum factor. The findings were successfully used to mitigate data mining danger. In this study, short selling was allowed although it would be difficult to imitate for retail investors in the real market.

Roll & Srivastava (2018) suggested a new method of constructing mimicking portfolio in their study. This study employed constrained optimization to minimize residual sensitivity in order to achieve similar factor sensitivities between mimicking portfolio and target asset, which successfully created two Equity mimicking portfolios, two real estate mimicking portfolios, three fixed income mimicking portfolios, and one commodity mimicking portfolio. The researchers used a different approach to do weight optimization in their portfolios that can be solved using Lagrangian multipliers. This method can create a mimicking portfolio with the exact same beta as the target asset. Though the initial beta can be perfectly matched for months, the mimicking portfolios need to be rebalanced after some time.

This study is expected to provide investors with an alternative investment of Bitcoin with the same return and lower risk. We used selected US stocks based on the 2021 Goldman Sachs study and 45 stocks from LQ45. Indonesian LQ45 is selected because we tried to demonstrate that such portfolio is also achievable with Indonesian stocks and such portfolio in this study would be better replicated by Indonesian institutional investors.

## 2 METHODOLOGY

We collected Bitcoin and stock prices data from investing.com with a time period of 1 January 2020 to 31 December 2021. The data were then cleaned to eliminate the Bitcoin price data on which the stock market was closed. Afterward, we calculated the daily return, average return, yearly expected return, and standard deviation of each asset. We also calculated the portfolios' standard deviation, return, and Sharpe ratio. In order to achieve the standard deviation of the portfolio, we first made an  $X^T X$  matrix, then a variant-covariant matrix, therefore acquiring the standard deviation. The portfolio return was obtained. The Sharpe ratio was the return of portfolios divided by the standard deviation.

We constructed the portfolios with 4 optimization methods, namely Optimization 1 (Equal Weight), Optimization 2 (Maximum return with a standard deviation no more than the lowest standard deviation of an individual asset), Optimization 3 (Minimum standard deviation with return no less than Bitcoin return), and Optimization 4 (Maximum Sharpe Ratio). Weight optimization was achieved with a data solver on Excel with the constraint total weight of 1 and the minimum weight of 0 (no short-selling).

## 3 RESULT

We created 88 portfolios on 11 different snapshots during the 2020–2021 period. The snapshots were then divided into the whole observation period of 2020–2021, two yearly snapshots, and eight

quarterly snapshots. Table 1 shows the result of our findings on the return and standard deviation of each portfolio compared to Bitcoin.

Table 1. Portfolios' return and standard deviation.

|              | 2020–2021 |    | 2020 |    | 2021 |    | Quarterly |    | Total |
|--------------|-----------|----|------|----|------|----|-----------|----|-------|
|              | US        | ID | US   | ID | US   | ID | US        | ID |       |
| Return > BTC | 4         | 0  | 1    | 0  | 1    | 1  | 19        | 14 | 40    |
| SD < BTC     | 4         | 4  | 4    | 4  | 4    | 4  | 32        | 32 | 88    |

There were mixed results when the portfolios and Bitcoin's returns were compared. Out of 88 portfolios, only 40 had a greater than or equal to Bitcoin's return. On the other hand, all portfolios had a lower standard deviation than Bitcoin. Upon comparing US-based portfolios to Indonesia-based portfolios, there were US-based portfolios that have a greater than or equal to Bitcoin's return (25 vs 16).

#### 4 CONCLUSION

Based on the findings and discussions, it can be concluded that it is possible to achieve portfolios that have similar returns to Bitcoin with a lower standard deviation using both US stocks and Indonesian LQ45 stocks. A similar return and lower standard deviation would help investors to a better diversification on their investment portfolios. A more extensive timeframe in this empirical study is crucial to intensify the notion of the developed portfolios' movement mimicking Bitcoin's.

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## Impact of COVID-19 on stock market of Indonesia stock exchange

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**ABSTRACT:** This research aims to examine the stock market's response to the first announcement of COVID-19 that hit Indonesia on March 2nd, 2020. To evaluate the relation between market responses and the first announcement of COVID-19 cases, this research used an event study approach and was supported by multiple linear regressions. We also used the Fama French three-factor models to predict expected returns. Consistent with the previous studies, our regression analysis revealed that the market reacted negatively to the announcement of COVID-19. The empirical findings can be used by investors to consider investing in the Indonesian stock market, especially for health disaster announcements.

### 1 INTRODUCTION

By the end of 2019, the infectious virus produced by a new form of the Coronavirus SARS CoV-2 had spread to 216 countries, resulting in 3,406,824 confirmed cases and 252,478 deaths by April 27th, 2020 (World Health Organization 2020). The virus is also known as COVID-19, and it comes with several acute respiratory syndromes that spread quickly through droplets and tiny airborne particles from infected persons. For the elderly or those with chronic medical conditions, such as cancer, cardiovascular disease, diabetes, or chronic respiratory difficulties, the symptoms can be extremely dangerous.

On March 11th, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a pandemic, and almost all countries implemented measures such as lockdowns, closures of companies, and social distancing to prevent the virus from spreading rapidly. Governments around the world have implemented various emergency measures in reaction to the COVID-19 pandemic, including lockdowns, travel restrictions, individual virus testing, and quarantines, as well as economic stimulus packages (Ashraf 2020). In addition, efforts were made to control the spread of the virus, such as quarantine and restrictions on the labor movement, but these actions have hampered the global economy (Salisu & Vo 2020). The global economy was affected by activity restrictions and lockdowns in various countries; supply lines were disrupted, industrial sectors failed, and businesses ceased their operations (Pinatih 2020). The COVID-19 pandemic has posed serious operational hazards and financial losses to businesses around the world (Goodell 2020). It also caused global stock markets to crash as a result of unfavorable reactions to verified cases of COVID-19. As the number of confirmed cases in a country rises, stock market returns fall. The relation between the rising number of deaths caused by COVID-19 and the number of confirmed cases was positive but not significant (Ashraf 2020; Ahmad 2022; Harjoto 2020). By March 2nd, 2020, Indonesia had reported its first confirmed positive COVID-19

test. Finally, this article adds to the COVID-19 literature by examining how investors assimilated new COVID-19 information and investigating how the market reacts to the global health issues.

## 2 DATA AND HYPOTHESIS DEVELOPMENT

### 2.1 *Data collection method*

To examine the impact of the Covid-19 pandemic on stock returns in Indonesia, this study follows (Al-Awadhi et al. 2020; Ashraf 2020) using the panel-data-regression approach for the research method. The samples were taken from targeted public companies listed on the Indonesia Stock Exchange from April 10th, 2019 to February 14th, 2020 (210 days of trading, Aninthyarini 2018). In terms of sampling, the companies were on the main board of the Indonesia Stock Exchange and have completed data to be used for the research. Once the purposive-sampling method had been met, 488 public firms were analyzed.

### 2.2 *Hypothesis development*

#### Market Reaction

The disease of COVID-19 pandemic has interacted negatively with stock market returns. In particular, stock returns were significantly negatively related to both the daily growth in total confirmed cases and the daily growth in total cases of death from COVID-19 (Al-Awadhi et al 2020). Analysis conducted on the stock market in Indonesia has proved that the daily development of the total positive cases of COVID-19 has a negative impact on stock returns (Mugiarni & Wulandari 2021). The stock market responded negatively to the increase in confirmed cases of COVID-19 for the returns on the stock market decreased as the number of confirmed cases in a country increased. Further, the research found that the response of the stock market to the increasing number of deaths from COVID-19 was weak, Hence, the hypothesis:

H: Compared to normal conditions, the Indonesian market has reacted negatively to the announcement of confirmed cases of COVID-19.

## 3 RESULTS

### 3.1 *Market reaction analysis*

Before and after the COVID-19 announcement, we offer empirical results of event research calculation. (t-10, t+10) is the observation range utilized to calculate the CAR. A normality test is also performed to see if the CAR values are regularly distributed.

The market reacted negatively when the first instances of COVID-19 were revealed that day, as seen in Table 1. (t0). The market, on the other hand, observed an anomalous increase in returns the next day (t+1) and the day after (t+2). From the third day (t+3) to the tenth day (t+10) after President Joko Widodo announced the first COVID-19 incident in Indonesia, market reactions were usually negative, with the exception of the sixth (t+6) day. Furthermore, when based on an average value of the ten days before (t-10, t-1) and ten days after (t+1, t+10), the values were  $-0.0166$  and  $-0.0451$ , respectively. These findings are supported by previous studies (Chen 2020; Dunford & Qi 2020; Harjoto 2020; Mendez & Pathan 2022).

Table 1. Empirical result.

| Variable | Descriptive Statistics |       |         |         |         |                |
|----------|------------------------|-------|---------|---------|---------|----------------|
|          | N                      | Range | Minimum | Maximum | Mean    | Std. Deviation |
| T-10     | 488                    | 0.66  | -0.42   | 0.24    | -0.0038 | 0.04365        |
| T-9      | 488                    | 1.11  | -0.83   | 0.29    | 0.0040  | 0.06532        |
| T-8      | 488                    | 1.52  | -1.17   | 0.35    | 0.0053  | 0.08297        |
| T-7      | 488                    | 1.31  | -0.86   | 0.44    | 0.0059  | 0.08108        |
| T-6      | 488                    | 1.23  | -0.73   | 0.50    | -0.0021 | 0.08925        |
| T-5      | 488                    | 1.60  | -0.94   | 0.66    | -0.0103 | 0.10739        |
| T-4      | 488                    | 1.89  | -1.24   | 0.65    | -0.0164 | 0.12209        |
| T-3      | 488                    | 1.95  | -1.25   | 0.70    | -0.0217 | 0.12894        |
| T-2      | 488                    | 2.06  | -1.26   | 0.80    | -0.0340 | 0.13958        |
| T-1      | 488                    | 2.01  | -1.21   | 0.80    | -0.0427 | 0.14951        |
| T0       | 488                    | 2.01  | -1.16   | 0.84    | -0.0420 | 0.14904        |
| T+1      | 488                    | 2.10  | -1.18   | 0.92    | -0.0227 | 0.15298        |
| T+2      | 488                    | 2.12  | -1.17   | 0.94    | -0.0185 | 0.15125        |
| T+3      | 488                    | 2.17  | -1.15   | 1.01    | -0.0219 | 0.15444        |
| T+4      | 488                    | 2.22  | -1.13   | 1.09    | -0.0254 | 0.15040        |
| T+5      | 488                    | 2.28  | -1.13   | 1.14    | -0.0518 | 0.16597        |
| T+6      | 488                    | 2.36  | -1.19   | 1.17    | -0.0326 | 0.17238        |
| T+7      | 488                    | 2.21  | -1.13   | 1.07    | -0.0521 | 0.17460        |
| T+8      | 488                    | 2.15  | -1.13   | 1.02    | -0.0740 | 0.18414        |
| T+9      | 488                    | 2.14  | -1.19   | 0.95    | -0.0716 | 0.19417        |
| T+10     | 488                    | 2.20  | -1.26   | 0.94    | -0.0807 | 0.20932        |

Source: Author, 2021

#### 4 CONCLUSION

The COVID-19 pandemic has wreaked havoc on economies worldwide, particularly in Indonesia. In this paper, we examined the stock market's response to the COVID-19 pandemic. Using the first confirmed cases of COVID-19 and data of stock market returns from 488 firms and 210 days of trading to estimate a consistent beta, we found that the market reacted negatively when the first instance of COVID-19 was revealed. Our findings imply that the stock market has reacted swiftly to the COVID-19 pandemic.

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## Market performance of ICT firms with knowledge-intensive business services: The effect of innovation culture and customer co-creation

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**ABSTRACT:** Digital transformation and technological advancements in all industrial sectors have encouraged companies in information and communication technology (ICT) to continue developing strategies and innovations for business competition. In recent decades, innovation culture and knowledge-based business development can be interpreted as an indicator of the transformation of the industrial economy into a knowledge-based economy. Customers are thought to be the source of remarkable innovation. This research examines the effect of an innovation culture and customer co-creation on market performance in information and communication technology companies. Specifically, it focuses on Knowledge-Intensive Business Services (KIBS) that can support businesses in achieving high firm performance in the market by utilizing marketing innovation and product innovation factors. A survey was conducted on 235 respondents and tested using the Partial Least Squares (PLS-SEM) method. The results of this research are that innovation culture and customer co-creation can positively influence the market innovation, product innovation, and market performance in ICT firms with KIBS.

**Keywords:** Innovation Culture, Co-Creation, Marketing Innovation, Product Innovation, Market Performance.

### 1 INTRODUCTION

The rapid development of digital transformation and the information and communication technology (ICT) industry have driven the industrial revolution, and increased competitiveness among companies. Many companies are unable to retain their customers and thus lose business. Thus, companies are expected to respond by increasing activities related to performance. Innovation is considered the key for companies to have sustainable competitiveness in a dynamic business environment and companies can generate unique knowledge and greater innovation through customer co-creation [2]. Previous studies show that innovation culture, marketing innovation, and product innovation affect the market performance of firms [1], and ICT companies that have an innovation culture and customer co-creation by utilizing business services based on professional knowledge or knowledge intensive business services (KIBS) are seen as more able to increase company value or competitive advantage in competition in the market, so they can help customers carry out digital transformation, maintain business with customers in the long term and improve the company's performance [3]. One of the main contributions of KIBS is to play an essential role in the innovation management process, both internally and externally, with customers and suppliers. In creating innovation through customer co-creation, it is hoped that the company can integrate the environment, experience, and activity by providing services that are used based on the resources and needs of customers to run optimally. In addition, in this research, the focus is on examining the influence of an innovation culture and customer co-creation in the company on marketing innovation, product innovation, and market performance, especially those engaged in the ICT sector in Indonesia can be factors that affect the success of firms' performance. This research also compares and contrasts

ICT firms with and without KIBS. With this understanding, firms in the ICT sector are expected to design strategies that focus on strategies to achieve company goals.

## 2 LITERATURE REVIEW

### 2.1 *Innovation culture*

An innovation culture serves as a breeding ground for innovation. Innovation culture is part of the corporate culture and describes the basic attitudes and shared understanding around innovation [3]. It includes the firms' values, norms, and behaviors, and determines how managers and employees carry out innovation. How a culture promotes innovation and how it can be designed is inseparable from an essential building block of internal communication. This means a purely technical level and a personality level.

### 2.2 *Customer co-creation*

Customer co-creation can be defined as a process when several service systems participate in value creation through the integration of resources and resource applications [2]. The creation of shared value involves the company integrating the customer's environment, experiences, and activities by providing services based on the resources and needs of the customer.

### 2.3 *Marketing innovation*

Marketing activities add value to the company's sales and innovation performance. Marketing innovation focuses on developing the target market mix, and determining how the company can best serve the target market [1]. Innovation and marketing are required to go hand in hand, innovation expresses buyer needs beyond the product, and marketing innovation must evaluate customer value perceptions and generate opportunities for unmet customer needs. Therefore, firms must provide new, innovative products.

### 2.4 *Product innovation*

Product innovation is defined as the development and radical change in the performance attributes of the product or service provided [1]. This development series is carried out by using science and technology to improve a product. Product innovation aims at offering superior value to customers. Therefore, it is expected to lead to the growth of market performance in the company. By developing latest products, the company will become more competitive and valuable.

### 2.5 *Market performance*

Market performance can be defined as matters related to market share, determinants of sales, and premium revenue from products and services of the company [1]. Market performance depends on how successful the product, market, business, and organizational positioning will be in the future and the ability to obtain competitive advantages over competitors.

### 2.6 *Knowledge Intensive Business Services – KIBS*

KIBS is a knowledge-intensive company service that supports their activities in the capabilities and knowledge of human resources [3]. KIBS activities refer to the production or integration of services in activities developed by firms, in manufacturing or services, in combination with the output of manufactured goods, or as autonomous services and are considered a cornerstone of the economy.

### 3 CONCEPTUAL FRAMEWORK

#### 3.1 Data collection and sample

The respondents came from top management and business unit leaders who were responsible for implementing innovative strategies of ICT firms in Indonesia. The criteria for the respondents are that they must come from ICT industry firms and the firms must have more than one year of experience in the financial year. The minimum number of respondents that must be obtained from this study is 130, namely the number of questions multiplied by 5 ( $26 \times 5 = 130$ ) (Hair et al. 2010). Data were collected through the use of an online platform survey to respondents using a Likert Scale (1–5) and grouping the data into KIBS firms and non-KIBS firms using reference from Miles et al.(1995). The firm's criteria are that the firms relies heavily on professional knowledge, firms use internal or external knowledge to produce intermediary services or solutions for clients' production processes and the company has competitive interests and is exploited for business.

#### 3.2 Scale validity and reliability

Hypotheses were tested through data analysis using SEM, which includes loadings, Cronbach alphas, composite reliabilities, and average variance extracted (AVE). The AVE values concerning innovation culture, customer co-creation, product innovation, marketing innovation, and market performance achieved the acceptable value of 0.50. Cronbach's alphas for the five constructs exceeded the cutoff point of 0.70. Therefore, the measurement model is reliable and valid.

#### 3.3 Research framework

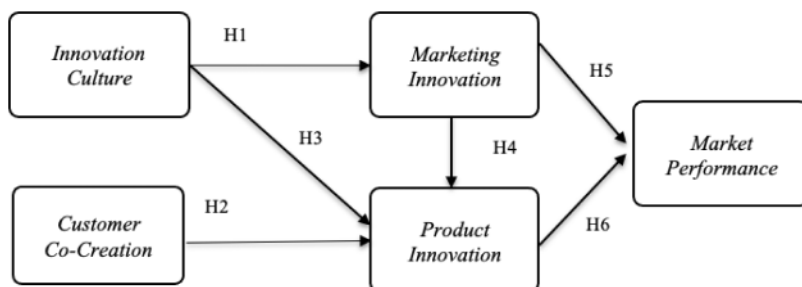


Figure 1. Research framework.

### 4 DATA ANALYSIS AND RESULT

As part of our preliminary analysis, all data from 235 respondents for any outliers had no issues. The respondents from KIBS firms are 123 and non-KIBS firms are 112. PLS analysis was used to test hypotheses H1–H6. First, the influence of all control variables on all types of firms was tested, and then all control variables on KIBS and non-KIBS firms were tested. Finally, the multi-group analysis method was examined to show the comparison of effects between KIBS and non-KIBS firms. The average mean value of each indicator in KIBS firms was greater than in non-KIBS firms. The innovation culture variable had a total average value that tended to be high, which was 4.166 from a maximum scale of 5, indicating that the innovation culture of ICT firms both KIBS and non-KIBS firms' criteria in Indonesia give influence or support for product innovation and marketing innovation to the company.

Customer co-creation had a total average value that tended not too high, which was 3.8792 out of 5. However, when comparing the average value of KIBS and non-KIBS firms, it is found that non-KIBS had a much smaller value, implying that customer co-creation is not believed to have considerable influence on organizational activities in non-KIBS firms. Respondents felt that customers did not have a high willingness to provide additional resources, such as time, energy, and emotion to help with service. Marketing innovation and product innovation also had a total average value that tended to be high, indicating that they had an influence or support for market performance in the company.

Based on Table 1, the results of multi-group analysis testing indicated that marketing innovation significantly influenced product innovation in the KIBS firms, while non-KIBS firms did not, *P* value (0.208) (level of significant 95%). These results indicate that in non-KIBS firms, the respondents did not perceive innovation in their marketing programs to stay ahead of the market, try to find new ways and new methods to build and improve relationships with customers, and respondent did not perceive the sales techniques as always revised. Furthermore, in KIBS firms, respondent perceive companies look for ways to develop new business models and the product design is constantly renewed according to customer's needs and competitive products. The result of the test also showed that innovation culture had a significant influence on marketing innovation and product innovation, customer co-creation to product innovation, and product innovation to market performance. It applies to both KIBS firms and non-KIBS firms. However, marketing innovation did not have a significant influence on market performance in non-KIBS firms, the respondents perceived that the company was neutral to trying sales techniques with newly found methods and implementing innovative marketing programs.

## 5 CONCLUSION

From the results of this study, it was found that the innovation culture and customer co-creation have affect to the market performance of ICT firms in general through marketing innovation and product innovation. This innovation is very important for managers of ICT firms in terms of creating new and unique products, always looking for ways to improve promotional methods and tools, especially in KIBS firms. The study also finds that both KIBS and non-KIBS firms allow organizations to work closely with their customers in the problem-solving process by customer co-creation. So it is expected that ICT firms should focus on these two factors, namely an innovation culture and customer co-creation, which will be useful for firms in achieving competitive advantage and maximum firm's performance. Moreover, the ICT firms should adopt the concept of knowledge-intensive business services (KIBS) to maximize marketing innovation.

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## Market reaction toward corporate action in Indonesia stock exchange before and during the COVID-19 pandemic

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**ABSTRACT:** The COVID-19 pandemic has forced everyone to stay at home and affected people's interest in starting investments as shown by the increasing number of stock investors in Indonesia up to 56.21% in 2020 and 92.99% in 2021. However, the significant increase in the number of new investors during the pandemic was not accompanied by a good level of financial literacy of the Indonesian people, which was still considered low at 38.03%. This study used the event study method with an event window from 5 days before the announcement to 5 days after the announcement of the corporate action (−5, 0, +5). The corporate actions studied consisted of dividend announcements, rights issues, and stock splits. The three corporate action announcements experienced different market reaction behavior before and during the COVID-19 pandemic period. There were indications of information leakage that occurred in dividend announcements both before and during the pandemic but with a significantly greater CAAR intensity during the pandemic. In terms of market enthusiasm for the economic potential, after the announcement, the market's reaction to corporate rights issues and stock splits tended to be significant with more positive returns. This research can be a consideration for individual investors in understanding the mechanism of stock price movements before making investment decisions when there is a corporate action during a crisis period such as a pandemic.

**Keywords:** Event Study, Corporate Action, Pandemic Crisis, Abnormal Return, Cumulative Abnormal Return

### 1 INTRODUCTION

The COVID-19 pandemic has restricted almost all economic activities in various sectors. The restriction has had a tremendous impact on Indonesia's economic condition as reflected in the capital market. The Indonesia Stock Exchange Index (IDX) decreased by 38% from January to March 2020. However, the situation that forced everyone to stay at home affected people's interest in starting investments as shown by the increasing number of stock investors in Indonesia up to 56.21% in 2020 and 92.99% in 2021 (Kustodian Sentral Efek Indonesia 2021). The significant increase in the number of new investors during the pandemic was unfortunately not accompanied by a good level of financial literacy of the Indonesian people, which was still considered low at 38.03% (Otoritas Jasa Keuangan 2021).

Information circulating in the public can trigger stock price movements, regardless of whether the company has good financial performance or not. This is caused by the investor's behavior which is heavily influenced by the cognitive and emotional bias in deciding which investment to choose (Shleifer & Vishny 1997). The announcement of corporate action, which is one of the information circulating in the market, has a significant effect on the movement of abnormal returns and trading volume on dividend announcements (Dasilas & Leventis 2011; Gurgul et al. 2003), *right issue* ((Dewi & Putra 2013; Kamalsah & Panjaitan 2015; Yusuf et al. 2009), and *stock split* (Amin Kadafi 2018; Rahman et al. 2020).

Studies on market reaction at the time of the announcement of corporate actions in the period of the economic crisis are limited in number. Therefore, this study hopes to increase knowledge about market reactions toward corporate actions announcement during the economic crisis period, especially during the COVID-19 pandemic.

## 2 LITERATURE REVIEW

Studies show that dividend announcements have a significant effect on stock price movements, both positively and negatively. The announcement of an increase in dividends will tend to have a significant positive effect on the movement of abnormal returns, while a decrease in dividends will tend to have a significant negative effect on the movement of abnormal returns. Research on dividends has been carried out in various countries, especially in Asia's developing countries. Research conducted in the Gulf countries (Felimban et al. 2018), Jordan (Al-Shattarat et al. 2018), Pakistan (Qamar et al. 2022), and Thailand (Suwanna 2012) found that the announcement of the distribution dividends had a significant effect on abnormal market reactions on the announcement day.

**Hypothesis 1:** The COVID-19 pandemic period has a significant positive effect on abnormal returns at the time of announcement of dividend distribution.

Research conducted by Alhashel & Alojayan (2015) found that the larger the capital proposal issued, the greater the CAAR generated after the announcement of the rights issue was made. This was because the amount of capital raised reflected the availability of profitable investment opportunities and the potential positive impact on the company's future earnings. According to Sugiana & Surya (2013), Right Issues had a significant positive impact on stock movements.

**Hypothesis 2:** The COVID-19 pandemic period has a significant positive effect on abnormal returns at the time of the announcement of the rights issue.

Hernoyo (2013) found that when the stock split policy was announced by companies listed on the Indonesia Stock Exchange (IDX), it significantly affected stock price movements. Significant positive stock price movements after the announcement also occurred in various stock price indices around the world, such as the NASDAQ (Lyroudi et al. 2006), the Spanish Stock Market Interconnection System (SIBE) (Yagüe et al. 2009), and the Colombo Stock Exchange (Hua & Ramesh 2013).

**Hypothesis 3:** The COVID-19 pandemic period has a significant positive effect on abnormal returns at the time of the stock split announcement.

## 3 METHODOLOGY

This study used the event study method with an event window from 5 days before the announcement to 5 days after the announcement of the corporate action  $(-5, 0, +5)$ . The corporate actions studied consisted of dividend announcements, rights issues, and stock splits. The calculation of market reaction used AAR and CAAR with the equation  $AAR_t = \frac{1}{N} \sum_{i=1}^N (R_{i,t} - E(R_{i,t}))$  and  $CAAR_{i,(t_0,t_1)} = \sum_{t=t_0}^{t_1} CAAR_{i,t}$ , in which  $R_{i,t}$  is stock return  $i$  at time  $t$ ,  $E(R_{i,t})$  is the expected return of stock  $i$  in period  $t$  which is calculated using the Capital Asset Pricing Model (CAPM), AAR is the average abnormal return of several stocks in the same period of economic and corporate action, and CAAR is the average cumulative abnormal return of several stocks in the same period of economic and corporate action.

After obtaining the AAR and CAAR values, the significance test was carried out using the T-Test. The T-Test equation used are  $T - test_{AAR} = \frac{AAR_t}{\sigma(AAR_t) \times \sqrt{N}}$  and  $T - test_{CAAR} = \frac{CAAR_{(t_0,t_1)}}{\sigma(CAAR_{(t_0,t_1)}) \times \sqrt{N}}$ , in which  $\sigma(AAR_t)$  is the standard deviation of AAR in a certain period,  $N$  is the number of samples, and  $\sigma(CAAR_{(t_0,t_1)})$  is the standard deviation of the CAAR over a given period. The financial data in this study were taken from Eikon Revinitiv.

Meanwhile, the data for corporate actions, including types of corporate actions and the date of announcement of corporate actions, were obtained from the Indonesian Central Securities Depository.

#### 4 RESULTS/FINDINGS

Based on the analysis using the event study method, the three corporate actions produced different market reaction behavior. For the dividend announcements during the COVID-19 pandemic period, there was a tendency of a significant accumulation in a row from -5 to +5 days of the announcement (except one day before the announcement), which was different from the normal period. A very significant CAAR movement prior to the announcement of the corporate action indicated the possibility of information leakage reaching a small group of investors who had previously anticipated

Table 1. Event study result.

| Corporate Action         | Event Window | Pre Pandemic |           |        |           | During Pandemic |           |        |          |
|--------------------------|--------------|--------------|-----------|--------|-----------|-----------------|-----------|--------|----------|
|                          |              | AAR          | T-stat    | CAAR   | T-stat    | AAR             | T-stat    | CAAR   | T-stat   |
| Dividend Announcement    | -5           | -0.42%       | -1.822*** | -0.29% | -1.656*** | -0.02%          | -0.1076   | 0.57%  | 2.031**  |
|                          | -4           | 0.23%        | 1.2109    | -0.06% | -0.2877   | 0.05%           | 0.2357    | 0.62%  | 2.183**  |
|                          | -3           | 0.50%        | 2.676*    | 0.44%  | 2.670*    | 0.27%           | 1.1574    | 0.88%  | 3.129*   |
|                          | -2           | -0.26%       | -1.2870   | 0.18%  | 0.9429    | -0.03%          | -0.1576   | 0.85%  | 3.051*   |
|                          | -1           | -0.30%       | -1.683*** | -0.12% | -0.5929   | -0.44%          | -1.5566   | 0.41%  | 1.4852   |
|                          | 0            | 0.32%        | 1.4482    | 0.20%  | 0.9510    | 0.75%           | 2.948*    | 1.16%  | 4.273*   |
|                          | 1            | 0.26%        | 1.3642    | 0.45%  | 2.254**   | 0.84%           | 3.016*    | 2.00%  | 7.531*   |
|                          | 2            | -0.02%       | -0.1116   | 0.43%  | 2.286**   | -0.41%          | -1.5711   | 1.59%  | 6.201*   |
|                          | 3            | -0.76%       | -3.490*   | -0.33% | -1.5645   | -0.86%          | -3.796*   | 0.74%  | 2.965*   |
|                          | 4            | -0.90%       | -4.589*   | -1.23% | -6.155*   | -1.27%          | -5.269*   | -0.53% | -2.184** |
|                          | 5            | -0.30%       | -1.2773   | -1.53% | -7.716*   | -1.56%          | -6.305*   | -2.10% | -8.596** |
| Right Issue Announcement | -5           | 0.23%        | 0.3277    | 0.06%  | 0.1074    | -0.40%          | -0.3790   | -0.23% | -0.2411  |
|                          | -4           | -1.00%       | -1.5218   | -0.93% | -1.4192   | -0.23%          | -0.3023   | -0.45% | -0.5795  |
|                          | -3           | 0.04%        | 0.0478    | -0.90% | -1.4298   | 0.23%           | 0.2423    | -0.23% | -0.2929  |
|                          | -2           | 2.58%        | 2.248**   | 1.68%  | 1.5111    | 0.31%           | 0.3834    | 0.08%  | 0.0866   |
|                          | -1           | 1.81%        | 1.5096    | 3.49%  | 1.977***  | 0.78%           | 0.7996    | 0.86%  | 0.7697   |
|                          | 0            | -0.94%       | -0.6223   | 2.55%  | 1.793***  | 1.82%           | 1.4590    | 2.68%  | 1.939*** |
|                          | 1            | -0.64%       | -0.3581   | 1.91%  | 1.2204    | 2.88%           | 2.220**   | 5.56%  | 3.243*   |
|                          | 2            | -2.10%       | -1.4488   | -0.20% | -0.1074   | -0.90%          | -0.6309   | 4.67%  | 2.576**  |
|                          | 3            | 0.25%        | 0.1952    | 0.05%  | 0.0264    | -3.41%          | -2.309**  | 1.26%  | 0.7486   |
|                          | 4            | 1.14%        | 0.9296    | 1.19%  | 0.6788    | 1.26%           | 0.8888    | 2.51%  | 1.4862   |
|                          | 5            | -0.16%       | -0.1352   | 1.03%  | 0.5994    | 2.77%           | 1.5580    | 5.28%  | 1.904**  |
| Stock Split Announcement | -5           | -1.60%       | -1.0739   | -2.16% | -0.9638   | 0.42%           | 0.3085    | -1.32% | -1.3171  |
|                          | -4           | 1.05%        | 0.6996    | -1.11% | -0.6639   | 0.18%           | 0.1408    | -1.14% | -0.7349  |
|                          | -3           | 1.83%        | 1.2054    | 0.72%  | 0.3908    | 3.53%           | 1.5922    | 2.39%  | 1.2712   |
|                          | -2           | -0.07%       | -0.0475   | 0.64%  | 0.5303    | 0.35%           | 0.2121    | 2.73%  | 1.4472   |
|                          | -1           | 1.15%        | 0.7129    | 1.79%  | 1.3641    | -0.85%          | -0.4759   | 1.89%  | 1.0602   |
|                          | 0            | 0.22%        | 0.1791    | 2.01%  | 1.814***  | 1.84%           | 1.6231    | 3.73%  | 1.968*** |
|                          | 1            | -0.78%       | -0.7701   | 1.24%  | 1.2626    | -1.52%          | -1.0203   | 2.21%  | 1.921*** |
|                          | 2            | -0.42%       | -0.5038   | 0.82%  | 0.9848    | -1.17%          | -0.8004   | 1.04%  | 1.1202   |
|                          | 3            | -0.95%       | -1.0807   | -0.13% | -0.1707   | 0.87%           | 1.0668    | 1.92%  | 1.2366   |
|                          | 4            | 1.00%        | 0.7715    | 0.87%  | 0.9718    | -0.85%          | -0.7234   | 1.06%  | 1.0212   |
|                          | 5            | 0.48%        | 0.6607    | 1.36%  | 1.0771    | -2.04%          | -1.940*** | -0.98% | -0.9970  |

positive stock price movements in the dividend announcement (Hoa Nguyen et al. 2019; Prasad & Prabhu 2020; Sagheer Uddin & Azam 2020).

For the announcement of the rights issues, there were also differences in market reaction behavior. During the pandemic, significant CAAR tended to occur after the announcement of the corporate actions. A more significant distribution of AAR and CAAR occurred during the pandemic. The market response was abnormal and tended to be positive after the announcement of the rights issue. This was caused by the number of companies undertaking a right issue dominated by the banking sector (87%) to raise capital for expanding and developing new business models to become digital companies. Business expansion and development had a significant positive effect on long-term stock price movements (Chen et al. 2013).

For the stock split, there was a tendency for differences in market reaction behavior during the pandemic compared to the normal period. Significant AAR and CAAR also occurred after the announcement with a significance value of 90%. This response was due to market enthusiasm for the potential for growth in good financial performance even in times of bad economic conditions.

## 5 CONCLUSION

This study was conducted to find out the market reaction to the announcement of corporate action dividends, rights issue, and stock split. Only a few studies have compared the market reaction before and during the pandemic, thus this study has a new added value that is useful as a new reference for investors in assessing and responding to their investment decisions when there are announcements of corporate actions, especially during times of economic crisis.

In general, the three corporate action announcements experienced different market reaction behavior before and during the COVID-19 pandemic period. Indications of information leakage occurred in dividend announcements both before and during the pandemic but with a significantly greater CAAR intensity during the pandemic. Market enthusiasm for the economic potential in the pandemic period from corporate rights issues and stock splits made the market reaction after the announcement tended to be significant with more positive returns.

This study focused on the announcement day of the corporate action and did not consider the continuing impact of the cum date or exit date schedule which was part of the announcement of the corporate action. Considering these limitations, further research should specifically discuss the impact of corporate actions during the COVID-19 pandemic on cum date and exit dates which are part of the announcement of corporate actions.

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## The influence of non-physical work environment and work stress on job performance of Gen Z: A research framework

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**ABSTRACT:** Human resources are important assets in company business activities. Human resources are grouped into generations according to their age. Gen Z who was born in 1997-2012, dominates the number of generations in Indonesia with a figure of 27.94% or around 75.49 million people out of a total of 270 million people in Indonesia. Gen Z is entering the workforce, they were born in an era where technology is developing rapidly. At work, there are many things that affect job performance, include non-physical work environment and work stress. By providing the facts about the non-physical work environment and work stress, this study aim is to develop conceptual framework of research to analyze that non-physical work environment and work stress have direct influence to the work performance of Gen Z by using an online and reliable questionnaire with 150 respondents who were selected by purposive sampling. The target population is Gen who work in tech field in DKI Jakarta. Then will be analyzed using Structural Equation Modelling (SEM) method.

### 1 INTRODUCTION

With a total of 72.8 million in the world and 27.94% of the entire population of Indonesia, Gen Z is present in the workplace and company. Deloitte revealed that over the next four years, Gen Z will make up more than 20% of the workforce in the organization. The number of Gen Z that increasingly dominates this demographic is a challenge as well as an opportunity for the company. A study conducted by Dale Carnegie Indonesia (2017), mentions that only 1 in 4 millennial gen workers are fully engaged. This means that very few millennials are loyal to the company, contribute to profits, and are productive at work. This is a challenge and a reference for companies how they have to increase their attachment to gen Z in order to be better than millennials. We have to prepare all the gen Z to get their better job performance. There are many things that affect the performance of human resources in an organization, including the non-physical work environment and work stress. The non-physical environment cannot be ignored, because it can affect job performance. Companies should be able to create good relationships between workers in the company, so that they can support each other to achieve common goals. Workers always demand a comfortable work environment, so that the optimization of employee work can be achieved properly. Humans will be able to carry out their activities well, so that optimal results are achieved, if they are supported by appropriate environmental conditions. Physical health and mental health are very important aspects for every phase of human life. Mental health in the workplace is how every employee who works and performs work activities requires good mental health in order to remain productive and contribute to the company. Good mental health is also needed in the work environment is one of the factors that support the creation of job satisfaction for employees which then affects job performance. The nature of the discipline and responsibility of each employee is the main key in working. Along with the magnitude of discipline and responsibility in various conditions, triggers various problems that will be experienced by each individual. This triggers employees to experience work stress. Work stress is not only faced with the work environment, but also feelings of pressure in the face of high

pressure at work. Stress affects job performance, and the work environment also has a significant effect on job performance (Erawati 2019).

Departing from the phenomena and objectives described above, this research will answer the following questions:

1. Does the non-physical work environment have a direct influence on the performance of Gen Z talents in Indonesia?
2. Does work stress have a direct influence on the performance of Gen Z talents in Indonesia?

The analytical model used in this study is SEM because this model has the ability to estimate the relationship between variables that are multiple relationships. SEM does not ignore errors but is still analyzed so that it is accurate enough to analyze questionnaire data involving perceptions.

## 2 LITERATURE REVIEW

### 2.1 *Human resources management*

Human Resource Management is a process of utilizing individuals to achieve organizational goals (Mondy 2008). Human Resources itself according to Wirawan (2015) is the most important resource in a company, because without HR, other resources will not be useful for the company. In a company, human resources drive all kinds of strategies to be able to achieve the vision through the mission built by the company. With that, companies need a good human resource management system in order to be able to achieve the goals of the company.

### 2.2 *Organizational behavior*

Organizational behavior is an applied behavioral science that contributed from several studies such as; psychology, sociology, social psychology, anthropology, strategic management, and marketing management. Psychology has the most dominant contribution at the individual level within the organization (micro), while sociology, social psychology, and anthropology have contributions in the organizational context (macro). Organizational behavior, according to Wexley and Yukl (in Sule & Priansa 2018:163) is a study related to aspects of human behavior in organizations and groups which can generally be divided into two, namely; the perspective of the organization towards people and the perspective of the people towards the organization. This theory is also supported by statements from George and Jones (in Ratmawati 2011:4) that organizational behavior is a study of various factors that influence the actions of individuals and groups in organizations and how organizations manage their environment.

### 2.3 *Non-physical work environment*

Sedarmayanti (2001) explains that the non-physical work environment is all conditions that occur related to work relationships, both relationships with colleagues and relationships with superiors and subordinates. The non-physical work environment is a condition that occurs related to the work relationship. A harmonious social environment can support achieving agency goals through togetherness in carrying out their duties (Budianto & Katini 2015). The ideal non-physical work environment is when the leader can carry out the supervisory function well, have a sense of trust in each other (Samson et al. 2015), the establishment of kinship, mutual support, harmony and communication (Simamora 2016).

### 2.4 *Work stress*

Work stress is a condition which causes a physical and psychological imbalance that will affect the emotions, ways of thinking and the condition of employees. According to Sondang P Sia-gan (2016: 300) work stress is a condition of tension that affects one's emotions, thoughts and physical condition. Stress that is not handled properly will usually result in a person's inability

to interact positively with his environment, both in terms of the work environment and outside it. Mangkunegara (2017:92-108) provides a definition of stress as a depressed state, both physically and psychologically. Stress is usually a condition characterized by environmental demands that exceed the individual's ability to respond.

2.5 Job performance

According to Simanjuntak in Widodo (2015:131) job performance is the level of achievement of results for certain tasks carried out. Job performance is formed from the synergy of a number of employee internal factors, external and internal organizational environmental factors. Employee internal factors are factors that are owned by individual employees, for example talent, skills and knowledge, creativity, physical, psychological state, competence. Meanwhile, internal organizational factors relate to organizational support for employees in carrying out their duties, including organizational vision, mission and goals, policies, technology, organizational strategies, management systems, compensation, capital, organizational culture, organizational climate and co-workers. Furthermore, external organizational factors are circumstances, events or situations that occur in the environment outside the organization and can affect job performance, including economic, political, social, cultural and religious conditions, as well as competitors. These three factors can affect job performance directly or indirectly, as in internal factors, employee talent can affect the results of his work, if his talent can be utilized properly then his work will be completed properly and vice versa. Performance is also called work performance, work implementation, work achievement and work results. (Sedarmayanti, 2018:50).

3 CONCEPTUAL FRAMEWORK

This is the conceptual framework of this study, we are going to identify all the variable by all aspects inside. There are supervision, working ambience, rewards, and treatment in non-physical environment. Work stress is divided to extra-organizational stress, organizational stress, and group stress. Work stress is divided to extra-organizational stress, organizational stress, and group stress.

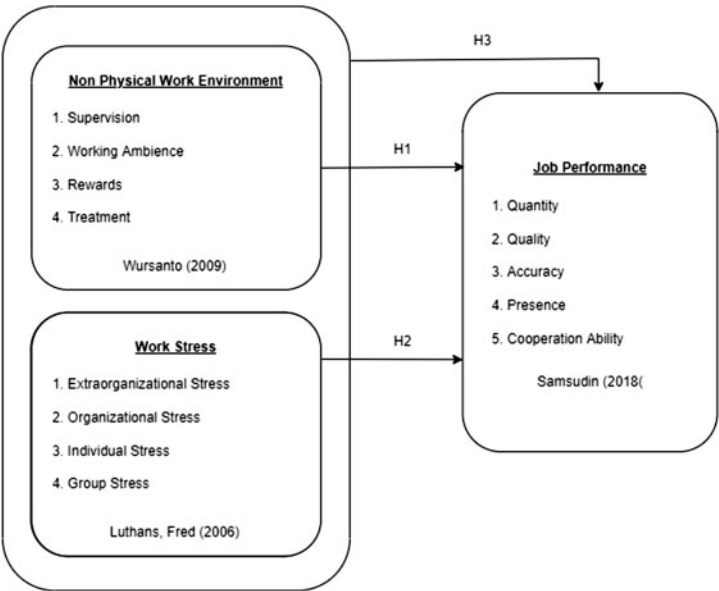


Figure 1. Conceptual framework.

#### Previous Research:

1. The first research conducted by Vimalanathan and Babu (2014) with the title The Effect of Indoor Office Environment on the Work Performance, Health and Well-Being of Office Workers found that the work environment, especially the indoor work environment, positively affects employee performance in the information technology service sector. in India.
2. A second study by Roelofsen (2002) entitled The Impact of Office Environments on Employee Performances: The Design of the Workplace as a Strategy for Productivity Enhancement conducted at 400 facilities management and real estate managers in the United States found that the work environment positively affects employee performance.
3. The third study was conducted by Nguyen, et al (2015) with the title Would Better Earning, Work Environment, and Promotion Opportunities Increase Employee Performance? An Investigation in State and Other Sectors in Vietnam found that the work environment positively affects the performance of employees working in public and private companies in Ho Chi Minh City, Vietnam.

#### 4 CONCLUSION

This study develops the conceptual framework of research to analyze that non-physical work environment and work stress have direct influence to the work performance of Gen Z in workforce. This study get that all the generations have the difference characteristic on each. This proposed conceptual framework is supposed to support the human resource management of companies. This study using online questionnaire survey than analyzed by Structural Equations Modelling (SEM) to get the result. It is expected to be able to expand the population of the object in the future researches for example in another job role to make sure that the survey spread equally.

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## The influence of competency and demographic on employee performance at the ministry of religious affairs of Sragen Regency: A research framework

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**ABSTRACT:** Employee performance is defined as the quality and amount of work or output achieved by employees per unit period of time in carrying out their duties in line with their responsibilities given. Employee performance is an important asset for organizations because it improves the quality of organizations, particularly government organizations prioritizing service aspects. Several factors that can increase the achievement of good performance are competence and good demographics of employees. Competence is employees' ability in performing their duties and responsibilities with optimal results both from technical and non-technical perspectives. Meanwhile, demographics are characteristic that distinguish individuals, such as age, gender, education level and, years of service. This study aims at determining the influence of competence and demographics on employee performance. The population of this study involved all employees of the work unit of The Ministry of Religious Affairs of Sragen Regency, with Ministry Office employees and KUA employees as respondents. Employing non-probability sampling, 123 respondents were selected by using purposive sampling approach. Data were collected by distributing questionnaires, interviews and study of office documents. The study employed quantitative method with descriptive research purposes and the Structural Equation Model (SEM) – PLS was devised to analyze the data to get a clearer and detailed results of the influence of competence and demographics on employee performance at the Ministry of Religious Affairs of Sragen Regency.

### 1 INTRODUCTION

Every organization needs resources to achieve its goals, be it natural, financial, technological, and human resources. Among these resources, human resources are fundamental, thus, a company cannot deliver optimum results without the support of optimum human resources. In the last decade, various studies have found that human resources are influential in gaining competitive advantage and efficiency (Pasban 2016). The government sector is a sector that plays an important role in public services and in carrying out duties of ministries and state institutions. The administration of government is always under the spotlight, especially in terms of transparency, accountability, efficiency, and effectiveness. Hence, the implementation of good corporate governance is imperative. Public service by the government apparatus is the embodiment of the state apparatus' function as a public servant, in addition to being a servant of the state. In this condition, the state apparatus is required to improve its performance to achieve excellent service. The demand for high employee performance has indeed become part of every agency since it is a key element in providing excellent services.

Good employee performance is characterized by good quality of work in completing every task assigned by the leader in a timely manner and the achievement of every target set by the company. Karyono (2018) argues that human resource performance is an important asset for organizations because it has an impact on improving the quality of organizations, especially government organizations that prioritize service aspects. In the knowledge-based era, competence has become a demand

for human resource development. From the perspective of organizational behavior, competence, along with commitment, belongs to individual characteristics of organizational members (Katidjan 2019). Performance is also influenced by psychological, individual, and organizational factors. Individual and psychological factors are the initial assets for individuals to perform optimally. Individual characteristics, both from psychological and demographic perspectives, substantially support one's performance and make a positive contribution to organizational performance (Yunita 2017).

In 2020, there was a decline in the performance of the Ministry of Religious Affairs of Sragen Regency. Based on the data, it was known that the employee performance of the Ministry of Sragen Regency based on the target achievement was very good as it increased almost every year. However, it declined in 2020 and made it an interesting subject to discuss. One of the efforts made to achieve good performance by the Ministry of Religious Affairs of Sragen Regency by recruiting competent employees with fitting demographics. Employees with an adequate educational background are expected to have excellent competence, and the majority of employees are seniors who are considered experienced. However, many employees with a higher education background turned out to still have inadequate competence, and senior employees who were expected to have superior experience provided less than optimal performance. On this account, the research questions are formulated as follows:

1. How is the employee competence of the Ministry of Religious Affairs of Sragen Regency?
2. What are the demographics of the employees of the Ministry of Religious Affairs of Sragen Regency?
3. How is the performance of the employees of the Ministry of Religious Affairs of Sragen Regency?
4. How do competence and demographics influence employee performance of the Ministry of Religious Affairs of Sragen Regency, either simultaneously or partially?

## 2 LITERATURE REVIEW

### 2.1 *Human resource management*

According to Hasibuan & Silvya (2019), human resource management is the science and art of regulating the relationship and role of the workforce effectively and efficiently to help realizing the goals of the company, employees, and society.

### 2.2 *Performance*

According to Kurniawan et al. (2018), performance is part of the estimated level of achievement in carrying out tasks to realize the visions, missions, goals, and objectives of an organization. Performance can refer to 1) one's achievement of related to the tasks assigned to him/her, 2) the work of an employee, the management, or the entire organization resulting in with tangible and measurable output, 3) actions, in form of implementation of work, job performance, and effectiveness, 4) timely completion of tasks or activities. To sum up, performance can be defined as the level of achievement of the tasks that make up an employee's job and reflects how well the employee fulfils the job requirements. To measure individual performance, five indicators can be used, namely quality, quantity, effectiveness, independence, and work commitment (Lie & Hotlan 2018).

### 2.3 *Competence*

According to Sedarmayanti (2017), competence refers to the abilities or capabilities, equipping employees, leaders, or officials with high performance. Consequently, competence has a significant positive effect on employee performance (Sucahyowati 2020). According to Akbar et al. (2021), competence is defined as a set of abilities comprising the main competency pillars, namely knowledge, skills or expertise, and behavior or attitudes. These three pillars collectively construct



competence. Thus, it is hypothesized that competence has a significant positive effect on employee performance (H1).

#### 2.4 Demographic

According to Nurcahyono (2019), demographic is the classification of individuals based on age, gender, and years of service. In this study, the demographic dimensions used were age and years of service (Yunita 2017). Age is considered to influence performance due to the correlation between age and emotional maturity in processing information and making decisions. Based on the age range of the employees of the Ministry of Religion of Sragen Regency, they consist of: (1) 24–29 years, (2) 30–39 Years, (3) 40–49 Years, (4) 50–57 Years, (5) 57>. Years of service can also improve performance due to the experiences and skills gained over the years (Robbins & Judge 2015). According to Amegayibor (2021), a person's tenure is divided into several groups, namely: (1) 1–5 Years, (2) 6–10 Years, (3) 11–15 Years, (4) 16–20 Years, (5) 20>.

### 3 FRAMEWORK

Based on research by Amegayibor (2021) entitled 'The effect of demographic factors on employees' performance: A case of an owner-manager manufacturing firm', it has been shown that age and length of work affect employee performance. Therefore, the method used in this study is linear regression. multiple. In addition, according to research by Anggita and Kawedar (2017), entitled 'Pengaruh Knowledge Sharing Dan Faktor Demografi Terhadap Kinerja Pegawai', age has a non-significant positive effect on employee performance. It can concluded that increasing age will improve employee performance. However, the effect is not significant because age is not a guarantee of improving one's quality without training, learning, and experience. Therefore, the age factor alone will not play a big role in employee performance. Then, according to research by Katidjan et al. (2018), entitled 'The Effect of Competence, Training, and Compensation on Employment Performance', it shows that competence affects performance, but only the method used is multiple linear regression.

Based on the description above, the framework chart is described as follows:

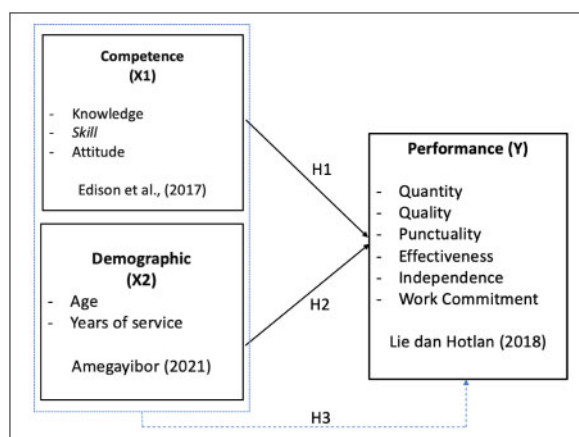


Figure 1. Conceptual framework.

H1 = Competence has a significant positive effect on employee performance.

H2 = Demographic has a significant positive effect on employee performance.

H3 = Competence and demographic have a significant positive effect on employee performance.

## 4 METHODOLOGY

This study employed a quantitative method, it was descriptive and causal in nature. It used cross-sectional method based on the time of the study. The population in this study involved employees of the Ministry of Religious Affairs of Sragen Regency, including the work unit consisting of 884 employees. This study used non-probability sampling, exactly purposive sampling. In this study, samples were collected, comprising all members of the core employees, referring to all employees of the Religious Office of Sragen Regency plus members of the KUA of Sragen Regency, with a total of 123 respondents. Prior to the data analysis, validity and reliability test were performed to test the instrument. Following that, a descriptive analysis of each variable was conducted, and the final step was the hypothesis testing using Structural Equation Model (SEM)-PLS. Structural Equation Model is a collection of statistical procedures that explain the basis or foundation underlying the relationship that governs the covariance between the observed variables (Riadi 2018). Meanwhile, Partial Least Square (PLS) is a SEM technique to directly analyze latent variables, indicator variables, and measurement errors.

## 5 CONCLUSION

This study developed a conceptual framework to look at the factors that can influence employee performance. This study used questionnaires that were processed using SEM PLS to see the influence of competence and demographics on employee performance. It is advised that future studies try different companies by using different independent variables.

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## Determining the marketing strategy of tenant food & beverages using association rules at the boarding lounge international terminal 3 Soekarno-Hatta Airport

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**ABSTRACT:** Soekarno Hatta International Airport, the busiest and largest aviation hub in the Southeast Asia Region with three terminals, is one of the airports managed by PT Angkasa Pura II (Persero). The object of this research is Terminal 3 international departure, with a non-aeronautical business stream consisting of various categories, such as retail, food & beverages, advertising, lounges, utility fees, duty-free, public parking, land transportation, etc. This research aims to determine the food & beverages products most often purchased in the international boarding lounge area of Terminal 3 Soekarno-Hatta. The concepts used are market basket analysis, cross-selling strategy, and recommendations for increased purchases. Secondary data were collected from transactions on products purchased by customers through the E-Pos Collection System (ECSyS) platform belonging to PT Angkasa Pura II (Persero). The data collected were processed using the R Studio application to determine the criteria of Confidence, Support, and Lift as well as the frequently purchased items. The results showed that tenants can use the cross-selling method to determine the right policy and marketing strategy for customers to provide product promotion program materials more precisely on target.

**Keywords:** Market basket analysis, Cross-Selling, Frequently Items, Association Rules

### 1 INTRODUCTION

A prediction model is needed in planning the marketing strategy, which is then optimized to determine the number of tenant sales transactions using the association rules approach. Sales transactions can be increased through the sale of additional products from the main product where it is purchased by customers. Therefore, when marketing and alternative strategies, such as cross-selling, are implemented, the tenant's main focus is on how to get potential new customers and sell more products to the existing ones. Profits can be obtained by improving the right and accurate marketing strategy by offering other items that are likely to be purchased by customers beforehand. To determine this information, it is necessary to analyze the transaction data stored in the database. Analyzing product cross-selling can be carried out precisely and accurately by offering other items that are likely to be purchased by customers in advance. The problem is determining the goods that are almost certain to be purchased by customers and where the information can be obtained by processing customer transaction data (Ghozali & Sugiharto 2017).

In addition, cross-selling helps to streamline the company's efforts in fostering relationships by providing the right product. They can also make cost savings by cross-selling products and services to existing customers because the costs incurred are lower than offering new products (Kamakura et al. 2003). The association method is often used in this process and also known as Market Basket Analysis (MBA) in the retail business. Triyanto (2014) defined market basket analysis is a data mining method known as Association Rule Mining that focuses on finding purchasing patterns by extracting associations from a store. This is a good way to provide scientific decisions and support to stores through mining association relationships between purchased items (Xie 2010).

## 2 LITERATURE REVIEW

### 2.1 *Data mining*

*Data mining* is analyzing a group of large data to obtain unexpected relationships, which are summarized in a form that is easier to understand and also an analytical tool that has proven to be useful for companies through the Association Rules method with the concept of Market basket analysis.

### 2.2 *Market basket analysis*

Market-basket is a collection of goods purchased by customers in a transaction, which merchants keep. Traders use the analysis results to increase sales by rearranging a group of items in adjacent locations or shopping catalogs (Goldie 2012).

## 3 RESEARCH METHOD

This research was carried out using a pre-processing data approach consisting of Pre-Processing Data, Data Selection, Cleaning, and Transformation stages, as follows:

1. Pre-Processing Data: This stage collects data from all required attributes, such as the Electronic Point of Sales Data Collection System (ECSys) Report of PT Angkasa Pura II (Persero) consisting of historical sales transactions data from July 1, 2019, to December 31, 2019.
2. Data Selection: This stage starts from the process of distributing stored names within the scope of Terminal 3. Each store name has more specific data attributes in the form of daily transactions.
3. Data Cleaning: This stage removes noise and inconsistent data by analyzing relevant data. Therefore, it is necessary to audit the data first to ensure it is not Null.
4. Data Transformation: This is the data consolidation stage, suitable for description development. Therefore, it is necessary to carry out a data transformation that aims to transform raw data into a more measurable process with a value.

## 4 RESULT AND DISCUSSION

### 4.1 *Frequent itemset*

This research processed data using the basket analysis method with the RStudio software. The script used is the R function with the Mining Association Rules and Frequent Itemset (arules) method. The first analysis was carried out by uploading the processed data transactionData\_july\_des\_2019.csv and viewing the summary of the processed data.

According to Musungwini (2014), the relationship market basket analysis is an exploratory research technique that identifies the strength of the association relationship between several products purchased from each trader. This analysis is usually applied to data on shopping behavior, such as those collected at the point of sale. Therefore, further vital information can be obtained using the summary function, and it is necessary to search for the items that are most frequently purchased on international boarding lounge area of Terminal 3 Soekarno-Hatta.

### 4.2 *Association rule*

The result of mining transaction data in arules are associations that are conceptually known as sets of objects used to describe the relationship between an itemset with assigned values for different quality measures. It comprises measures of significance, interest, and other types, such as support, confidence, lifts, etc.

#### 4.2.1 *Support*

The support constraint is simply the occurrence of two sets of unique items in one basket divided by the total number of transactions. The *absolute* value was used to plot the numerical frequency of each item independently, while the relative was used to plot many of these items in comparison to others.

#### 4.2.2 *Confidence and lift ratio*

The Confidence constraint is used to determine the occurrence of more than one unique item in one basket from a total of all other transactions containing. This is followed by using the Apriori algorithm with the Induction function () from package rules. The apriori is denoted with trObj as the transaction object on which mining is to be applied.

A lift ratio value is used to evaluate the rules formed and measure the interestingness. The lift ratio shows the level of strength in an association rule, which can be determined using a simple correlation rule.

#### 4.3 *Conclusion*

The following conclusion was drawn from a series of data collection processes, discussion, and research results:

1. Cross-selling business strategy can be conducted as follows:
  - a. Set a good layout or tenant mix locations that are closely arranged and apply a pattern of bringing frequent items closer to obtain a high confidence value. Tenant Mix Products with a low confidence value cannot be used as a recommendation.
  - b. Apply product discount packages to the pattern of purchasing items that have a small support value at the right time.
  - c. Use the Lift criteria with a value of  $n > 1$  as a recommendation for a complimentary product of the frequent items.
2. It is recommended to determine the marketing strategy needed to increase the company's revenue by implementing this cross-selling strategy and sales. Therefore, with the help of business intelligence tools, historical transaction data that was not previously involved can be used to determine sales strategy. In this case, data mining is a concept that plays a vital role in extracting transaction data into added value from the association rules. The cross-selling products are intended not only for cases of retail companies such as supermarkets and minimarkets but also for general food & beverage companies with regular customers. If the bundling strategy is aimed to increasing product sales, a rule to be chosen is that contains goods with the lowest support value condition. Meanwhile, if the purpose of bundling is to increase sales turnover, a rule is chosen that contains items that are often purchased by customers.

In addition, Tenant Mix concept also has important role in increasing profitability of the tenants. Tenant mix is simply putting together a group of tenants to help optimize sales traffic, which in turn increases the tenants' sales revenue. In order to give potential clients a simple purchasing experience, it is similar to forming a synergy of various though complimentary service providers. In today's market economy, most tenants establish clustering based on the services they provide and location in question. Additionally, based upon the tenant cluster, the customer has access to a remarkable variety of products.

#### 4.4 *Suggestion*

From the analysis and conclusions, the following suggestions were given for further research.

1. Users can use another reference packages, such as Eclat or FP-Growth, based on the similarity of products purchased with others.

2. In the process of making the prediction model, data within one year are expected to be used for the transaction. This will be useful in comparing the accuracy level of the various data generated in each product purchased. The quality of the data obtained also needs to be considered, in terms of the quantity and quality of the existing data.

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## Analysis of team effectiveness factors on EPC power plant project in Indonesia

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**ABSTRACT:** There are high complexity aspects to consider in achieving success on EPC (Engineering, Procurement, and Construction) power plant projects namely cost, quality, and time. This study aims to identify factors of team effectiveness that significantly affect the successful outcomes of the EPC power plant project either directly or indirectly. SLR (systematic literature review) based on project management journals is applied to identify the factors of team effectiveness. Delphi method is utilized to analyze their relevance and impacts on the project's success. We reveal 28 factors and the impacts that follow. Subsequently, we assess an EPC power plant project according to their implementation, importance, and frequency of problems by conducting a survey and a focus group discussion. Fishbone diagrams are employed to investigate the root causes and to seek improvements or solutions. Four factors are discovered and deemed to improve: respect, effective procurement or contract methods, communication, and decision-making.

### 1 INTRODUCTION

According to Frontliner (2021), customers or project owners in Indonesia make complaints about construction work regarding the process of work implementation by 40–66%. It becomes a problem in project completion, which is very interesting to research from the project management's perspective in achieving success.

Teamwork in project management is vital. There is a strong relationship between increasing the effectiveness of the team and increasing the successful outcomes of the project. Based on Seftyandra and Arviansyah (2020), 18 indicators in this review are the first step in developing the effectiveness of a team in a project-based team. Yap et al. (2020) prove that three aspects, eight attributes, and six dimensions increase the team's effectiveness. In accordance to Hosseini et al. (2018), in the current condition of digital technology, in which virtual work becomes a conceptual model for the effectiveness of construction projects' hybrid teams, teamwork can be improved by mediation factors such as "communication, mutual trust, backup behavior, leadership, social interaction, team orientation, and accountability". Project accomplishments namely cost, schedule, quality, customer satisfaction, and early improvement can be achieved when teamwork improves, and performance succeeds. According to Andary et al. (2019), this condition can be accomplished by applying integrated project delivery principles, specifically communication and colocation, for they significantly affect the reduction of cost and time consumption.

Despite the above literature studies, this article looks at the gaps of forming an effective project team. Therefore, this study aims to (1) identify the team effectiveness factors by deploying SLR; (2) identify and analyze team effectiveness factors by using the Delphi method; and (3) conduct a case study on the EPC power plant project.



## 2 LITERATURE REVIEW

A project is a temporary effort made to create a unique product or result service, the project has a definite start and end when the goal has been achieved then that is the end of a project, when the goal cannot be met or even when the need for the project no longer exists then the project is stopped, the client (project owner or owner) can also stop a project if you want to end the project (PMI, 2008). The output of the project can be either tangible or intangible, the elements in the project activities can be repetitive but this process does not change the basic characteristics of the uniqueness of a project work (PMI 2008).

The input-output-outcome (IPO) model framework designed by Mc Grath (1964) was used to study the effectiveness of the team. The IPO model has been a guide used during this time and has modifications and extensions in various ways (Mc Grath 1964). Input can include the following things such as personality, competencies, other attributes, demographic, functional, attitudes/values, faultline, position, status issue, network features, interdependence, technology/virtually, team training, leadership and structure while the process is divided into transition processes, action processes, interpersonal processes and other processes (Mathieu et al. 2008). As for outcomes according to Cohen and Bailey (1997) categorize effectiveness into performance, attitudes, and behaviors.

The success of the project is measured from different angles in the literature; therefore, there is no established approach, even in the project management literature, to measure project success, and there is debate about what project success means. (Todorović et al. 2015). However, the combined measure of the multi-dimensional construction of project success is cost, client use, effectiveness, satisfaction, performance, and time covering (Aga et al. 2016).

## 3 METHODOLOGY

This research uses qualitative methods implementing SLR, the Delphi method, and case studies. The first stage taken to fulfill the research objectives is to conduct a systematic literature review using Google scholar by searching for articles from the best journals based on research on project sustainability (Aarseth et al. 2017) between the periods of 2018–2021 with keywords: “team effectiveness”, “construction”, and “project success”. The second stage is the consensus from experts on team effectiveness factors from SLR with the Delphi method to sort and group the factors starting from self-leadership, people leadership, and organizational leadership. 10 experts with 13–18 years of work experience from one of the Indonesian contractors’ state-owned companies are involved in this research. The third stage of the study is conducting a questionnaire for 31 participants to assess the implementation, importance, and frequency of the problems so that the roots of the issues can be attained using fishbone analysis and FGD in an EPC power plant project in Central Sulawesi, Indonesia.

## 4 RESULT/FINDING

The SLR results obtain 806 articles from searching by keywords and we evaluated them based on project management journals resulting in 47 articles remaining. We review the titles, abstracts, and contents and obtain 25 articles relevant to the research. From 29 factors that we acquired in total, 26 team effectiveness factors are extracted from the 25 articles, and three additional factors are derived from the experts: (1) spiritual intelligence, (2) agility, and (3) managing diversity. The outcome of the consensus from the experts using the Delphi method is that 60% strongly agree with the result, and 40% agree. The category of organizational leadership includes: (1) efficacy of organization structures; (2) efficacy of procurement method and contract; (3) compliance to clients’ expectations; (4) synergy; (5) shared goals; (6) managing diversity; (7) innovation; (8) team resilience; (9) top management support; and (10) knowledge sharing and learning. The category

of people leadership comprises: (1) coordination; (2) leadership; (3) social interaction; (4) conflict management; (5) psychological empowerment; (6) collaboration; (7) communication; (8) trust; and (9) respect. Eventually, the self-leadership category incorporates: (1) emotional intelligence; (2) spiritual intelligence; (3) decision making; (4) commitment; (5) competence and managerial qualities; (6) agility; (7) backup behavior; (8) accountability; and (9) perceived cohesion.

The case study is utilized to compare the result expectations of SLR and Delphi methods within the current conditions in one of the EPC power plant projects. The four factors discovered in need of further improvement by the project team include one factor with low implementation; respect, and three factors with a high frequency of problems: (1) efficacy of procurement method and contract; (2) communication; and (3) decision making.

FGD is carried out to get the root causes using a fishbone diagram. The root cause of their respect factor is found in the human aspect, as stated by informant number 4 *"The way of speaking, the way of discussion is not firm, the work is excellent, but the performance is not necessarily good."* Furthermore, the root cause of the efficacy of procurement methods and contract factors such as *"...the procurement process is too long from the request for quotations until the contract due to finding low prices without paying attention to other aspects such as technical studies,"* said informant number 1. Moreover, we discover the root cause of communication factor as said by informant number 3 *"ego and thinking about their function only"*. Subsequently, the root cause of the decision-making factor occurs as said by informant number 6 *"The lack of experience in the EPC sequences cannot be ignored, so the decision making is not considered about the sequence of work"*.

The solutions that we contrive are (1) training, development, coaching, mentoring, counseling, team building, and employee rotation, also leadership role models; (2) making work instructions, procedures, and company policies; and (3) standardizing measurements, timelines, and dashboard monitoring.

## 5 CONCLUSION

This study answers the purpose of the research. 26 team effectiveness factors have synthesized their effects on the successful outcomes of the project (research objectives 1). 28 team effectiveness factors have been categorized, sorted, and formed by consensus (research objective 2). The team's effectiveness factors have been evaluated on the level of implementation, importance, and frequency of case studies on the EPC power plant project with plans for improvement or solution. Four factors need further advancement (research objectives 3).

However, the future direction suggested by these empirical studies has not been addressed considerably, therefore, further research in this area is necessary. Although we conduct SLR in a disciplined manner, there are potential limitations regarding the experts employed for consensus of the SLR results; and concerning the case study assessments that are limited to only one EPC power plant project.

In addition, we recommend conducting case studies and FGD with independent construction, engineering, and project management practitioners to provide future research studies with more validity and reliability. Conducting SLR combined with interviews of engineering, construction, project management, and FGD professionals will allow triangulation to happen, thus providing a robust research approach to use in future research studies.

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## A measurement to examine factors affecting adoption of Orbit product in Indonesia

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**ABSTRACT:** The COVID-19 pandemic has significantly impacted various sectors, including the telecommunications sector, hence the digital shift is seen as being crucial for telecommunications companies around the world. To expedite the aid of digital services available to the whole community, Telkom has launched affordable price products, namely Orbit. It is a fixed wireless access modem that is the future of home broadband products internationally, representing one of Indihome's products. This study made certain adjustments to independent and moderating variables to maintain relevance in the context of Orbit's research. This study also has been done based on observations of research objects, literature reviews, and discussions with experts from Orbit products. Changes made include omitting the moderating variable, namely Experience. In addition, independent variables are omitted, such as Habit and Hedonic Motivation variables, and added, such as Connectivity variable, a new variable resulting from the author's approach to System Complexity. This study aims at testing tools for measuring factors that may influence customers' use behavior and behavioral intention to adopt Orbit Product using Modified UTAUT 2. The data from 50 respondents were selected purposively and analyzed using SPSS version 26. The results show that the test that considers eight constructs and 35 items was valid and reliable. Therefore, the measurement tool was required in further study.

**Keywords:** Modified UTAUT2, Technology, Fixed Wireless Access, Connectivity, Orbit

### 1 INTRODUCTION

Orbit is a fixed wireless access modem that is the future of home broadband products internationally, representing one of Indihome's products. Looking from the global telecommunications business, the world's largest telecommunications companies have integrated fixed and mobile wireline. For instance, NTT acquired an entire stake in Docomo (purchasing the remaining minority stake for USD38 Billion in 2020), BT acquired Everything Everywhere for USD16 Billion in 2016, and Vodafone acquired Liberty Global in Germany, Central Europe, and Eastern Europe.

When viewed from the market potential in Indonesia, Indonesia still has a large number of target markets. There are 75 million residences in Indonesia overall, but only 15 million are expected to have a fixed broadband connection already, leaving 49 million without access to the internet. Orbit's target market is the remaining 11 million residences, which generate about 16 trillion in yearly revenue (Haryanto 2020). The presence of Orbit as a companion product from Indihome can also make Orbit a solution for Indihome customers who do not have fiber optic access around their area. Thus, the use of Orbit can also encourage Indonesia to become a country with better home broadband penetration.

This product represents a new technological advancement in society and a crucial development for the future telecommunications sectors. Therefore, the researcher must identify the variables and indicators that are thought to be influencing the adoption of Orbit. As a result, the company could make an improvement, and other businesses could adopt some ideas to use in their products.

This study proposed a new modified model that has not yet been tested to analyze factors affecting the adoption of Orbit Product. A set of measurement tools should be selected and tested for their validity and reliability in order to test the model. Therefore, the objective of this study tends to compose a valid and reliable measurement tool for the model.

## 2 LITERATURE REVIEW

The decision to employ a new product or technology is typically influenced by a number of factors. For this reason, this study employs the UTAUT2, a new technology adoption model introduced in 2012 used to explain individual behavior in technology (Venkatesh et al. 2012). However, based on the literature review and preliminary data gathering, it is necessary to reduce and add constructs while still paying attention to the characteristics of good research, as stated in the book *Research Methods and Business* (Sekaran & Bougie 2016). Changes made include omitting the moderating variable, namely Experience, because it relates to the chance to use technology for what it is intended, as well as for the time period starting from the start of its use or longitudinal. Venkatesh et al. (2012) conducted data collection three times (longitudinal), while in this study only done once (cross sectional). Thus, this study omitted the Experience variable.

In addition, several independent variables are omitted, such as the Habit and Hedonic Motivation variables. Moreover the Connectivity variable is added as a new variable resulting from the author's approach from System Complexity (Lu & Yu et al. 2003). The research conducted by Lu & Yao et al. (2003) stated that *System Complexity* has an influence on behavioral intention of Wireless Internet users in China. This variable is defined as the degree of integration between fixed wireless and cellular technologies that support various communications and services. Operationally, it can be examined in four aspects, namely: data transfer efficiency, system functionality, interface design, and mobile device capacity. In this study, the researchers changed the name of the variable to Connectivity because the Orbit Product system is not needlessly complex but it has been fine-tuned in detail to reflect the orbital Product and previous study.

## 3 METHODOLOGY

The measuring instrument in this study is a set of questionnaires that were developed with following steps. First, the researcher conducted a content or Logical Validity. According to Indrawati et al. (2017), the researcher must adapt and modify the existing items from previous research published in reputable and accredited national or international journals in order to fulfil the content validity criteria

Furthermore, the researcher met with three marketing and digital technology experts to ask if there were any suggestions for the items in the questionnaire improvement so that they could be readable enough to be spread to the respondents. After getting the approval from the experts, the researcher did a validity test and a readability test to ensure the items in the questionnaires were clear and did not cause any confusion. Therefore, the questionnaire items for this study were adopted and modified from items in the previous studies. In total, there were eight constructs used in this study: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Price Value, Connectivity, Behavior Intention, and Use Behavior.

To test the validity construct of this research, the researcher surveyed the form of a pilot test; 50 respondents were collected as preliminary data for a pilot test. The researcher processed the data by using IBM SPSS 26 to conduct the validity test using "Corrected Item – Total Correlation" (CITC) and the reliability based on Cronbach-Alpha (CA). As cited in Indrawati et al. (2017), the correlation coefficient must be  $\geq 0.3$  to be considered valid, and the Alpha-Cronbach coefficients level minimally has to at least show  $\geq 0.70$  so that the questionnaire is said to have a fairly good level of reliability. To test the proposed model of this study, the measurement material must be valid and reliable.

#### 4 RESULTS/FINDINGS

The results of the developing questionnaire revealed that performance expectancy had four valid and reliable items. Effort expectancy had five items; facilitating conditions had five items; social influence had five items; price value had five items; connectivity had five items; behavioral intention had five items and use behavior had five valid and reliable items. The following are the items and the factors.

Table 1. Questionnaire items.

| Code | Performance Expectancy (Venkatesh et al. 2012)  | Code | Price Value (Venkatesh et al. 2012)   |
|------|---|------|---|
| PE1  | 1.1 Using Orbit is very useful in daily activities.                                   | PV1  | 5.1 The price of an Orbit modem is affordable.  |
| PE2  | 1.2 Using Orbit increases the chance to work more effectively                         | PV2  | 5.2 The top-up fee for the balance in Orbit is in accordance with the benefits I get. |
| PE3  | 1.3 Using Orbit helps get work done faster  | PV3  | 5.3 Based on the expenses I have each month, using Orbit is worth it to me.           |
| PE4  | 1.4 Using Orbit increases productivity at work  | PV4  | 5.4 I do not mind spending money on Orbit.  |
| Code | Effort Expectancy (Venkatesh et al. 2012)   | Code | Connectivity (Lu et al. 2003)   |
| EE1  | 2.1 The use of Orbit is easy to understand  | C1   | 6.1 When using Orbit, the download process works as expected.                         |
| EE2  | 2.2 How to use Orbit is clear   | C2   | 6.2 When using Orbit, the upload process works as expected.                           |
| EE3  | 2.3 Orbit is easy to use  | C3   | 6.3 I feel satisfied using Orbit because it can be installed anywhere.                |
| EE4  | 2.4 Orbit is easy to operate for me   | C4   | 6.4 Orbit speed is in line with my expectations.                                      |
| EE5  | 2.5 Orbit is simple to use for me   | C5   | 6.5 Orbit can be connected easily with the gadgets that I have.                       |
| Code | Social Influence (Venkatesh et al. 2012)  | Code | Behavioral Intention (Ridwan 2016)  |
| SI1  | 3.1 I should use Orbit, according to people that matter to me.                        | BI1  | 7.1 I have an interest in using Orbit.  |
| SI2  | 3.2 The people around me have used Orbit.   | BI2  | 7.2 I am interested in using Orbit in the future.                                     |
| SI3  | 3.3 People closest to me recommended that I should use Orbit.                         | BI3  | 7.3 Even though there is no promotion, I will still use Orbit.                        |
| SI4  | 3.4 People around me deem it appropriate to use Orbit.                                | BI4  | 7.4 I favor using Orbit over other services.  |
| SI5  | 3.5 People who influence my behavior think that I should use Orbit.                   |      |   |
| Code | Facilitating Condition (Venkatesh et al. 2012)  | Code | Use Behavior (Ridwan 2016)  |
| FC1  | 4.1 I have the devices (laptop, cell phone, tab, etc.) needed to use Orbit.           | UB1  | 8.1 I like to use Orbit   |
| FC2  | 4.2 I have sufficient knowledge to use Orbit.   | UB2  | 8.2 Using Orbit is a good experience  |
| FC3  | 4.3 My environment is close to the infrastructure (BTS) required to use Orbit.        | UB3  | 8.3 I use Orbit every day   |
| FC4  | 4.4 If I have problems using Orbit, I will quickly get help from Telkom or Telkomsel. | UB4  | 8.4 If accumulated in a day, I use Orbit for more than eight hours a day.             |

The result of pilot test revealed the measurements consisting of 35 items and eight constructs had fulfilled the validity and reliability. The result is presented in Table 2.

Table 2. Questionnaire items result.

| Code | CITC | CA   | Code | CITC | CA   | Code | CITC | CA   | Code | CITC | CA   |
|------|------|------|------|------|------|------|------|------|------|------|------|
| PE1  | 0,52 | 0,64 | SI1  | 0,48 | 0,61 | PV1  | 0,59 | 0,07 | BI1  | 0,59 | 0,63 |
| PE2  | 0,59 |      | SI2  | 0,45 |      | PV2  | 0,06 |      | BI2  | 0,58 |      |
| PE3  | 0,62 |      | SI3  | 0,49 |      | PV3  | 0,59 |      | BI3  | 0,53 |      |
| PE4  | 0,59 |      | SI4  | 0,56 |      | PV4  | 0,64 |      | BI4  | 0,52 |      |
| EE1  | 0,61 | 0,66 | SI5  | 0,53 |      | C1   | 0,60 | 0,62 | UB1  | 0,39 | 0,05 |
| EE2  | 0,65 |      | FC1  | 0,29 | 0,44 | C2   | 0,62 |      | UB2  | 0,03 |      |
| EE3  | 0,56 |      | FC2  | 0,37 |      | C3   | 0,40 |      | UB3  | 0,45 |      |
| EE4  | 0,62 |      | FC3  | 0,38 |      | C4   | 0,57 |      | UB4  | 0,33 |      |
| EE5  | 0,60 |      | FC4  | 0,31 |      | C5   | 0,41 |      |      |      |      |

## 5 CONCLUSION

The study revealed that eight constructs can be measured with 35 valid and reliable items to test the proposed model in this study. Therefore, the measurement tool can be used for further research, collecting primary data to examine factors affecting adoption of Orbit in Indonesia.

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## The effect of compensation and organizational culture on employee work motivation at the Grand Mercure Hotel Bandung: A research framework

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**ABSTRACT:** Work motivation is a condition that encourages someone to conduct their duties at work. Work motivation is important to improve performance because it could encourage employee productivity. Achieving high employee motivation requires support from company management so that there are factors that can increase employee motivation, such as compensation and organizational culture. Compensation is given both physically and non-physically as a reward for the work that has been done. In addition, organizational culture is the values, traditions, and work procedures followed by members of the company. This study aims to determine how compensation, organizational culture, and work motivation of employees at Grand Mercure Hotel Bandung is, as well as to analyze the partial and simultaneous effect of compensation and organizational culture on employee motivation at Grand Mercure Hotel Bandung. The data in this study were analyzed using a descriptive quantitative method and verified using Structural Equation Model (SEM)-PLS analysis with compensation and organizational culture as independent variables, and employee motivation as the dependent variable. The data were taken by distributing questionnaires to 150 employees of the Grand Mercure Hotel Bandung. Finally, the data were processed and analyzed using SmartPLS version 3.3.9.

### 1 INTRODUCTION

Work motivation is important to improve employee performance. Achieving high employee motivation requires support from company management. However, when the world encountered the COVID-19 pandemic, many companies temporarily suspend operational activities. This influenced the hotel industry such as the Grand Mercure Hotel Bandung. As a result of the pandemic, many employees have been laid off. The dismissal of some employees, however, does not dismiss their duties, thereby increasing the workload of the sustained employee. The drastic decrease in visitors makes the hotel's income has also decreased so much that the compensation received by employees during the pandemic has been reduced. Some training must also be done online due to the pandemic even though the training should be done offline. Human Resources is defined as an integrated management strategy and approach to managing the organization's most valuable asset, namely the people who work and contribute to the company's success (Armstrong 2006). Therefore, there are factors that can increase employee motivation such as compensation and organizational culture. According to Gibson *et al.* (2012), motivation theory is divided into content-based and process-based theories. Process-based motivation theory explains how behavior is enhanced, directed, maintained, or stopped based on external factors. According to Gomez-Mejia *et al.* (2012), compensation is a form of appreciation from the company to employees because of their contribution. According to Edison, *et al.* (2017) compensation is everything that employees receive as compensation for the work they have done. Meanwhile, organizational culture is defined as a cognitive framework that contains attitudes, values, norms, and expectations shared by members of



the organization (Greenberg & Baron 2000). Schein (2015) organizational culture as a pattern of shared assumptions learned by a group in solving problems through external adaptation and internal integration, which has worked well enough to be considered true. Based on the background and the formulation of the existing problems, this study aims to answer the following research questions:

1. How is the compensation at Hotel Grand Mercure Bandung?
2. How is the organizational culture at Hotel Grand Mercure Bandung?
3. How do compensation and organizational culture affect employee motivation at Hotel Grand Mercure Bandung?

Previous studies have investigated employee motivation and they have shown inconsistent results. Therefore, the present study is aimed to review the effect of compensation, organizational culture, and organizational environment on employee motivation.

## 2 LITERATURE REVIEW

### 2.1 *Human resources management*

According to Mondy and Martocchio (2016), human resource management (HRM) is the use of individuals in achieving organizational goals. Meanwhile, according to Hasibuan (2017), human resource management is the art and science of controlling labor engagement and involvement so that it is efficient and effective to support the realization of the organizational, employees, and public goals. Sinambela (2017) states that human resource management is defined as the management and utilization of resources that exist in individuals. Therefore, human resources must be regulated and controlled properly in order to increase the efficiency and effectiveness of the organization.

### 2.2 *Organizational behavior*

According to Robbins and Judge (2011), organizational behavior deals with the impact of individuals, groups, and structures on behavior in organizations with the aim of applying such knowledge to improve organizational effectiveness. Organizational behavior is an interdisciplinary field aimed at understanding and managing employees better (Aponno 2017).

### 2.3 *Employee motivation*

According to French and Raven in Stoner *et al.* (1995), motivation encourages someone to show certain behavior. Meanwhile, Mathis (2006) believes that motivation is a desire in a person that causes that person to act. People usually act for a reason to achieve a goal. The motivational dimensions are divided into motivation factors and hygiene factors (Herzberg in Hasibuan 2017). Motivation factors are strong motivational factors that can produce good work performance related to one's psychological needs, which is to have a sense of satisfaction when doing work. Hygiene factors are maintenance factors related to the nature of humans who want to get peace.

### 2.4 *Compensation*

Compensation is received physically or non-physically and must be calculated and given to someone who is generally an object that is excluded from income tax (Wicaksono 2017). Handoko (2017) states that compensation consists of direct and indirect compensation. Direct compensation is received by employees who have a direct relationship with work, in the form of salaries, wages, incentives, and bonuses. Indirect compensation is received by employees who do not have a direct relationship with the work but emphasize the establishment of good working conditions to complete the work.

## 2.5 Organizational culture

According to Indiyati (2014), organizational culture reflects the general perception made by all members of the organization. Robbins and Judge (2017) state that organizational culture consists of seven dimensions, namely innovation risk-taking, or the extent to which employees are encouraged to be innovative and take risks; attention to detail, or the extent to which employees are expected to demonstrate accuracy, thoroughness, sensitivity, analysis, and attention to detail; outcome orientation, or the degree to which management focuses on results rather than on the techniques and processes used to achieve them; people orientation, or the degree to which management decisions take into account the impact of outcomes on people in the organization; team orientation, or the degree to which work activities are organized around teams rather than individuals; aggressiveness, or the degree to which people are aggressive and competitive rather than relaxed; and stability, or the degree to which organizational activities emphasize maintaining the status quo as opposed to growth.

## 3 CONCEPTUAL FRAMEWORK

Based on research by Shurrab & Khazaleh (2018) in the title “Evaluating the effect of motivational dimensions on the construction project managers in Jordan” compensation has a positive effect on employee motivation. This is because if the compensation provided by the company can meet its resource needs, employees will have high work motivation. Research conducted by Sokro (2012) in the title “Analysis of the Relationship that Exists between Organizational Culture, Motivation and Performance” organizational culture has a positive effect on employee motivation. This is because the company’s organizational culture is committed to the values and actions of employees so that employees can avoid actions that are contrary to company values, therefore employee motivation can increase. Based on the description above, the framework chart is described as follows:

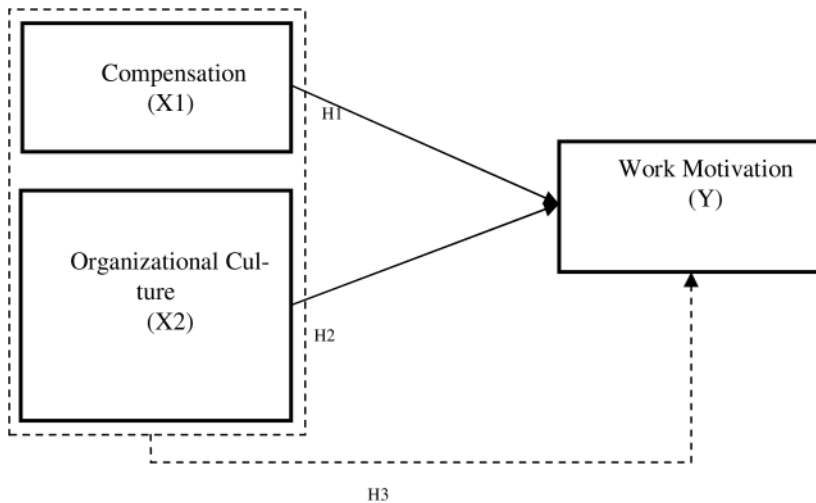


Figure 1. Conceptual Framework.

H1 = Compensation has a partial effect on employee motivation

H2 = Organizational culture has a partial effect on employee motivation

H3 = Compensation and Organizational culture have a partial effect on employee motivation

## 4 METHODOLOGY

This study employed a quantitative research method. According to Creswell (2014), Quantitative research is research using statistical methods that measure the influence between two or more variables. It used cross-sectional method based on the time of the study. The population in this study involved employees of the Hotel Grand Mercure Bandung with a total 150 respondents. This study used non-probability sampling, exactly total sampling. Furthermore, this study employed the SEM PLS analysis. SEM (Structural Equation Modeling) is a collection of statistical procedures explaining the basis or foundation underlying the relationship that governs the covariance between the observed variables (Riadi 2018). PLS (Partial Least Square) is an SEM technique that can analyze latent variables, indicator variables, and measurement errors directly. Prior to the data analysis, validity and reliability test were performed to test the instrument. Following that, a descriptive analysis of each variable was conducted, and the final step was the hypothesis testing.

## 5 CONCLUSION

This study developed a conceptual framework to look at the factors that affect employee motivation. This study collected the data with a questionnaire, from which the results were processed using SEM PLS to see the effect of compensation and organizational culture on employee motivation. In future research, it is recommended to conduct research on different companies by using different independent variables.

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## Impact of work environment and job characteristics on turnover intention with employee engagement as intervening variables on the talent of the millennials generation in Indonesia

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**ABSTRACT:** Digital globalization has a significant impact on the industrial sector, as seen by the growth of many companies in Indonesia that are changing their digital globalization strategies. As a result, businesses actively learn, find, hire, and retain the finest employees. This study aims at assessing and analyzing the influence of work environment and job characteristics on the turnover intention of millennial talent in the retail sector and customer products in Indonesia, simultaneously or partially, through employee engagement. The population of this research is Indonesia's millennial generation, who are between the ages of 21 and 41 and work in various retail and customer product sectors, with a total of 156 respondents. The data are collected by the use of a valid and reliable questionnaire. Furthermore, this study employs the Structural Equation Model (SEM) – AMOS as the data analysis tool. There are three research hypotheses: work environment and job characteristics have a significant effect on employee engagement, partially and simultaneously; work environment and job characteristics have a significant effect on turnover intention, partially and simultaneously; and employee engagement has a significant effect on turnover intention.

**Keywords:** work environment, job characteristics, employee engagement, turnover intention, millennial.

### 1 INTRODUCTION

Talent is crucial for any company, it must be developed and engaged in a transparent and healthy work environment. Companies face challenging tasks to retain the best talent; they need to identify crucial factors that can contribute to a talent's turnover. This phenomenon gains attention because it affects the company's performance. The loss of talent means that the company loses one of its best legs or hands. Waterworth (2019) says that every company has issues with employee retention. Moreover, more than 25% of employees are currently at high risk for turnover, confirming the challenges that every company must face.

This research is adapted from the object and theory novelty which was carried out with research limitations on the scope of retail sector and customer product because the millennial talent turnover rate in the sector was quite high (11–15% per year) according to LinkedIn Talent Solution (2018) and reinforced by data from deloitte millennial survey (2020), the data explains the location of the organization/company/industry of the millennial respondents and from the data explains that consumer or industrial product have the highest percentage of increasing turnover.

Based on the data from various studies, several factors that can affect the turnover rate of millennial talent are the impact of job characteristics of talent, the impact of the work environment of talent, and the impact of employee engagement of millennial talent. This research aims to find out in depth the impact of work environment, job characteristics, on turnover intention using employee engagement as mediating variable on millennial generation talent in Indonesia in the retail and customer product sector.

## 2 LITERATURE REVIEW

### 2.1 *Human resource management theory*

Human Resource Management (HRM) is a managerial activity in planning, attracting potential talent, developing, and retaining talent in the company (Noe et al. 2017).

### 2.2 *Turnover intention*

According to Mobley in Syauqi (2018), there are various major elements that can affect turnover. They are categorized into two core factors, namely 1) Organizational factors: category in position, size of organization, size of work unit, salary, and work weight. 2) Individual factors: age, tenure, gender, education, personality, interests, talents, and abilities.

### 2.3 *Employee engagement*

According to research by Schaufeli in Salamah (2018), three core aspects are essential in employee engagement: 1) Vigor, which can be defined as a high degree of energy and mental resilience at work, and the desire to exert effort and perseverance when confronted with obstacles. 2) Dedication, which can be interpreted as a high motivation associated with the talent's enthusiasm and excitement in facing challenges. 3) Absorption, which is characterized by complete focus at work.

### 2.4 *Job characteristics*

According to Robbins (2014), job characteristics are divided into five dimensions: 1) Skill Variety, defined as the creativity that guides the talent's position at work, which requires many types of variations. 2) Task Identity, which is defined as the force that directs the talent's position at work starting from the beginning to the end of the task or work results. 3) Task Significance, which is defined as the importance of a talent's work that guides to what extent the work has a substantial effect on the work environment. 4) Autonomy, which is defined as the degree to which talent has control over the methods for carrying out the talent's work. 5) Feedback, which is defined as the degree to which the implementation of the talent's work activities will produce results.

### 2.5 *Work environment*

According to Anisah (2017), the work environment is the primary emphasis of QWL, and every work must adhere to the following competencies and standards: 1) Health and safety requirements, defined as the satisfaction with health needs and safety needs of talents. 2) Economic and family needs, which are defined as satisfaction with the economic and family needs of talents. 3) Social needs, which is defined as satisfaction with the social needs of talents. 4) Esteem needs, which is defined as satisfaction with the value of self-esteem of talents. 5) Actualization needs, which is defined as satisfaction with the spiritual and life scope of work. 6) Knowledge needs, which is defined as satisfaction with knowledge in the company or talent work. 6) Esthetic needs, defined as satisfaction with creativity at work.

## 3 CONCEPTUAL FRAMEWORK

Variable operationalization was utilized by making a measurement index in dimensions, aspects, behavior, and other factors in accordance with the applied concepts and theories. Furthermore, the minimum number of samples for this study was 156 respondents. It was determined based on the research sample calculation formula by Hair et al. (2010). The sampling technique used was non-probability sampling by purposive sampling and snowball. Purposive sampling is a way to determine samples with certain criteria, while snowball is selecting samples based on references from previous samples that meet the same certain criteria (Cooper & Schindler 2014).

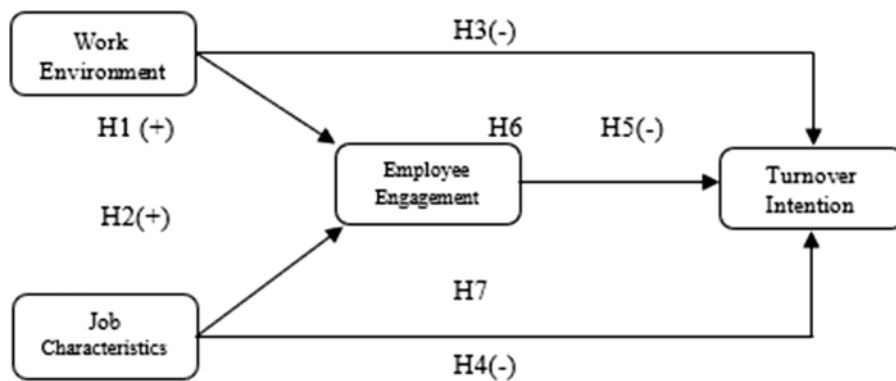


Figure 1. Conceptual network.

### 3.1 Analysis using Structural Equation Modeling (SEM)

According to Hair et al. (2014), a model fit test theory or Goodness of Fit Index is effective for checking the quality of the data or its applicability for each indication in the study while analyzing the model. The value provided by the SEM model was then compared to the number of size categories, with the more indicators meeting standard goodness of fit requirements, the better the model being tested.

### 3.2 Analysis of mediation effects

The main concept analysis connected to mediator variables when utilizing the SEM model is whether exogenous or independent variables can influence endogenous or dependent variables through other variables that are viewed as mediator variables (M). It can be interpreted that the independent variable or X influences the mediator variable, and the mediator variable (M) influences the dependent variable (Y). The Sobel test was used to assess the impact of research mediation. It tested the indirect effect of the independent variable (X) on the dependent variable (Y) by passing the mediator variable (M).

## 4 CONCLUSION

The research hypotheses are that work environment and job characteristics have a significant effect on employee engagement, partially and simultaneously; work environment and job characteristics have a significant effect on turnover intention, partially and simultaneously; and that employee engagement has a significant effect on turnover intention.

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## Do foreign direct-investment technological spillovers differ across industries? (Case study of Indonesian manufacturing industries)

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**ABSTRACT:** The affiliation between multinational and domestic firms is one of the channels supporting technology transfer in a country. This is due to the high level of benefits provided by the organizational relationships, such as job creation, local economy boost, and reputation improvement. Therefore, this study aims to determine the effect of Foreign Direct Investment (FDI) spillovers on domestic firms' productivity. This emphasized the impact level of the MNEs on the productivity of local organizations, across Indonesia's manufacturing industries. In this case, a fixed-effect model was used on panel datasets for 24 types of industries, between 2010 and 2015. The results showed that the benefit of the MNEs' technological spillovers differed regarding each industry, with no evidence observed for a complete industrial sample.

**Keywords:** Foreign Direct Investment, Labor Productivity, Technology Spillovers, Manufacturing Industries

### 1 INTRODUCTION

Multinational Enterprises (MNEs) are expected to provide benefits for domestic firms through FDI Spillovers, which are the knowledge or technology transferred from the parent company to affiliates. Since 1969, Indonesia has been a host country for FDI, with the number of inflows beginning to dramatically increase in the late 2000s. This is because the Government created several policy breakthroughs for more incoming investments. Furthermore, the MNEs are channels for transferring technology to affiliates or domestic firms, through the distribution of knowledge, production technologies, international standards quality, product development, or effective marketing strategies (Dunning 1993). Irrespective of being a driver of economic growth development, the role of FDI is still controversial in facilitating indirect benefits. This emphasizes the investments generated through a non-market mechanism, which is often used to boost the productivity of local organizations.

Several previous studies emphasized the impact of FDI spillovers on domestic firms' productivity, especially since the 2000s. These provided inconsistent and contradictory empirical evidence, as Sourafel (2016), Kathuria (2010), and Javorcik (2004) stated that FDI positively affected the productivity of local organizations. Meanwhile, Juda and Thoshihiro (2020), Demena and Peter (2017), Lu et al. (2017), Sari et al. (2016), Tomohara and Yokota (2013), as well as Negara and Adam (2012) argued that the technology spillovers were insignificant and negatively effective. Based on these descriptions, the impact of FDI spillovers is being emphasized, by using the recent data encompassing the large and medium manufacturing firms of 24 Indonesian industries. Therefore, this study aims to determine the effect of Foreign Direct Investment (FDI) spillovers on domestic firms' productivity. This emphasizes understanding whether the increasing existence of FDI affected the productivity of these firms across Indonesian industries. The results obtained are expected to provide additional, conclusive, and concrete evidence for the solution of related issues.



## 2 LITERATURE REVIEW

According to this present report, FPRES (foreign presence) represents the existence of an industrial foreign firm and is measured by the gross output in the natural logarithm. This was in line with Kathuria (2000) and is expected to negatively influence domestic firm productivity (Blalock & Gertler 2004; Suryanto & Salim 2013). Capital intensity (KI) is measured as the ratio of fixed assets to employment, between a domestic and an average foreign firm. Based on previous reviews, foreign firms were often more capital-intensive and larger than domestic organizations. However, KI is expected to positively impact local productivity in this present study. Labor quality (LQ) also represents human capital or workforce skills, with the ratio of wages to total workers being used as a proxy due to the unavailability of firm-specific data on the number of qualified employees. With a more skilled labor force, domestic firms are likely to exhibit a greater capacity, to absorb spillovers from foreign organizations in a similar sector (Naturula & Marin 2003; Sinani & Meyer 2004). This shows that LQ is expected to positively impact local firm productivity. To consider the impact of economic scale (SCALE) on productivity, subsequent measurements emphasized the ratio of a firm to median production in the industry. This proved that the production scale is expected to positively affect domestic productivity. Competition is also one of the key variables associated with the productivity performance of firms, where technology spillovers are represented by the degree of industrial market concentration (HHI) (Rhoades 1993). In Orlic et al. (2018), the HHI was measured by the square total of all firms' output share in the industry and is expected to negatively impact productivity.

## 3 METHODOLOGY

### 3.1 Data

The firm-level data obtained from the Central Statistics Agency (BPS) were used in this report, with the complete balanced dataset from 2010-2015 containing 50,490 observations. In this experiment, BPS conducted a yearly industry survey for medium and large manufacturing firms, where the KBLI (Indonesian Standard Classification of Business) data was used for industrial classification. All the economic activities in the Indonesian Standard Classification of Business were also categorized regarding the ISIC rev 4 (International Standard Industrial Classification of All Economic Activities), which had been modified according to the country's industrial conditions.

### 3.2 Model analysis

To examine whether the existence of foreign companies increased domestic productivity, a regressive calculation was conducted. This emphasized the regression of productivity to the occurrence of foreign firms, capital intensity, labor quality, production scale, and the Herfindahl index, as observed in the following model equation,

$$VAL_{ijt} = \alpha_0 + \alpha_1 KI_{ijt} + \alpha_2 LQ_{ijt} + \alpha_3 FPRES_{jt-1} + \alpha_4 SCALE_{ijt} + \alpha_5 HHI_{jt} + \varepsilon_{ijt}$$

where  $i$ ,  $j$ , and  $t$  = firm, industry, and year, respectively.

## 4 RESULTS

The estimated results are shown in Table 2, where the fixed-effect model was used for the industrial samples. In this case, the foreign presence coefficient (FPRES) showed a statistically insignificant value for all industries, indicating that no benefit was transmitted by the MNEs. This emphasized the occurrence of competitive effect, due to the presence of foreign firms throughout the industry. However, the level of significance and predictive signs were observed to be widely varied, indicating

that MNEs had both positive and negative effects. With these firms, domestic companies were forced to use their resources more efficiently or even seek new technologies. The positive and significant impacts of foreign presence on labor productivity are shown in the following, (i) Food [10], (ii) Beverage [11], (iii) Tobacco Products [12], (iv) Wearing apparel [14], (v) Wood and Cork Products [16], (vi) Chemical Products [20], (vii) Computer, Electronics, and Optical Products [26], (viii) Machinery Equipment [28], and (ix) Furniture Product [31].

Based on the influence of MNEs, no evidence was also observed in the following, (i) Printing and Reproduction of Recorded Media [18], (ii) Fabricated Metal Products except Machinery and Equipment (25), (iii) Electrical Equipment (27), (iv) Motor Vehicles, Trailers, and Semi-Trailers (29), and (v) Other Transportation Equipment (30). However, the remaining industries exhibited negative and positive insignificant results. This proved that productivity was positively influenced by capital intensity, labor quality, foreign presence, and scale economies (except market concentration) in complete sample industries. Irrespective of these results, differences were still observed across the industry. These were consistent with several previous studies (Demana & Peter 2017; Juda & Toshihiro 2020; Sari 2016), regarding the benefit of FDI Spillovers on domestic firm productivity based on the presence of MNEs. For some industries, no beneficial evidence was still found from the MNEs' technology spillovers, irrespective of their high productivity than domestic firms (Kathuria 2010). Several foreign industries also showed a negative statistically significant influence on domestic firms' productivity and are consistent with Lu et al. (2017) in China.

The results showed that FDI is needed as a catalyst for economic development, however, MNEs do not always positively impact domestic firms. MNEs also provide opportunities for the technological knowledge of local organizations, to compete and increase their productivity. Meanwhile, the presence of these foreigners in host countries often eliminates the trading opportunities of domestic firms, leading to the reduction of productivity and forceful exit from the business market.

## 5 CONCLUSION

The impact of FDI was examined through the technology transfer on domestic firms' productivity, emphasizing 24 industries in the Indonesian manufacturing sector. The data of medium and large firms from 2010 to 2015 were also obtained from the Central Statistics Agency (BPS). Based on the results, foreign firms did not benefit from the productivity of local organizations in the overall industry sample. Meanwhile, the impact provided different perceptions when analyzed by each industry. This led to the following policy implications, (1) The Indonesian government need to design the policy and its relations with industrial regulations, based on the characteristics of each industry, and (2) The government should consider the methods of assisting domestic companies in improving the quality of education. This is because a skilled workforce often increases the absorption of new and more advanced FDI technologies, as well as other international channels. Based on these results, subsequent reports need to be futuristically conducted, to determine the impact of FDI spillovers on total factor productivity. This is because the present study only partially evaluated the effect of technology spillovers on labor productivity.

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## The effect of knowledge sharing on employee performance in Telkom education foundation headquarter office: A research framework

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**ABSTRACT:** Employee performance has an important role for an organization, because the performance of each employee contributes to the achievement of the performance of every function in the organization. Many factors can affect the quality of employee performance, one of which is knowledge sharing. Several previous studies have shown that knowledge sharing influences employee performance. The phenomenon that occurs in the Telkom Education Foundation Headquarter Office is that there are fluctuations in the performance value obtained by employees in the last five years and the incompatibility of the realization of the knowledge sharing program organized by the organization when compared to the ideal rules of implementation that should be. The purpose of this study was to determine the effect of knowledge collecting and knowledge donating on employee performance either simultaneously or partially. The research uses quantitative methods. Data collection techniques used questionnaires that will be distributed to 85 employees of Telkom Education Foundation Headquarter Office. The sampling technique used is the saturated sample method. And to interpret the research results using path analysis.

### 1 INTRODUCTION

Organizational needs in order to achieve the desired goals need to be carried out with its ability to manage resources effectively and efficiently (Prasetio et al. 2021: 2). Of the various resources owned by the company such as machines, money, methods, materials, managerial, and man, the man aspect or also known as human resources is considered the most important, because without being supported by human resources with optimum performance, other resources such as machines, capital, methods and materials will not be able to provide optimum results either (Setyawan 2018:67).

From the level of urgency of human resources to achieve organizational goals, quality human resources are needed. According to Bariyah (2014:27-28), the success of an organization can be assessed through benchmarks of how well the output of the work is carried out by employees as human resources in it. To get maximum work output, employees must have good performance. If employees have optimal performance, then there will be a significant influence on the success of the work implementation process. This is also corroborated by the opinion of Kohansal et al (2013: 294) which states that increasing employee performance is needed in the process of improving organizational performance.

The table below shows the Individual Performance Value of Telkom Education Foundation Headquarter Office Employee. Table 1 indicates that the achievement of individual employee performance values has fluctuated in the last five years from 2016-2020. Of course, fluctuations in the value of this performance need more attention by the organization, because it is not in accordance with the expectations of organizations that wish to have employees with at least stable or even increased performance. Therefore, the true performance of employees can still be maximized.

As one of the many factors that affect performance according to Kohansal et al (2013:200), the knowledge sharing process among employees is important in improving the quality of their

Table 1. Individual performance value of Telkom education foundation headquarter office employee.

| Indicator | 2016     |        | 2017     |        | 2018     |        | 2019     |        | 2020     |        |
|-----------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|
|           | $\Sigma$ | %      | $\Sigma$ | %      | $\Sigma$ | %      | $\Sigma$ | %      | $\Sigma$ | %      |
| P1        | 1        | 1,61%  | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  |
| P2        | 49       | 79,03% | 49       | 80,33% | 43       | 63,24% | 47       | 71,21% | 22       | 32,35% |
| P3        | 12       | 19,35% | 12       | 19,67% | 25       | 36,76% | 18       | 27,27% | 46       | 67,65% |
| P4        | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  | 1        | 1,52%  | 0        | 0,00%  |
| P5        | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  | 0        | 0,00%  |
| Total     | 62       | 100%   | 61       | 100%   | 68       | 100%   | 66       | 100%   | 68       | 100%   |

work (Yuniawan & Udin 2020:75). According to Swanson et al (2020: 89), knowledge sharing reaps benefits, including increasing individual and organizational performance, as evidenced by the results of his research which show a positive effect between knowledge sharing and employee performance (Swanson et al. 2020: 93).

The data in table 2 indicates that there are inconsistencies in the organization of knowledge sharing events at the Headquarter Office of the Telkom Education Foundation. In addition, according to company information, knowledge sharing activities should be carried out at least once a month. If the ideal frequency is once a month, then there should be at least twelve knowledge sharing activities in one year.

Table 2. Number of knowledge sharing session held during 2018-Q3 2021.

| Year                        | 2017 | 2018 | 2019 | 2020 | Q3 2021 |
|-----------------------------|------|------|------|------|---------|
| Number of Knowledge Sharing | 3    | 7    | 10   | 12   | 4       |

Based on the phenomena and data that have been described in the background, the following is the formulation of the research problem:

1. How is Knowledge Sharing implemented at the Office of the Telkom Education Foundation Headquarter Office?
2. How is the performance of the employees of the Telkom Education Foundation Headquarter Office?
3. How much influence do knowledge collecting and knowledge donating have on the performance of the employees of the Telkom Education Foundation Headquarter Office, either simultaneously or partially?

## 2 LITERATURE REVIEW

### 2.1 Knowledge sharing

Navimipour (2016: 730) suggests a definition of knowledge sharing as an important part of the knowledge management process. Where individuals, teams, and parts of organizations share knowledge with each other in the form of activities through various means. Research results by Borges (2013: 98-100) also explain the factors that influence knowledge sharing including organizational culture which consists of team orientation and support, then social networks, and personal traits such as conscientiousness and extraversion.

According to Van Den Hooff and De Ridder's (2004) definition, knowledge sharing has two facets; collecting or receiving, and disseminating or donating, knowledge. They define knowledge donating as "communication based upon an individual's own wish to transfer intellectual capital" and knowledge collecting as "attempting to persuade others to share what they know". These two

distinct processes are active processes in the sense that one is either engaged in active communication with others for the purpose of transferring knowledge, or consulting others in order to gain some access to their intellectual capital

H1: Knowledge Donating has a positive influence on employee performance

H2: Knowledge Collecting has a positive influence on employee performance

H3: Knowledge Donating and Knowledge Collecting have a positive on employee performance

## 2.2 Employee performance

Kasim (2019: 182) simply defines performance as the result of work and work behavior that has been achieved in completing the tasks and responsibilities given within a certain period. Augunis (2019:8) explains that individual and team performance can be continuously identified, measured, and developed through performance management to align individual and team performance with the organization's strategic goals. Noe et al (2018:266) explain that high-performance work systems can produce productivity and efficiency that contribute to increasing organizational profits. Another positive impact arising from the high-performance work system is related to the high level of customer satisfaction, in addition, it is also related to the products and services produced that have high quality, and also has to do with the low level of employee turnover.

Koopmans et al (2016: 610) explained that employee performance has three measurement dimensions. These dimensions consist of task performance as the first dimension, contextual performance in the interpersonal and organizational perspective as the second dimension, and counterproductive work behavior as the third dimension. The first dimension, task performance, has traditionally received the most attention, and can be defined as "the abilities that individuals use to perform the core substantive or technical tasks that are central to their work". The second dimension of individual work performance is contextual performance, which is defined as "behavior that supports the organizational, social and psychological environment in which the technical core must function". The third dimension of individual work performance is counterproductive work behavior, which is defined as "behavior that is detrimental to the welfare of the organization".

## 3 CONCEPTUAL FRAMEWORK

The proposed framework illustrates the relationship between knowledge donating and knowledge collecting as two-dimension of knowledge sharing developed bytowards employee performance using three dimensions developed by Koopmans (2016): task performance, contextual performance, and counterproductive work behavior. The research uses quantitative methods. Data collection techniques used questionnaires that will be distributed to 85 employees of Telkom Education Foundation

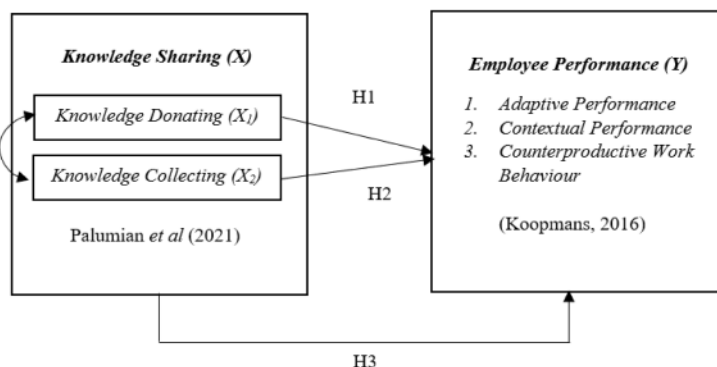


Figure 1. Conceptual network.

Headquarter Office. The sampling technique used is the saturated sample method. And to interpret the research results using path analysis.

## 4 CONCLUSION

This study is the conceptual framework for describing the construct that discuss about how knowledge sharing affects employee performance at Yayasan Pendidikan Telkom Headquarter Office. This study analyzes the influence of each dimension of the independent variable knowledge sharing according to Hoof and Rider in Palumian *et al* (2021); knowledge collecting and knowledge donating on employee performance using path analysis techniques. It is hoped that in the future, if the degree of influence of each dependent variable is known, Telkom Education Foundation Headquarters can find out what further actions can be taken to improve the knowledge sharing activities carried out, which is also one of the many efforts to improve employee performance.

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## The effect of workload and training on personnel performance at the directorate general of criminal investigation (Ditreskrimum) Polda Riau Island

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**ABSTRACT:** Dealing with criminal acts is closely related to the performance of the work unit of the Directorate General of Criminal Investigation (Ditreskrimum), which has the main task of carrying out investigations, investigations, and supervision of general criminal investigations. Employee performance is the extent to which the personnel of the Directorate General of Criminal Investigation (Ditreskrimum) can carry out their duties properly in the sense of the word implementation of the plan so that the objectives and strategies of the Directorate General of Criminal Investigation (Ditreskrimum) can be achieved, one of which is dealing with and resolving crimes that occur in the around Batam. This study aims to examine and analyze the effect of workload and training on the performance of personnel from the work unit of the Directorate General of Criminal Investigation (Ditreskrimum) of the Riau Islands Regional Police. This study uses descriptive quantitative methods using Structural Equation Modeling (SEM) data analysis. The population of this research is police personnel from the work unit of the Directorate General of Criminal Investigation (Ditreskrimum). Saturated sampling was used to create a sample of 104 police officers from the Directorate General of Criminal Investigation (Ditreskrimum) work unit who responded to the study by completing a valid and reliable questionnaire approach.

### 1 INTRODUCTION

Police have a responsibility as regulated in the Law of the Republic of Indonesia Number 2 of 2002, namely maintaining security and the community, as one of law enforcement, protection, shelter, and service to the community, which means that a police must be able to understand the conditions and situations of the community. In accomplishing their duties, the police often encounter various obstacles, starting from the district and even from the police themselves, depending on the complexity of the tasks that the police must carry out. Because of this, the police must be able to deal with various problems and new challenges, one of which is crime, which has increased in variety in the community due to the development of technology and information. The handling of criminal acts is closely related to the performance of the work unit of the Directorate General of Criminal Investigation (Ditreskrimum), which has the main task of conducting investigations, and supervision of general crimes. The main functions of the work unit of the Directorate General of Criminal Investigation (Ditreskrimum) are carried out by police personnel, and in completing these tasks, the police personnel in the satker are essential.

Based on the data from the Ditreskrimum, there is a shortage of the required personnel which can affect the workload. According to Rajan (2018: 465), the workload is the amount of work that is done or given to employees and is expected to be completed within a certain period and is a determinant of productivity and employee turnover. Workloads that do not follow Ditreskrimum standards can affect the productivity of personnel. Hence, Ditreskrimum's efforts to maximize the available personnel to complete workloads that do not meet these standards are by taking the



available personnel. According to Chan in Priansa (2018: 175), training is learning to improve performance. It is related to one's current job. Training attended by Ditreskrimum Personnel the name is Dikjur Reskrim. Based on data obtained from the Ditreskrimum, the number of personnel participating in the Dikjur Reskrim is only half the number of personnel each year. As a result, it may have an impact on the performance of Ditreskrimum personnel. According to Mangkunegara in Noor (2012: 100), employee performance results from the quality and quantity of work performed by an employee following the tasks assigned to him. Based on the background described above, the formulation of the problem in this study is:

1. How does the training affect the workload of the General Criminal Investigation Directorate (Ditreskrimum) of the Riau Islands Police?
2. How does the workload affect the General Criminal Investigation Directorate (Ditreskrimum) of the Riau Islands Police?
3. How does employee performance affect the General Criminal Investigation Directorate (Ditreskrimum) of the Riau Islands Police?
4. How do training and workload affect employee performance at the Directorate of General Criminal Investigation (Ditreskrimum) of the Riau Islands Regional Police simultaneously?
5. How is the effect of training and workload on employee performance at the Directorate of General Criminal Investigation (Ditreskrimum) of the Riau Islands Regional Police partially?

## 2 LITERATURE REVIEW

### 2.1 *Human resources management*

According to Dessler (2020:3), human resource management is obtaining, training, appraising, rewarding, and paying attention to problems in work relations, employee health, employee safety, and employee justice. Meanwhile, Badriyah (2017:128) said that Human Resource Management is part of management science that focuses on regulating the role of human resources in accomplishing activities within the organization.

### 2.2 *Workload*

Based on Rajan's opinion (2018:465), the workload is the amount of work that is done or given to employees and is expected to be completed within a certain period and is a determinant of productivity and employee turnover. Causes of the workload that is below standard can make employees feel lazy, which makes them unproductive. However, if the workload is above the average, the employees will find it challenging to complete their duties. As stated by Sunyoto (2012: 64), Excessive workload can produce tension and stress in a person, affecting job performance. Excessive workload also causes extreme fatigue in employees.

### 2.3 *Training*

Chan in Priansa (2018:175) argues that training is learning conducted to improve performance related to one's current job. Training is one of the strategies to enhance employee performance in realizing the organization's or agency's goals on a bottom-line basis. Wijiharta (2020: 84) expressed his opinion that training is an effort made by an organization or agency to harmonize and balance the knowledge, abilities, and behavior of its employees according to the needs of the organization or agency.

### 2.4 *Employee performance*

According to Moehariono (2012:95), performance is a term used to describe how well a plan of action or policy is being implemented in order to reach the goals, objectives, vision, and mission of

the organization as outlined in the organization’s strategic plan. Mangkunegara in Noor (2012:100) Performance (achievement at work) is the outcome of the quantity and quality of work a person completes after being given a task.

3 FRAMEWORK

Based on previous research, Andy Fitriyadi Dharma Tilaar’s research in 2020, entitled The Effect of Training and Workload on Pokja Performance in the Lampung Provincial Government Procurement Bureau of Goods and Services, is similar to this study but uses an evaluative type of research and uses multiple linear regression analysis. Based on this research, workload and training have a negative contribution, which means that workload and training will have a negative effect if it continues to be added to the achievement of good performance.

Based on this explanation, the following is an overview of the framework that will be used in this research:

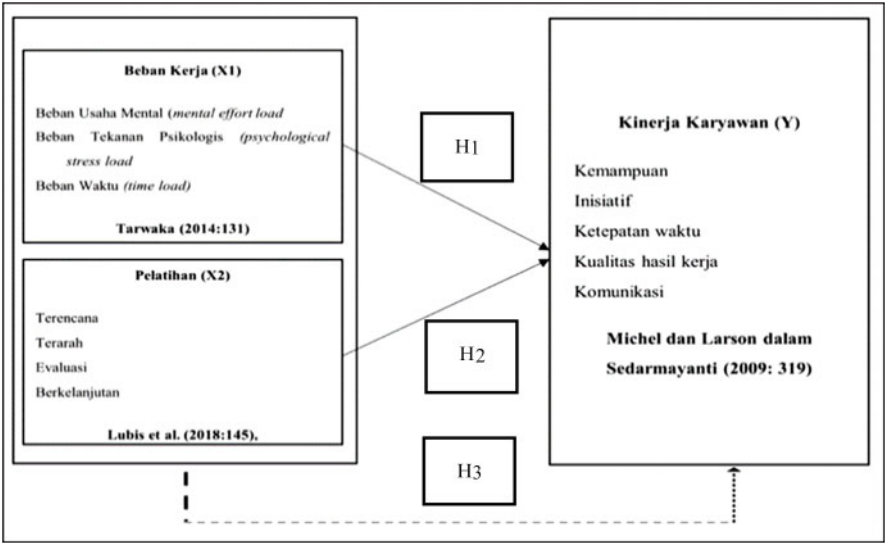


Figure 1. Conceptual framework.

- H1: There is a partially significant effect of workload on employee performance.
- H2: There is a partially significant effect of training on employee performance.
- H3: Workload and training have a significant effect on employee performance.

4 METHODOLOGY

This study employed descriptive quantitative methods using Structural Equation Modeling (SEM) data analysis. The population of this research included police personnel from the work unit of the Directorate General of Criminal Investigation (Ditreskrimum). Saturated sampling was used to create a sample of 104 police officers from the Directorate General of Criminal Investigation (Ditreskrimum) work unit who responded to the study by completing a valid and reliable questionnaire approach.

## 5 CONCLUSION

Finally, this study has developed a conceptual framework to see the factors affecting employee performance. This study examined the impact of workload and training on employee performance utilizing a valid and reliable questionnaire that was then processed using SEM PLS. For future research, the writer hopes to be able to assess various research objects utilizing other independent variables.

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## Performance analysis of money market, mixed, and equity mutual funds during Covid-19 outbreak

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**ABSTRACT:** This study aims at determining the comparison of mutual fund performance between money market, mixed, and equity mutual funds before and during COVID-19 outbreak in Indonesia. Performance measurement was done using Treynor Index. Using purposive sampling method, this study used a sample of 304 mutual funds consisting of 52 money market mutual funds, 85 mixed mutual funds, and 167 equity mutual funds. The result revealed that before COVID-19 outbreak, money mutual fund showed better performance, while during the outbreak, money market mutual fund surpassed mixed and equity mutual fund performance.

**Keywords:** COVID-19; mutual fund performance; investment

### 1 INTRODUCTION

The COVID-19 pandemic has disrupted the world, and finance is one of the impacted aspects. According to Liu et al (2020), stock market in several countries as in Japan, Korea, Singapore, and Germany suffered from decrement in price, as countries in Asia experienced negative abnormal return. Research by Liu et al (2020) indicated that stock market in China and other Asian countries encountered significant price decrement. Moreover, COVID-19 news also affected market reaction. According to Rahman, Amin, and Mamun (2021), the COVID-19 announcement led to negative reaction toward the stock market. Stock volatility was also affected by negative and positive COVID-19 news, in which negative news made greater impact toward volatility (Baek et al. 2020).

Performance of mutual funds remained a topic of discussion for a period of time. According to Rao et al. (2017), equity fund outperformed the market. Research by Mansor et al. (2019) also showed that return of mutual funds exceeded market return. Davis (2019) presented a different result as none of mutual funds had positive abnormal returns during the research period. Meanwhile, Pastor and Vorsatz (2020) studied the performance of mutual fund during COVID-19 crisis. The result showed that most active funds underperformed during the crisis.

This research studied performance comparison of mutual funds. Mutual funds selected were money market, mixed, and equity mutual funds from 2018 to 2021, measured by using Treynor Index as methods. While previous research focused more on mutual fund performance, this study compared performance of three types of mutual funds. The purpose of this study was to determine which mutual funds showed the best performance during COVID-19 outbreak.

### 2 MATERIAL AND METHODS

The overall sample comprised 52 money market mutual funds, 85 mixed mutual funds, and 167 equity mutual funds. The monthly data covered two periods of market cycles, namely before and during COVID-19 pandemic. Pre-pandemic periods lasted from January 2018 until February 2020, while during COVID-19 pandemic periods lasted from March 2020 until December 2021.

The monthly return for each mutual fund was calculated as follows:

$$R_p = \ln \frac{NAV_t}{NAV_{t-1}}$$

NAV<sub>t</sub> stands for net asset value of the mutual fund for the month t; NAV<sub>t-1</sub> is the net asset value of the mutual fund for the month t-1.

Indonesia Government Bond is chosen as proxy for the risk-free rate and calculated as follows:

$$R_f = \ln \frac{SBN_t}{SBN_{t-1}}$$

SBN<sub>t</sub> stands for Indonesia 1-Year Bond Yield price for the month t; NAV<sub>t-1</sub> is the Indonesia 1-Year Bond Yield price for the month t-1.

## 2.1 Treynor index

In Treynor Index, the risk is based on the systematic risk rather than the total risk. The systematic risk is computed by dividing the standard deviation of the mutual fund and the standard deviation of market returns. The formula is calculated as follows:

$$TI = \frac{R_{pt} - R_{ft}}{\beta_p}$$

R<sub>pt</sub> is the average return of the mutual fund, R<sub>ft</sub> is the average return of risk-free asset, and β<sub>p</sub> is the systematic risk. Mutual funds that perform better will have a higher Treynor value. Sharpe and Treynor have complementary characteristics due to differences in information. If portfolio diversification is not carried out properly, Treynor's yield will be high, and Sharpe's yield will be lower. Good portfolio diversification will result in the same rating.

## 3 RESULTS AND DISCUSSION

Table 1. Result for treynor index.

|                 | Money Market | Mixed  | Equity |
|-----------------|--------------|--------|--------|
| Pre Covid-19    | 0.351        | -0.012 | -0.031 |
| During Covid-19 | 0.242        | 0.006  | 0.005  |

Treynor Index showed that prior to COVID-19, the money market mutual funds value was 0.351, mixed mutual funds value was -0.012, and equity mutual funds value was -0.031. In this period, money market mutual funds had the highest Treynor Index value, indicating that they outperformed all other types of mutual funds. During COVID-19, the money market value was 0.242, mixed mutual funds value was 0.006, and equity mutual funds value was 0.005. Money market mutual funds have the greatest Treynor Index value when COVID-19 occurs, indicating that they have the best performance when compared to mixed and equity mutual funds.

## 4 CONCLUSION

The best performance of mutual funds type was money market, both before and during COVID-19. There is a significant difference in the mutual fund performance before and during Covid-19

pandemic. Results indicated that there were no negative value in money market mutual funds meaning this mutual funds have the ability to maintain performance even during crisis. Hopefully, this research could help investors who want to invest in mutual fund products. For further research, it is recommended to use an assessment method other than the four methods used in this research with longer period than the author did. In addition, other types of mutual funds can also be used.

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## The effect of learning organizational practices and job satisfaction on employee engagement in an agile environment at PT XYZ

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**ABSTRACT:** Since the pandemic hit, people are leaning more toward digitalization. Internet service providers as the organization that impacted by this situation also demanded to provide excellent services while seeking out opportunities to have new services. In response to the phenomenon, organization has adopted the agile workflow that help them deliver business requirement effectively. Employees that play essential role in the new workflow also need to improve their abilities to provide the best performance for their organization. Since the pandemic started, there has been a decline in several aspects of employee engagement, particularly in engagement itself, career development, and employee empowerment. This could lead to an unfortunate result considering employees are crucial element in supporting the business. While aiming to business target would be very stressful, fostering employee engagement has been the way to keep the employee motivated and help them grow. Thus, company has adjusted the way they interact with employees to seek better employee engagement. This is done through sets of practices that indicates several learning organization practices being used by many institutions in the world. In addition, employee engagement also having strong correlation with job satisfaction. There are numerous references describing that the more employee satisfied with their work, then their attachment to their organization also become higher. The purpose of this research is to examine and analyze the effect of learning organizational practice and employee job satisfaction to employee engagement both partially and simultaneously. This quantitative research used SEM to analyze the respondent of 100 employees at PT XYZ that work in agile setting.

**Keywords:** learning organization, employee engagement, job satisfaction, agile.

### 1 INTRODUCTION

One of the areas that was able to develop throughout the economic downturn in 2020 is technology and communication. Until the second quarter of the same year, internet users had increased to 73.7% of Indonesia's total population (kumparanTech 2020), with 73% of respondents relying on smartphones to connect. Due to the high demand for data services, operators are required to always be optimized both in maintaining existing services and looking for new opportunities to meet the needs of the community who are increasingly moving towards digitalization. Under increasing pressure to respond quickly to their customers' requests by speeding up the process of enhancing solutions and services and bringing new items to market, companies need the Agile workflow to respond to these difficulties. This is used to boost job speed and accuracy, as well as staff productivity. Scrum, one of the Agile methods, is the most used in many companies. According to Cervone in Dudija (2020), Scrum is a process for managing and controlling software and product development quickly in an unstable environment. This model has been implemented by PT XYZ, for years. It involved most of employees in the organization. More than half of company employees have experienced the agile way of working in their environment, easy collaboration in teams, satisfaction with working with a team, the value of transparency, and commitment to a job. This indicating that most employees have a good understanding of the concept of Agile workflow. When

the pandemic hit in 2020, the company also made several adjustments in the work environment to boost productivity. Some of the adjustments describe in Table 1 as below.

Table 1. Company practices and learning organization practices.

| Company Practices  | Learning Organization Practices |
|--|---------------------------------|
| Re-look the way of the employee working when the pandemic start, gathering feedback from employee in a timely manner and find suitable way of working to maintain employee productivity.   | Institutional Reflexivity       |
| Encourage employee to try new knowledge through regular interaction both in the small and large forum; Ensure employee having proper planning and anticipate of any situation happens; give appreciation to distinctive employee in a forum. | High Agility Organising         |
| Giving the environment for employee to express their idea safely through competition and agile team; Encourage employee to have courage, commitment, and confidence to response in an unknown situation e.g.: change in market.              | Learning Leadership             |

Adjustments made by the company has indicate the occurrence of learning organization practices, which aligned with learning organization model proposed by Antonacopoulou et al., (2019) where they identified several key dimensions that are essential in creating a learning organization including institutional reflexivity, high agility organizing, and learning leadership. According to Robinson in Putri (2014), for companies to boost unit achievement, it is essential to have employees who have a high attachment to the company so that they have an understanding and concern to work together with their coworkers and with management. PT XYZ annually evaluates the employee’s engagement with the company through Employee Engagement Survey (EES) to measure employee loyalty to the company.

Various areas of the EES (Employee Engagement Survey) score, such as employee engagement, career development, and employee empowerment, have decreased in 2020. The company considers this as an unfortunate turn of events considering employees are a crucial element in maintaining, directing, and developing an organization. The organization overall success of an organization such as higher productivity and excellent business result would not be accomplished without employee engagement. This vital element is inextricably linked with job satisfaction. Employees that are satisfied with their jobs are more likely to be engaged with the company. Kari, in Arianti et al. (2020) conclude that there is a positive correlation between job satisfaction and employee engagement, where the higher the job satisfaction level, the higher the employee engagement level. According to Rowden and Conine (Ghayas & Khan 2019)), there is a significant association between learning in the workplace and employee satisfaction. It also emphasized the need for managers to make available learning opportunities to increase job satisfaction. This factor along with motivation are two factors that lead to a low turnover rate in the workplace as described by Mobley in Tessem & Maurer (2007). This is aligned with the situation at PT XYZ where the turnover rate is very low, which is less than 10% annually as depicted in Figure 1 as below.

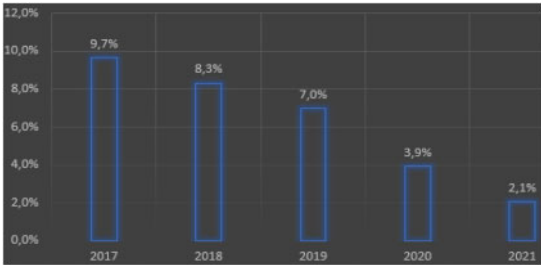


Figure 1. Employee turnover rate (annual).



Based on this background, this study aims at examining and analyze the effect of learning organization and work satisfaction on employee engagement both partially and simultaneously.

## 2 LITERATURE REVIEW

### 2.1 *Learning organization*

According to Malik & Garg (2017) there is a favorable association between learning organization practices and employee work engagement. The study found that numerous dimensions of learning organization practice contribute considerably to several characteristics of employee engagement, such as vigor, dedication, and absorption among workers in India's information technology sector. On top of that, the application of learning organization to employee engagement has a positive impact (Anwar et al. 2017; Song et al. 2014). This is supported by Senge in Song et al. (2014), who states that the foundation of a learning organization is employee motivation, which makes them more enthusiastic and attached to their company. As a result, the hypothesis is:

H1: Learning organization practices positively affect employee work engagement

### 2.2 *Job satisfaction*

According to Vorina et al. (2017), employee engagement will rise as life satisfaction rises. The three researchers also show that employee engagement rises in tandem with the development of ICT skills. Furthermore, job satisfaction is something that precedes employee engagement where engaged employees will perform very well in their work (Abraham 2012). Therefore, we hypothesized that:

H2: Job Satisfaction positively affects employee work engagement

## 3 METHODOLOGY

The research was conducted using the quantitative method. The unit of analysis for this research is the telecommunication industry. The population was the employees of internet service providers in the industry. The numbers of employees eligible to be included in the population were 100 people (2020) consist of various position. By using the Slovin sample size formula with margin error 5% then obtained a sample of at least 80, and the research samples of 100 respondents were chosen using random sampling. The data were processed using the Structural Equation Modeling (SEM) method.

## 4 CONCEPTUAL FRAMEWORK

### 4.1 *Learning organization*

The proposed framework (Figure 2) illustrates the relationship between learning organization practices, job satisfaction, and employee engagement.

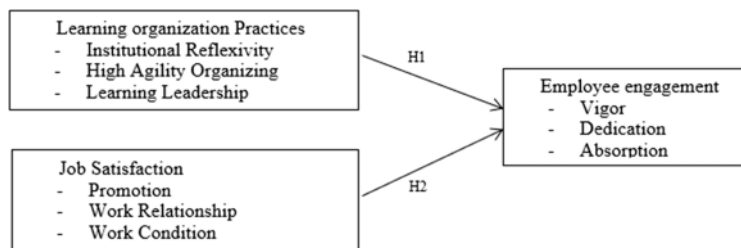


Figure 2. Conceptual framework.

## 5 CONCLUSION

This research establishes a conceptual framework for explaining the factors that affect employee engagement. It adds that employee engagement does not depend on mere learning organization practices but rather on the job satisfaction element. By highlighting the dimension of learning organization practices, employee job satisfaction, and employee work engagement, this theoretical analysis is expected to contribute to employee engagement literature in the VUCA situation. The proposed conceptual framework is intended to support the business by strengthening employee engagement in companies that use the Agile method. Future research could compare numerous organizations in the same or different industries to determine their level of engagement.

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## Engineering, Procurement, and Construction (EPC) delay analysis for construction of pressurized LPG terminals

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**ABSTRACT:** The ever-increasing demand for LPG requires increasing the storage capacity of existing LPG terminals or new developments to maintain and increase the coverage days of LPG terminal operations. The delay in completing EPC (engineering, procurement, and construction) work on constructing the pressurized LPG terminal will impact the planned LPG terminal infrastructure roadmap and delays in obtaining benefits from the investment. This study aims at analyzing the dominant delay factors in completing work. The factors are divided into eight relevant categories. We utilized a Delphi method involving 10 experts to analyze the factors resulting from the systematic literature review. Our context reveals that there are 27 dominant delay factors with a consensus level of more than 70%. The consensus rate for the final result is also sufficient at 80%. Interviews were conducted to investigate alternative solutions to the dominant delay factors.

**Keywords:** LPG, EPC, Project Delay, Delphi

### 1 INTRODUCTION

In 2007, the Indonesian government organized an energy conversion program from kerosene to LPG for household needs. Subsequently, the government should provide and distribute assigned LPG throughout Indonesia in the form of LPG products in 3 kg cylinders to carry out their PSO (Public Service Obligation). The increasing demand for LPG for domestic needs will impact changes in distribution operation patterns. The pressurized LPG terminal has a vital role in the domestic LPG supply chain to form an integrated supply chain pattern from upstream to downstream. Several LPG supply points will distribute products to pressurized LPG terminals using various transport mechanisms, such as tankers and pipelines, before distribution. The program to increase storage capacity at several existing LPG terminals and the construction of new LPG terminals is based on the overall calculation of LPG demand in an area. The program must be balanced with an integrated supply chain, especially those related to new terminal development. In the field, late completion of work is a phenomenon that happens in the construction industry, including oil and gas construction (Suppramaniam et al. 2018). Moreover, with the risks accompanying the oil and gas industry, the management of construction projects has a high degree of uncertainty (Badiru & Osisanya 2013).

This paper aims to (1) identify delay factors in construction work, (2) analyze the primary delay factors in the EPC work of constructing pressurized LPG terminals, and (3) find solutions to the primary factors.

### 2 METHODOLOGY

The research method in this paper was classified into three steps. The first step consisted of identifying the causes of construction delays using a systematic literature review. The second step was analyzing the delay factors in the completion of EPC work to construct a pressurized LPG

terminal using the Delphi method. Finally, the third step was identifying solutions using the in-depth interview method.

Compared to many literature reviews approaches, a systematic literature review is generally considered superior in terms of transparency because other researchers can verify research findings easier by replicating the research (Aarseth et al. 2017). The filtering process was carried out in three phases at this systematic literature review (SLR) step. Various articles from several databases, namely Google Scholar, Scopus, and Microsoft Academic, were collected in the last three years, namely from 2018 to 2020. To obtain various articles related to the objectives of the study, the keywords used were “PROJECT”, “CONSTRUCTION”, “DELAY” and “CAUSES”. Using keywords, 219 articles were obtained from the search.

The first phase was a search for articles published in the last three year. Then, the screening was carried out based on Q1 and Q2 rankings on Scimago in 2018-2020 period. The screening from the first phase resulted in 64 articles that could be used. Then, the second phase was screening based on titles and abstracts under the objectives of this study. The second screening phase resulted in 33 articles that met the requirements. As the final screening process, the third phase was the process based on the article’s content according to the purpose of this study. From a total of 33 articles from the second phase, an evaluation process was carried out and it resulted in articles that met the requirements in the third phase based on the article content, which resulted in 28 articles that met the requirements for five articles that could not be used.

The Delphi method has been widely used in construction, engineering, and management (CEM) research, using the mean and median values as a feedback process (Ameyaw et al. 2016). In addition, various statistical techniques are used to measure consensus, group comparisons, and data correlation. The Delphi method aims to obtain consensus, so the criteria must be clear, which becomes consensus with a threshold value determining when the consensus has been reached (Diamond et al. 2014). Delphi method will reach a consensus that comes from expert panelists based on the experience that has been gained (Renzi & Freitas 2015).

The first stage of the Delphi method employed for this study was a brainstorming process by showing a list of factors for delaying construction work. Then, the experts analyzed whether there were additional delay factors in completing the EPC work to construct the pressurized LPG terminal. Following that was the second stage, where the experts were given a questionnaire on the results of the first stage of the Delphi method. The experts then provided an evaluation by assessing the factors of the delay. The assessment of the delay factors used a Likert scale with a value of 1 (no effect), 2 (low effect), 3 (neutral), 4 (strong effect), and 5 (very strong effect). The calculation criteria in the second stage of the Delphi method consist of several stages (Kongchasing & Sua-Iam 2021). To determine the level of consensus with the Delphi method, it is suggested that the response rate is 70% for each round to maintain accuracy in the use of the Delphi method (Sumsion 1998). Nevertheless, a consensus value of 51% is still acceptable (Keeney et al. 2006). On the third stage, the experts were given a questionnaire to determine the level of consensus on the final result, which was the result of the dominant factors in the delay in the completion of the EPC work for the construction of pressurized LPG terminals. The experts assessed the level of consensus using a Likert scale with score 1 for strongly disagree with the final result and 5 for strongly agree with the final result. At this point, the experts were allowed to provide additional comments if needed.

As the last step of the study, alternative solutions to the dominant delay factors in EPC work for the construction of pressurized LPG terminals were identified by interviewing experts from project owners, contractors, and consultants. The factors resulting from the Delphi method were explored to identify possible solutions.

### 3 RESULTS/FINDINGS

The results in this study are based on findings from a systematic literature review, the Delphi method, and in-depth interviews. Some of the causes of delays in construction work are divided into eight main categories (Odeh & Battaineh 2002). The systematic literature review obtained 95

delay factors in construction work. These factors comprise 15 delay factors from the project owner, 15 delay factors from the contractor, 9 delay factors from the consultant, 9 delay factors from the material and workers, 16 delay factors from equipment, 7 delay factors from the contract, 8 delay factors from the contractual relationship, and 16 external delay factors.

On the first stage of the Delphi method, which was a brainstorming process, experts were shown the delay factors in construction work from the results of a systematic literature review. From the total 95 factors, only 77 factors were shown to experts for analysis because some of the factors only had one reference. From the brainstorming process, 120 additional delay factors were identified. There were several conditions underlying this, namely (1) the factors were new factor and not yet on the list; (2) the factors added by the experts were already on the list but needed to be modified and improved; and (3) there were similarities between the factors added by experts. Upon analyzing the three conditions and grouping them, the additional delay factors came up to 32 factors. Therefore, the Delphi method eventually result in 109 delay factors.

The results of the expert evaluation of the 109 delay factors were carried out in 4 stages of analysis. The first analysis was calculating the average value to get the criteria for how dominant these factors were as the cause of the delay. The calculation results show that the highest average value was 4.9, and the lowest was 1.9. In this assessment, the interval class range consisted of five levels, namely 1.00–1.80 for very little importance and 4.21–5.00 for very importance. Therefore, the value to be used was a factor with an average value of  $> 4.21$ . For the second analysis, the median and mode values of each factor were calculated, and the value of the difference between the mode and median values must be  $< 1$ . For the third analysis, the value of each delay factor must meet  $Q3-Q1 \leq 1.5$ . Finally, the last analysis was that each delay factor must reach a consensus level with a minimum threshold value of 70%.

The result of the second stage of Delphi method is the dominant delay factors in EPC for the construction of the pressurized LPG terminal. It included 27 delay factors, namely (1) Delays in handing over the land/location to the contractor; (2) Insufficient contractor experience; (3) Delays in the preparation of engineering documents/Detail Engineering Design (DED); (4) Short/unrealistic project completion time; (5) Financial problems/poor contractor cashflow arrangements; (6) Delays/difficulties in obtaining permits; (7) Design changes from project owner; (8) Inaccuracies and errors in estimating costs and time; (9) Poor communication and coordination among project owners, contractors, consultants, and stakeholders; (10) Slow decision-making process; (11) Poor communication and coordination of project owners with stakeholders; (12) Repetition of work due to construction errors/poor quality control; (13) Corruption/fraud in the project; (14) Spikes in commodity prices, such as steel, nickel, and others; (15) Errors in ordering the amount of construction material/poor quality; (16) Damages to construction/lack of equipment maintenance; (17) Fire; (18) Late material delivery to the project site/scheduling of material delivery; (19) Late payments/problems in payment to contractors/subcontractors/vendors, etc.; (20) Difficult price negotiation on unit price contract type for new scope of work; (21) Force majeure: Floods/wars/earthquakes/mass riots, and others; (22) Unpredictable subsurface conditions/site conditions; (23) Work accidents at the construction stage; (24) Difficulty in obtaining building/construction materials; (25) Requirement of special fabricator for tank plate material; (26) Lack of construction equipment; and (27) COVID-19 pandemic.

The experts evaluated and determined the consensus level of the results in the second stage of the Delphi method. The experts assessed the questionnaire results using a Likert scale with a value of 1 for strongly disagree and 5 for strongly agree. The result of the Likert scale was 4.8, with the results of the consensus level of the experts being 80% strongly agree and 20% agree. The interview process was conducted with respondents, which include project owners, contractors, and consultants. In this interview, the experts elaboratively explained delays in every pressurized LPG terminal construction project from 2018 to 2020. The most critical delay factors were the permit processing process, qualification of project personnel, planning process, and land handover.

From the in-depth interviews, the experts explained that there are short- and long-term recommendations to mitigate the dominant delay factors in EPC work for the construction of pressurized LPG terminals. Recommendations for the short term are to accelerate the completion of work by

conducting consignment activities to expedite the completion of DED documents, crashing and fast-tracking project activities that are included in the critical trajectory, and improving financial management by contractors related to project cash flow. For the long term, the experts recommended to enhance the qualifications and competencies of project personnel to manage projects through training, upskilling, and certification of expertise; improve planning for project scheduling by project owners; improve planning for material delivery by contractors; and improve procedure, such as project management procedures for obtaining permits by the project owner, procedures for the operation and use of construction equipment by contractors, and procedures for contractor evaluation by project owners.

## 4 CONCLUSION

Delays can be defined as work completions that exceeds the date specified in the contract. For investors or job owners, delays can be interpreted as an inability to benefit from a scheduled investment (Głuszak & Leśniak 2015).

This research used three methods to answer research objectives. The first method is a systematic literature review to identify delay factors in construction work. The second method is the Delphi method, which determines the dominant delay factor for completion of the EPC work for constructing the pressurized LPG terminal. The third method is in-depth interviews, used to find alternative solutions to the dominant factors causing delays.

The dominant delay factors in EPC work of construction of the pressurized LPG terminal is 27 delay factors, mostly coming from the external category (22% of the total). The consensus level of the experts on the results using a Likert scale is 4.8, with the results of the consensus level of the experts being 80% strongly agree and 20% agree.

Based on the findings and discussion, it is recommended for project owner and contractor to improve project management procedures and improve workers' qualifications by providing certification of expertise.

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# Bankruptcy prediction model for public companies in Indonesia stock exchange

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**ABSTRACT:** This study aims to create a new model for financial distress prediction in response to public companies' deterioration of performance due to the COVID-19 pandemic. The research method used was logistic regression to examine the relation between financial distress and independent variables such as financial ratios and stock market ratios. The result shows that the ratios of leverage, solvency, and profitability affected more significantly than other ratios. Since financial distress does not occur suddenly, this study divided its model into 2, namely 1 year before the distress (M1) and 2 years before the distress (M2). The results indicate that M1 had a better result, with 91,63% classification accuracy (by default cut-off point = 0.5). We also re-estimated other accounting-based models and compare our model to them. The results demonstrate that our model performed better than other models (+12,24% difference); thereby our model appeared to be the most suitable accounting-based model for financial distress prediction for the Indonesia Stock Exchange. This is because author's model is based on a combination of accounting variables and capital market variables.

**Keywords:** Bankruptcy, logistic regression, financial distress, public companies

## 1 INTRODUCTION

Studies on the prediction of corporate bankruptcy have existed for a long time, starting with Beaver (1966) with a univariate approach in which he identified from the mean test 79 distressed companies and 79 non-distressed companies. It was found that Net Income to Total Debt had a predictive accuracy that was superior to other single variables. The evolution of the accounting-based model approach from univariate to multivariate occurred in 1968 when Altman (1968) issued a study on financial distress projections for manufacturing companies in the US with a Multivariate Discriminant Analysis (MDA) approach called Z-Score. Of the various studies that have emerged, the most popular are the conditional logit study by Ohlson (1980) and the probit study by Zmijewski (1984). Technological developments have also made other researchers develop non-parametric approaches that were originally parametric with the support of artificial intelligence systems, such as Neural Networks, Genetic Algorithms, Case-Based Reasoning, and Recursive Partitioning (Coats & Fant 1993; Charitou et al. 2004; Odom & Sharda 1990).

In this study, the authors used the logistic regression method with a combination of accounting-based models and market-based models which were set as independent variables. The independent variables are categorized into 5 categories, namely solvency, leverage, profitability, liquidity, and market ratios.

This study also re-estimated the popular accounting-based models of Altman, Ohlson, and Zmijewski with more up-to-date financial statement data. This was done by considering that the existing research on financial distress and bankruptcy is dominated by accounting-based models. Hence, to maintain relevance, re-estimation was carried out. At the end of the study, the authors compared the new model formed with the original model and the forecast model of Altman, Ohlson, and Zmijewski.

## 2 METHODOLOGY

To make this research focused and not too broad, the authors limited the scope of research by only taking samples from all issuers listed in the Indonesia Stock Exchange from 2000 to 2021 as companies that had been delisted due to sustainability factors, not due to mergers or strategies. The data collected was from a second source, EIKON, up to two years before the delisting occurred, i.e. from 1998 to 2020.

The use of the logistic regression method was due to the synthesis of literature from the previous studies in which the logistic regression model had shown the highest accuracy among predictive models. Logistic Regression model can also derive the effect of a change in the choice probability as a result of a change in any of the attributes of any of the alternatives, therefore it was defined as the better method than others to measure the bankruptcy probability. The dependent variable was the condition of the companies (bankrupt/ not bankrupt). The modeling used a stepwise regression approach, with forward selection and backward elimination applied to the formed M1 and M2, to eliminate variables that were not significant, despite their ability to influence the dependent variable. This can be seen through the significance test of Wald Statistics (Partial T-Test). This test aimed to examine the significance of the regression coefficient on each predictor.

In addition to using Wald Statistics to determine the significance of variables, the authors also used the Hosmer and Lemeshow Goodness of Fit Test and Omnibus Test to identify the most suitable model to determine the bankruptcy of the samples. The correct estimates were also measured to determine the accuracy of the model developed in this study. The higher the number of the correct estimates, the better the model in predicting financial distress. The accuracy values were later collected in a data panel in comparison between the models compiled, both M1 and M2, as well as the re-estimation and the original models of Altman, Zmijewski, and Ohlson.

## 3 RESULTS

After conducting the t-test, the selected independent variables were entered into the logistic regression to identify the final set of models to be used as predictor models of bankruptcy. The stepwise regression method, with forward selection and backward elimination, was applied to both Model 1 (1 year before distress) and Model 2 (2 years before distress) to be selected as the variables used in the final predictor model. The selected variables for Model 1 were as follows: CLTA (Current Liabilities/ Total Asset), PER (Price to Earnings Ratio), WCSL (Working Capital Turnover), RETE (Retained Earnings/ Total Equity), CFTD (Cash Flow / Total Debt), MVEBVD (Market Value of Equity/ Book Value of Debt), ROE (Return On Equity), and LDTA (Long Term Debt/ Total Asset). The selected variables for Model 2 were as follows: WCTA (Working Capital/ Total Asset), PER (Price to Earnings Ratio), CFTD (Cash Flow for Total Debt), NISL (Profit Margin), WCNW (Working Capital/ Net Worth), MVEBVD (Market Value of Equity/ Book Value of Debt), and ROE (Return On Equity).

The next step was the final set of variables was entered into M1 and M2 to be tested and compared by goodness of the fit test, % correct estimation, and % type of error to be selected as the main model to be compared with the previous model. The first test performed was the Pseudo R Square test. To see the ability of the independent variable in explaining the dependent variable, the values of Cox & Snell R Square and Nagelkerke R Square were used. The Nagelkerke R Square value for M1 was 0,759, while the Cox & Snell R Square value was 0.244, which indicated that the ability of the independent variable in the M1 model to explain the dependent variable was 75,9% and there 24,1% other factors outside the model that explained the dependent variable. While the Nagelkerke R Square value for M2 was 0.444 and the Cox & Snell R Square value was 0.270. Then the Omnibus Test and Hosmer and Lemeshow Test were also conducted for each model. The results of the Omnibus Test, both on M1 and M2, showed that the significance was 0.000 ( $<0.05$ ) thus rejected  $H_0$ , which indicated that the model was considered to be in accordance with the Omnibus test.



Hosmer and Lemeshow Test is a test to determine whether the model formed is correct or not. It is said to be appropriate if there is no significant difference between the model and the observed value, the Chi Square value of the table for DF 8 (Number of independent variables = 8) at the significance level of 0.05 was 15.507. In Model 1, the Chi Square value of Hosmer and Lemeshow amounted to  $10.285 < \text{Chi Square table } 15.507$  or a significance value of  $0.000 (<0.05)$  so that it accepted  $H_0$ , which indicated that the model was acceptable and hypothesis testing could be done because there was a significant difference between the model and the observation value. However, in Model 2, the Chi Square value of Hosmer and Lemeshow amounted to  $18.218 > \text{Chi Square table } 15.507$  so that it rejected  $H_0$ , which indicated that the model could not be accepted and hypothesis testing could not be carried out because there was no significant difference between the model and the observed values.

The results of the comparison test of M1 and M2 showed that the Goodness of Fit model X1 was feasible to use, with the accuracy in (92.1%) compared to M2 (85.9%). The holdout sample and other tests stated that it was feasible to be regressed, then the model used was M1. As for the type I error in Model 1, it was lower than that of Model 2 for the simulation sample, but the value was the same between models when in the validation sample. The type II error in Model 1 was higher than Model 2 in the simulation sample, but the type II error in model 1 was much lower than Model 2 in the validation sample.

The final step was to re-estimate the popular accounting-based predictive models of Altman, Ohlson, and Zmijewski with the current data. The result was to be compared with our bankruptcy model prediction in terms of accuracy and error rate. Using sample data and validation/holdout as a reference, the comparison results showed that our model performed best compared to other models. With 91,63% accuracy, our model was +12,24% more accurate than the Ohlson Reestimated Model, the second best accurate model. This also showed that accounting-based models were indeed time-sensitive, with evidence that all re-estimated models were higher than the original models. Therefore, constant updates are required to maintain the relevancy of the accuracy.

## 4 CONCLUSION

This paper created a new accounting-based model for bankruptcy prediction with better accuracy than the others (+12,24%), using the formula as mentioned below:

$$- 0,946 + 0,134 \text{ ROE} - 0,304 \text{ RETE} + 0,047 \text{ MVEBVD} + 0,230 \text{ CLTA} \\ + 0,181 \text{ LDTA} - 0,028 \text{ CFTD} - 0,040 \text{ WCSL} - 0,006 \text{ PER}$$

If the result is  $> 0.5$ , then the company is predicted to go bankrupt the next year, while if the result is  $< 0.5$ , then the company is predicted to remain healthy until next year. Our model is considered superior than other model because of it is the only model to combine between classic accounting variables with capital market variables. Our model also indicated that among the 5 (five) variables, the most significant variable were leverage. This paper also points out that bankruptcy prediction using the accounting-based model is considered time-sensitive. Therefore, constant updates are necessary in order to maintain its relativity.

In the future, this paper may be updated using the latest data to maintain its accuracy as well as other variables in addition to accounting and market ratios to expand the model. Besides, because this paper also overlooked the industrial effects, those effects can thus be employed as other filtering measures for the data to be analyzed in the future.

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## Economic morals of farmers in facing the drought in Banyu Urip Village, Central Lombok Indonesia

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**ABSTRACT:** Residents of rural areas have homogeneous livelihoods. The people of Banyu Urip Village, Central Lombok Regency, live on agricultural products. Farming communities have challenges and difficulties at certain times, namely that they should be able to plant rice two to three times a year to once a year (famine period), bad weather such as difficulty getting water (drought), and the threat of poverty. Therefore, a strategy is needed for the farming community as a solution when entering a difficult time. The purpose of this study is to determine the strategies carried out by farming communities during famine or when facing challenges in meeting economic needs. Farming communities are the unit of analysis in qualitative research with this case study approach. Data from observations, in-depth interviews, and documentation of field findings, was tested for validity through cross-checking the data with data triangulation. The results of this study indicate that the economics of Sasak farmers community in Banyu Urip Village use an intercropping system and certain seeds to deal with the stress period. Good relations between residents prioritize the value of reciprocity, such as *banjar* activities, *hajatan*, and multilevel investment. This is the form of farmer rationality and reciprocity as a strategy to meet socioeconomic needs.

### 1 INTRODUCTION

Community is a group of people living together, which give rise to a culture. Communities have new realities that develop according to their development patterns, such as village communities (Comte 2009). Rural or village communities have a deeper and closer relationship and the living system is generally in groups on a family basis. Most of the citizens of the community live on farms. Rural communities are synonymous with mutual aid, a form of cooperation to achieve their interests. This understanding implies that the village community is a group of people who have close relationships and common interests. They have a shared responsibility so that every member of society is bound to the norms that have been established and must be adhered to (Flora & Gasteyer 2018).

In rural communities, there is no specific form of division of labor because basically every work is done together. Members of society tend to be familiar and with the same value system. The villagers interact with each other and reciprocally relate directly. Not many residents use communication aids in interacting, for example, cellphones via WhatsApp, Facebook, Twitter, and Instagram, because rural communities have a close relationship. Most rural people live on agricultural products (Pratt 2020). Farmers are often understood as a uniform social category due to the absence of differentiation in various aspects. The farming community cultivates the land by planting rice, corn, boilers, and so on to meet their basic needs (Jayadi, & Rahmawati 2021).

Farmers who have narrow land can be said to be peasants. The importance of farming is based on meeting basic daily needs to get out of the line of subsistence that they find difficult to pass throughout the year (Croll 2019). Most of the farmers apply “safety first” measures by choosing the types of seeds, fertilizers, and drugs they are used to in the growing season. This is done so as

not to experience crop failures, rather than expecting huge profits on new types of seeds, fertilizers, and drugs that have not yet been ascertained. The socioeconomic life of the peasant community is closely related to the survival strategy of the existing geographical conditions (Collinson 2019). In addition, water is the main need for the continuity of farmers in cultivating the land. In the Banyu Urip Village, availability of water is the main challenge because its existence is very limited. This conditions making the area often experience drought.

Two moral principles in the life of farmers are subsistence and the norm of reciprocity. The concept of subsistence economy embodies the way or strategy of the farmer in shaping their economic life to guarantee a stable subsistence by performing an act to avoid risks in the sense of prioritizing survival. This principle gives an attitude to farmers who have a strong desire to be reluctant to take risks, namely large losses that endanger their subsistence as farmers. Subsistence is also defined as a minimalist way of life where the efforts made are the efforts to just live (Scott 1976). A patron is defined as a person who is in an upper position and helps clients. Patrons are landowners, while clients are farmers or farm laborers. The client's position is often weak in the face of patrons (Walters et al. 2021). So if the farmers rely on their relatives or even patrons for resources, then based on reciprocity the farmer has given his rights to the labor and resources (Shaw et al. 2019). Thus, it can be understood that the patron is obliged to provide arrangements between individuals who have authority, social status, wealth, or other resources as a protector, while the client is the one who provides benefits and support to the patron and influences the client. Landowners are considered to be higher in position than land tenants, and land tenants are higher than freelance laborers. Patrons are more respected because they have more money and power (Pelras 2000).

Some of the strategies carried out by the people of Banyu Urip Village are based on James Scott's moral economic concept. Economic morals are defined as an analysis of what causes a person to behave, act, and do activities in economic activities (Scott 1976). This is expressed as a social symptom that is likely to affect the order of social life significantly. Based on this problem, the researcher examined the characteristics and moral forms of the economy of the farming community in Banyu Urip Village.

## 2 METHOD

This research uses a qualitative method with a case study approach through informants consisting of AS Village Head, SM Head of Hamlet, PR Head of Neighbourhood, and TG Secretary of Program at Village Level to Educate Women on Various Aspects of Family Welfare (PKK) as key informants. Then, the farming community of Banyu Urip Village is the main informant of TR, TW, AJ, SK, KI, DF, and PL. Data collection techniques include observation, in-depth interviews, and documentation. To test the validity, data is cross-checked by triangulation method (Yin 2018). Then, the data is analyzed with an interactive model, namely reducing data, presenting and verifying or drawing conclusions (Miles et al. 2018).

## 3 RESULT AND DISCUSSION

Scott (1976) emphasizes that the stratification of peasant societies lies not in income but the level of security of subsistence. First, the landowner, the second the tenant, and the third the laborer. In the view of farmers, large areas of land have greater risks and costs. However, regardless of owned, crooked, or rented land, the main livelihood of the residents of Banyu Urip Village is farming.

The economic behavior of a subsistence-oriented farmer family in the form of a unit of consumption from a unit of production is the effort of farmers in shaping their economic life to obtain guaranteed economic stability. Farmers carry out subsistent economies to avoid risks, namely prioritizing safety or guaranteeing a stable economy. So that the farmers of Banyu Urip Village have a strong desire to not take risks that could potentially lead to huge losses and can endanger their subsistence as farmers, namely by having a minimalist way of life. Efforts are made to just live. In

addition, they are afraid of the risk of failure and change. The study of the economic life of farmers in the Southeast Asian region has used various means and subsistence orientations that underlie their economic decisions (Culpeper & Tantucci 2021).

The goal of achieving guaranteed subsistence is explained by the diversity of choices in the production process, namely by choosing the type of plant that can be eaten, using good seeds to avoid risks, and choosing the type of plant with steady results even though there are not many. No matter how big the entrepreneurship ambitions of farmers are, their rationality does not allow commercial crops that can harm their subsistence (Pratt 2020). So the principle of surviving or the concept of subsistence economy does not mean that farmers are creatures without risk, more precisely subsistence farmers are trying to limit the risks that come. The concept of “first save” is not only a characteristic of poor farmers but also of middle farmers. In addition to subsistence, there is also “Safety First”, namely the Principle of “first save”, which is intended for farmers, both upper and lower class. The implication of surviving is one parameter around usually subsistence, where risks are avoided (things that contain disasters), while outside the bourgeois calculation of profit applies (Heinemann 2011).

The principle of surviving is the same as that applied by farmers: farmers maximize their net income if they are likely to earn below the minimum income. The principle of first surviving is the routine work of subsistence that gives satisfactory results; otherwise, it has been cut off. “Safety first” behavior rejects innovations with high risks. Farmers who in the past were able to survive by using the old methods, will usually not exchange or replace them by bringing more risks even though they bring more yields. This reciprocity value is contained in a system that we later referred to as *barter* in Banyu Urip Village. The exchange or *barter* system was indeed used long before humans knew currency as a legal medium of exchange. People used to use this system to meet their individual needs before the invention of currency. This is based on trust between them without taking into account the profit and loss. The barter system of the past that allowed people to lose because the goods exchanged could not be proportional to the needs received (Ziegler 2018).

The “*barter*” system in Banyu Urip Village is no different from the *barter* system in principle (Ozgul 2019). It is just that the needs that the community wants can be met by debt or borrowing from one of the stalls owned by residents who are considered capable, then paying the debt with the commodities they have. For example, one of the citizens needs a certain amount of money to repay the debt later in life with corn, boiler, or other commodities corresponding to the money borrowed and the price at the time of repayment of the debt. If when paying debts the price is cheaper than when getting receivables, then it is not the responsibility of the lender.

Not only this, other household needs such as sugar can use this “*barter*” system, of course, by accumulating the value or price of goods exchanged into Rupiah. For example, 1 kg of sugar is exchanged for a kettle in the amount of 4 kg. We call this concept the uniqueness that exists in Banyu Urip Village while still using the principle of barter, which has then been accumulated with the currency value of the goods to be exchanged (Ziegler 2018). This is what distinguishes it from bartering in the past society. Both parties feel that they benefit from this system, the community can meet their needs by exchanging the goods they have, and then the stall owner benefits because the merchandise is sold. In addition, people are more reluctant to stall owners. The implication is that when you want to sell your commodities, such as corn, rice, and cassava, which are then exchanged for the needs, society will still be loyal to selling to the stall even though the selling price of the commodity is different from the stall in another place or hamlet.

The concept of reciprocity or exchange is also found in the people of Banyu Urip Village during *begawe* or other celebrations, such as circumcision. The community will give some money to neighbors or relatives who are having these three celebrations. Money or goods, for example, rice or sugar, given to neighbors are certainly different from relatives. There is an element of exchange here, where when a person is donating while having a celebration expects his donation to return at least the same amount or more. If the donation that has been given to one of the residents is not returned, then the resident will get social sanctions, such as being used or not assisted if they have a celebration.

The patron and client relationship as part of the reciprocity is seen in the land lease system in Banyu Urip Village. The village apparatus is the patron, who owns a large area of land but is not

managed so that the land is leased (Pelras 2000). The people of Banyu Urip Village are tenants of land as clients who cultivate patron land. The most common patron–client relationship found is in the land lease system. Farmers are granted the right to manage government land by paying a minimum of 1 year rent and a maximum of 3 years with varying rental costs. Payment of the cost of rent is made at the beginning of the year when the lease contract is made. The system is more profitable for patrons because in addition to farmers having to pay at the beginning of the period as a whole, the costs incurred also do not affect the amount or not of land management results during harvest. Crop loss is the personal responsibility of cultivated farmers (Walters, Ahsan, & Khan 2021). The reciprocity that appears in the relationship between the landowner or cow (patron) and the tenant of the land or cow (client) is socially well-established, but from an economic point of view, the client still has a risk of loss that is not borne by the patron.

#### 4 CONCLUSION

The economic morals of the Banyu Urip community are reflected in multilevel investment activities, farmer rationality, and reciprocity. Savings or savings from excess income owned by the community will be used to invest in the form of livestock that can be sold in the future. The rationality of farmers is seen in the use of intercropping systems and the use of certain seedlings. The use of certain seeds is also part of the rationality of farmers in Banyu Urip Village. The relationship between fellow people in Banyu Urip Village is very good by prioritizing the value of reciprocity. This is reflected in the celebration activities.

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## First level health facilities in Bengkulu Province: Acceptance and use of an online queuing system

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**ABSTRACT:** In January 2020, BPJS Kesehatan presented an online queuing system that was integrated with the JKN Mobile Application (National Health Insurance) and the Pcare Application (Primary Care) in all Indonesian First Level Health Facilities (*Fasilitas Kesehatan Tingkat Pertama* or FKTP). However, the system posed some challenges, and its implementation had not yet been evaluated. This study aims at analyzing the acceptance and use of the online queuing system by FKTP using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. There are 216 respondents (heads of FKTPs who have implemented the online queuing system) participated in the survey. The data were analyzed using the PLS-based SEM. The results show that effort expectancy, social influence, facilitating conditions, and attitude positively and significantly affected behavioral intention to use the online queuing system. This study is expected to contribute to consideration in policy formulation and in improving the quality of services in FKTP, especially the online queuing system, as well as providing additional scientific information for researchers and practitioners in the health technology sector.

**Keywords:** online queuing system, FKTP, UTAUT, acceptance and use, PLS-SEM

### 1 INTRODUCTION

BPJS Kesehatan (Indonesia's Healthcare and Social Security Agency) was established as an institution to administer Social Security Program (JKN – *Jaminan Kesehatan Nasional*) in Indonesia. As of June 30, 2021, there had been 224,909,151 citizens registered as JKN-KIS participants. The National Medium-Term Development Plan (RPJMN – *Rencana Pembangunan Jangka Menengah*) targets the achievement of Universal Health Coverage (UHC) in 2024 at 98% or 275 million people (BPJS Kesehatan 2021a). BPJS Kesehatan oversees 13 regional deputies and 126 branch offices throughout Indonesia. Bengkulu province has two branch offices in the working area of the Depwil (regional deputy) of South Sumatra & Bangka Belitung Islands. BPJS Kesehatan (Social Security Administrative Body) Bengkulu Branch oversees six regency/city offices, namely Bengkulu City, South Bengkulu Regency, Central Bengkulu Regency, Kaur Regency, Seluma and Mukomuko Regency. BPJS Kesehatan Curup Branch oversees four regency offices, they are Rejang Lebong Regency, Kepahiang Regency, Lebong Regency and North Bengkulu Regency (BPJS Kesehatan 2021b).

Following an evaluation, it is found that BPJS Kesehatan has implemented online queuing system in First Level Health Facilities (*Fasilitas Kesehatan Tingkat Pertama*, later referred to as FKTP) and apparently has not run optimally. Statements of the heads of Primary Management Services of BPJS Kesehatan in Bengkulu and Curup were explored qualitatively. They stated that the use of the online system was still not optimal due to various obstacles. These obstacles include (1) difficult system acceptance, (2) officers' inexperience, (3) inactive online queuing system, (4) preferences

in using manual queue, (5) internet network problems, and (6) PCare officers' lack of interest in operating the system.

The heads of FKTP plays a vital role in optimizing the use of the online queuing system because without their support in implementation and commitment to the online queuing system, BPJS Kesehatan's effort will be futile. A good attitude towards acceptance to use and run the online queuing system must be performed by FKTP, in line with the commitment stated in the cooperation agreement.

To this point, limited studies have been conducted to measure the user acceptance of the online queuing system at FKTP, especially in the BPJS Kesehatan Bengkulu Branch Office and Curup Branch Office. Thus, this study aims to investigate and measure the level of user acceptance of the online queuing system at FKTP by using the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al. 2003). The UTAUT model has also been used in a study conducted by Rapiz & Arviansyah (2020) on Employees' post-adoption behavior towards collaboration technology. Attitude variable was added in this study (Hill et al. 1977). Referring to a study conducted by Dwivedi et al. (2019), attitude includes an affective component that is translated into cognition by an action, in this case, an intention, indicating that attitude plays a central role in an individual's intention to use information system innovations or information technology. Moderating variables (gender, age, and experience) were not used but included in the characteristics of the respondents, later explained in the results of the study. Voluntariness of use was also removed because using the online queue in FKTP was mandatory.

## 2 METHODOLOGY

This study employs a quantitative approach by testing hypotheses empirically by means of a survey method. A literature search was firstly conducted to strengthen the research foundation, followed by problem formulation, then model development. Questionnaires were distributed to the Heads of FKTP in Bengkulu Province through an online survey. 6 Points Likert scale was applied in the questionnaire, with the lowest value being 1 and the highest being 6. Generally, the 6 Points Likert scale has strong consistency or reliability compared to 5 Points Likert scale because it eliminates doubtful or neutral options, and it also has the reliability to reduce risks of decision-making errors (Chomeya 2010).

The secondary data in this study were obtained through interviews and literature studies. The findings of this study were documented and processed using a laptop, Microsoft Office, and Smart PLS 2.0. This population of this study involved 328 FKTPs within BPJS Kesehatan Bengkulu Branch Office and Curup Branch Office working areas. This population was represented by the Heads of FKTP who had implemented or installed the online queuing system with a total of 216 FKTPs. Sampling was carried out by distributing questionnaires to the Heads of FKTP with an average time of filling out the questionnaire of approximately 10 minutes per respondent. In determining the number of samples, Taro Yanane and Slovin formula was employed as the number of populations had been known (Creswell 2014).

The number of stratified sample members was calculated using proportional stratified random sampling. Proportional allocation formula suggested that number of samples needed in this study was 140, consisting of 20 clinics, 80 health centers, and 40 family doctors. The questionnaire measured performance expectancy, effort expectancy, social influence, attitude, facilitating conditions, use behavior, and behavior intention. Hypothesis testing in this study was performed by means of Structural Equation Model (SEM). The hypothesis testing of the coefficient value of the path/inner model can produce a significant value. The Structural Equation Model (SEM) has also been used in a study conducted by Arviansyah et al. (2018). In the coefficient value of the path/inner model, the hypothesis was tested by a confidence level of 90% (alpha 10%) and a confidence level of 95% (alpha 5%). The t-statistic value must be greater than 1.645 (10%) and must be greater than 1.960 (95%) (Hair et al. 2014).



### 3 RESULTS

At the time this study was conducted, the three largest respondents of FKTPs were located in Bengkulu City with 30 respondents (21.43%), Mukomuko Regency with 26 respondents (18.57%), and Seluma Regency with 25 respondents (17.86%). The number of female employees dominated FKTP BPJS Kesehatan of Bengkulu Province, amounting to 100 respondents (71.43%) and male employees amounting to 40 respondents (28.57%). The age range of respondents in this study was dominated by respondents aged between 31-40 years old (39.29%). Meanwhile, the majority of respondents' education level in this study was undergraduate, amounting to 129 respondents (92.14%).

Based on the results of a descriptive analysis using the UTAUT model to find out the acceptance and use of the online queuing system by FKTPs, it was discovered that in general, respondents' perceptions of all aspects of the UTAUT were in the high category, and the attitude of the Heads of FKTP towards the use of BPJS Kesehatan online queuing system was already high or adaptive.

Meanwhile, the results of hypothesis testing indicated that: first, performance expectancy had no significant effect on behavioral intention to use the BPJS Kesehatan online queuing system, implying that performance expectancy did not increase nor decrease the intention to use the online queuing system. Second, effort expectancy significantly affects behavioral intention to use BPJS Kesehatan online queuing system, implying that effort expectancy could increase or decrease the intention to use the online queuing system. Third, social influence had a direct effect on behavioral intention, implying that an individual believed that other people could influence him/herself to use the online queuing system. Forth, facilitating conditions had a positive and significant effect on behavioral intention to use BPJS Kesehatan online queuing system, implying that supportive condition of the facilities in the FKTP could increase the intention to use the online queuing system. It also suggested that an individual believed that the existence of an organizational and technical infrastructure supported the system usage. According to Venkantesh et al. (2003), organizational and technical infrastructure conditions can support the use of a system. Fifth, attitude positively and significantly affected behavioral intention to use the online queuing system, implying that FKTPs' Head's high trustworthiness would increase the intention to use the online queuing system. Finally, behavioral intention had a positive and significant effect on the use behavior in BPJS Kesehatan online queuing system usage, implying that a FKTP Head's enthusiasm in using the application stimulated the use of the online queuing system.

### 4 CONCLUSION

BPJS Kesehatan online queuing system offers several competitive advantages including (1) scheduling visits, (2) facilitating participant eligibility validation during visits to FKTP, (3) updating service data records at FKTP becomes more complete and in real-time.

Based on the results of the study, it can be concluded that attitude played a vital role in the intentions of the Heads of the FKTP in accepting and using the online queuing system. The attitude of an individual directly affected the individual's intention; in this case, it can be a consideration for BPJS Kesehatan to motivate the FKTP Heads to use and implement the online queuing system for those who have not implemented it. This study also shows that behavioral intention directly affected the use behavior. In this case, the head of the FKTP who used the online queuing system would continuously use BPJS Kesehatan online queuing system in the future. It was also found that facilitating condition directly affected the use behavior in terms of the desire to use the online queuing system due to the needs to be supported by adequate facilities, such as the resources and equipment needed to implement it. In addition, BPJS Kesehatan also provided services for FKTP Pcare users to consult should there be difficulties in using the online queuing system. Social influence appeared to directly affect the behavioral intention due to the influence of other FKTP Heads who used the same application system. These results were supported by the high number

of respondents' answers on the indicator of willingness to optimize the use of the online queuing system and the assumption that using the online queuing system would be more appreciated.

Furthermore, the results also revealed that effort expectancy directly affected behavioral intention in the online queuing system, indicating that the expectation of trouble-free use of the BPJS Kesehatan online queuing system was high. On the other hand, performance expectancy did not directly affect behavioral intention, suggesting that the expectation of getting high-performance results did not affect the Heads of FKTP to use the online queuing system nor did it affect his performance, showing lack of interest in using it. The use of BPJS Kesehatan online queuing system by the Heads of FKTP turned out to be 'mandatory' not because of their own will, so the Heads of the FKTP did not have positive expectations toward the online queuing system as a benchmark of service performance. This possibility resulted in insignificant effect of performance expectancy on the desire to use the online queuing system.

From this study, we would like to give some recommendations as follows (1) BPJS Kesehatan needs to keep monitoring, controlling and evaluating on the use of the online queuing system by maximizing the regular meeting and visit to FKTPs to offer solution for the existing problem directly, (2) as the online queuing system is mandatory for FKTP so the heads of FKTP must obey and commit to use the online queuing system and improve the supporting facilities in implementing the online queuing to meet the required service standard, and (3) health department must support and facilitate FKTPs to solve the existing problems in FKTPs related to the implementation of the online queuing system like the Internet connection and bandwidth by coordinating with the department of communication and information to improve the Internet connection and to upgrade the bandwidth capacity, and to extend the Internet coverage area for FKTPs which are located in remote area where they do not have Internet connection.

This study is expected to contribute to consideration in policy formulation and in improving the quality of services in FKTP, especially the online queuing system, as well as providing additional scientific information for researchers and practitioners in the health technology sector.

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## Strategic management analysis of gas supply during turn around: Lending and borrowing agreement at PT X

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**ABSTRACT:** PT A, as one of PT X's gas buyers, asked for gas supply during PT X's turnaround period in which all PT X's production facilities had to be shut down. This study to analyze the strategic management undertaken by PT X to meet the demand for gas supply. It employs a qualitative approach by conducting interview with related experts, observing documents, and calculating costs and benefits. Based on the analysis of the build-borrow-or-buy framework, PT X should choose 'borrow'. The borrowing framework is a gas lending and borrowing scenario between PT X and PT Y to fulfill PT A's request which was legitimated in the Lending and Borrowing Agreement (LBA). PT Y supplied gas to PT A on behalf of PT X, so PT X still earned revenue. On the other hand, PT Y also profited from the condensate production.

**Keywords:** Strategic Management, Operation, Lending and Borrowing, Oil and Gas Industry

### 1 INTRODUCTION

Companies need to ensure the reliability of the company's production facilities to avoid equipment failure (Heizer et al. 2017). To prevent potential failures, it is necessary to do routine maintenance (Heizer et al. 2017). An effective maintenance program was needed because it is useful to reduce downtime, increase availability and reliability, and improve utilization (Telford 2011). Based on "good practice" in oil and gas industry, it is needed to do a scheduled maintenance every 1-5 years. Turn around or TA is a maintenance project that requires a large amount of labor in a limited period of time (Ghazali & Halib 2016). This maintenance will take some time, the manufacturing facility will have to be shut down at that time which means the company cannot produce while doing so, resulting in the company's inability to fulfill the demand for supply from its buyers. If the company cannot meet demand-for-supply during the turnaround phase, the revenue will be lost.

Operations exist to serve markets. The first step for any operating strategy is to look to its market and think of ways of operations to be able to help the organization to compete in its market (Slack & Lewis 2020). The company needs to understand its resources or the operation capability (Slack & Lewis 2020). An operating resource consists of resources (equipment, staff, reputation, experience), capabilities (technology), and operating processes.

PT X is one of the upstream oil and gas companies. PT X is well-known as a company with large operating capabilities and able to manage it well. Until the third quarter of 2021, PT X was able to record lifting achievements above 100% of the target set by the Government. Based on data obtained from the Oil and Gas Regulatory Special Task Force (SKKMigas – *Satuan Kerja Khusus Minyak dan Gas*), the achievement of the gas lifting of PT X was 283 MMSCFD or 101.7%. The achievement of condensate lifting of PT X was 6,730 bopd or 104.8%. This achievement brought PT X into the top five upstream oil and gas companies with the highest lifting achievements in Indonesia.

PT X performs routine maintenance of production facilities once every three years as one strategy to maintain its production. When it comes to maintaining production facilities, the dilemma described in the previous paragraph is unquestionably a problem for PT X.

## 2 METHODOLOGY

This study employs a case study research design with a qualitative approach. First, observations were d on the minutes of meetings (MoM) when compiling and implementing lending and borrowing agreements. The purpose of the MoM observation is to find out chronologically from the demand for supply from PT A, the preparation of lending and borrowing, to the implementation of the lending and borrowing. Observation is also intended to discover the contents of the discussion and decisions taken in each meeting. Second, a cost and benefit analysis of the existing scenarios was carried out to determine the best option based on the highest income. These actors have a minimum of 10 years working from PT X and PT Y in commercial, legal, operational, and subsurface functions. Interviews were conducted using structured interviews with open-ended questions. The purpose of interview is to find out the scenarios for solving the existing problems, examine PT X's operational strategy, discover PT X and PT Y's supply chain schemes, and validate the selected scenario in the cost and benefit analysis.

## 3 ANALYSIS AND DISCUSSION

### 3.1 *Operational strategy analysis*

As a preliminary analysis, the operating strategy analysis was conducted using the model developed by Slack and Lewis (2011) to obtain an overview of the strategy that the company should undertake by considering the market needs and the company's resources.

According to Slack and Lewis (2011), an analysis of market needs perspective is carried out by describing consumer needs, position in the market, and competitor behavior. By understanding these three elements, the performance objectives demanded by the market will be obtained. PT X has four gas buyers, including PT DS, PT A, PT PG, and PT PL, with daily absorption of 250 MMSCFD, 62 MMSCFD, 0.2 MMSCFD, and 4.5 MMSCFD, respectively. The total daily absorption is 312.2 MMSCFD (PT PL has not started to absorb yet). Considering that each buyer has made a significant investment in their production, it is critical to ensure supplies daily within a certain period. PT X produces significant amounts of gas and oil, resulting in a low operational cost (low cost) per unit of gas and oil. Therefore, the gas price from PT X is relatively lower when com-pared to gas from other companies. PT X has a competitor who is a subsidiary of a large oil and gas company in Indonesia, PT Y. Thus, the competitor companies have experience in the up-stream oil and gas industry. PT DS is also gas buyer of PT Y. However, the competitors selling price is still higher than the selling price of PT X.

During the TA period, PT A needed gas supplies with a minimum of 8 MMscfd on 20 - 25 April 2018 and a minimum of 44 MMscfd on 26 April – 2 Mei 2018. PT A needed gas supplies because it was on stream on 14 February 2018 and no need to do turn around yet. Customers buy gas from PT X with certain specifications. The specifications are determined based on the buyer's needs and written in the gas sales agreement (GSA) between PT X and each gas buyer.

Based on this analysis, the performance objectives can be obtained, namely quality and dependability. In terms of quality, products meet gas quality requirements. In terms of dependability, the buyer has made a significant investment to build their factories so that gas supply is very needed during that period.

Operational resource perspective analysis consists of three elements, including operating resource identification, operating capabilities, and operating processes. These three elements will result in operational strategy decisions. PT X has a gas field. Field X-1 is a large storage facility of natural gas and condensate located in the province of Central Sulawesi. The existing facilities include three well-clusters, a flowline, and trunkline from each cluster, a Central Processing Plant (CPP) with two trains, a produced water injection well, a condensate jetty, and a pipeline for gas sales. The production facility has a design production capacity of 340 MMSCFD (2 x 170 MMSCFD). In addition, PT X and PT Y have agreed to use the shared facilities, which is

documented in the Facility Sharing Agreement (FSA). The Joint Facilities between PT X and PT Y cover the following areas: (a) gas facilities, such as gas pipelines, gas custodial measurement facilities, and communication facilities; (b) condensate facilities, such as condensate collection and loading facilities, condensate measurement facilities; (c) Connection Facility; (d) Land Facilities: land for Donggi measuring station facility, land for condensate facility, 16" gas pipeline ROW, 4" condensate pipeline ROW, and 29-kilometer point ROW trunkline. PT X has approximately 300 employees in both the Jakarta office in and the field. So far, PT X has an excellent reputation. PT X won awards at the national level, including the Padmamitra Award from the Ministry of Social Affairs, the Indonesia Sustainable Development Award, Best Social Environment Award at the international level. In addition, they received an award at the Asia Pacific Annual Global CSR Award event in 2019 and 2020. From the environmental aspect, PT X was declared compliant with environmental regulations so that it received the Green PROPER award from 2016 to 2019, and in 2020, PT X managed to get the Gold PROPER award (beyond compliance) from the Ministry of Environment and Forestry.

The opening of opportunities for cooperation for PT X and PT Y in supplying gas to their buyers due to the existence of FSA are operational strategy decisions that can be considered by the company in formulating its operating strategy when it has to do a turnaround based on the analysis of operating resources.

### 3.2 *Cost and benefit analysis*

The cost and benefit analysis involves three scenarios. First, the do-nothing scenario, it is a scenario in which PT X does not make any effort to fulfill gas demand from PT A. Based on his calculations, during the FY period, PT A did not receive gas supply from PT X, so the total revenue earned by PT X in April 2018 was US\$3,722,759. Second, the scenario of do-nothing during the FY period, but after completing the implementation of the FY period, PT A is allowed to store gas above its daily stock. Based on the calculations, the amount of revenue obtained by PT X in April 2018 for both Scenario 1 and Scenario 2 was similar. However, PT X earned more revenues in May 2018, which was US\$5,657,313. Third, the gas borrowing or gas borrowing scenario is a scenario in which PT X will borrow PT Y's gas. Based on the calculation, the total revenue was obtained by PT X in April 2018 when using the lending and borrowing scenario, which was US\$4,227,923.

Based on the aforementioned three scenarios, the second scenario received the highest score. However, there are considerations when selecting the second scenario, so an interview process is carried out to find out more about these considerations.

### 3.3 *Strategic management analysis: Build-borrow-or-buy conceptual framework*

The necessity to supply gas to buyers when planned or unplanned maintenance occurs is a strategic concern that could hinder future growth. To meet the need for these resources, there are three strategic options, i.e., building reserve facilities, borrowing gas, and acquisition (Rothaermel 2021). The framework started by defining the strategic resource gap. The strategic resource gap of this case study is there is gas demand from buyer but the seller could not supply due to TA. The following are the questions that lead to strategic recommendations that can be taken.

#### a. How relevant are internal resources?

All X-1 Field facilities were shut down during the FY period so that PT X could not produce its natural resources. Therefore, the company's internal resources become irrelevant to solving this problem. The answer on Figure 1 is Low.

#### b. How tradable are the targeted resources?

Natural resources produced by external parties (in this case natural resources produced by PT Y) can be sold to buyers of PT X. Both natural resources from these two entities have gas specifications, which are acceptable to buyers. Thus, it is possible to transfer ownership or borrow natural resources from PT Y to PT X and vice versa. The answer on Figure 1 is High.

- c. How close to your resource partner?  
PEP is an entity that PSC contracts to operate its fields under a contract with the government. Meanwhile, JOB Tomori has three PI holders under contract with the government through PSC. Due to the PSC contract distinctions, these two entities' resources are not close to each other.
- d. How well can you integrate the target firm?  
These two companies cannot be easily acquired because each of these companies has a production sharing contract with the Government of Indonesia.

Based on build-borrow-or-buy framework, PT X should choose 'borrow' with contractual alliance as the type of collaboration. In the actual condition, PT X took decision to borrow gas from PT Y to deliver gas to PT. A during TA period. In other words, PT Y deliver gas to PT A on behalf of PT X. It was a successful decision. Further, PT X and PT.Y agreed to make lending and borrowing agreement (LBA) for long-term period. It has been approved by SKK Migas on 2021.

#### 4 CONCLUSION

- a. The market requirement of PT X is that PT A needed a gas supply minimum of 8 MMscfd on 20 - 25 April 2018 and a minimum of 44 MMscfd on 26 April – 2 Mei 2018.
- b. PT X produces gas and condensate in a plant with a capacity of 340 MMSCFD. PT X has three active buyers with a total production of 312.2 MMSCFD, meaning that PT X still has excess plant capacity.
- c. PT X and PT Y have upstream supply chain integration. Both parties share many production facilities. In other words, they can cooperate in supplying gas to their buyers. It is also supported by PT X's excess capacity.
- d. Based on cost and benefit analysis, the highest revenue would be earned from Scenario 2. PT A was not allowed to shut down its production facilities due to its production facilities having just been on stream. The alternative is Scenario 3 (scenario of gas lending and borrowing). Based on the build-borrow-or-buy analysis, the framework leads us to choose to borrow. This analysis has ensured to borrow the gas.

#### 5 SUGGESTION

- For Government: It is suggested to SKK Migas to encourage oil and gas upstream companies to implement gas lending and borrowing.

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# Analysis of capital budgeting and risk management for superblock projects with transit oriented development concept at PT. XYZ

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**ABSTRACT:** Previously, Indonesia applied Car Oriented Development concept. Currently, the pattern of Transit Oriented Development (TOD) is one of the solutions chosen by the government to solve the problem. TOD is something new in Indonesia. This study aims to find out the implementation of Transit Oriented Development in Tokyo and to compare the implementation, the feasibility of investment, and the risks occurring from the Super Block with TOD Concept Project of PT. XYZ. Literature study was used to determine the implementation of TOD in Tokyo. Capital budgeting analysis was used to calculate Payback Period, Net Present Value, and Internal Rate Return, while the risk analysis used the Risk Register. The results of this study showed that Indonesia has started to move towards TOD similar to the one applied in Tokyo. However, not many people have the habit to use public transportation in Indonesia. Furthermore, the results showed that investment is feasible but there are a lot of extreme level risks.

## 1 INTRODUCTION

PT. XYZ is one of the rail transportation service providers in Indonesia, especially in the capital city of DKI Jakarta. PT. XYZ also built a Super Block with the concept of Transit Oriented Development (TOD) in the Jakarta area to support its main business, rail transportation services. TOD is a development that includes residential, office, retail or other commercial areas integrated into a walkable environment and located within half a mile of public transport (CTOD 2022).

The development pattern that was previously applied in Indonesia was the Car Oriented Development (COD) which was changed to Transit Oriented Development (TOD) (CNN Indonesia 2021). This can be seen from the many developments that support the use of private vehicles such as toll roads, private vehicle parking, and so on. The development has resulted in the urban sprawl phenomenon already occurring in DKI Jakarta.

The objective of TOD concept is to overcome the urban sprawl phenomenon that occurred in DKI Jakarta. This concept is something new in Indonesia hence there is a lack of experience related to it. Therefore, it is necessary to conduct a literature study related to the application of TOD abroad, a feasibility study, and a risk analysis that can occur in the Super Block project applied with TOD run by PT. XYZ.

## 2 METHODOLOGY

This study has three discussions, namely analysis of Transit Oriented Development (TOD) implementation, feasibility study, and risk analysis. The TOD implementation analysis referred to the Critical Success Factor (CSF) from Thomas & Bertolini's (2020) book entitled *Transit-Oriented Development: Learning from International Case Studies*, which has 3 major factors: policies & plans, actors, and application. Literature study was conducted to find out about the implementation

of TOD in Tokyo. Meanwhile, regarding the application of the TOD Super Block project by PT. XYZ, in-depth interview with experts was conducted.

The feasibility study was carried out in 3 stages, which were data collection, calculations, and conclusion and suggestion. At the data collection stage, we planned the cost of investment and made assumptions for the calculation of capital budgeting and then the required rate of return of the project. At the calculation stage, we calculated the Net Present Value (NPV), Internal Rate Return (IRR) and Payback Period. At the conclusion and suggestion stage, we obtained whether the Super Block project with the TOD concept built by PT. XYZ is worth running or not.

The Risk Analysis was carried out in 3 stages, namely Risk Identification, Risk Analysis, and Risk Evaluation. At the Risk Identification stage, we identified the risks the source of the risks. At the Risk Analysis stage, the probability score and impact score were set for a risk and the risk level was determined. Finally, at the Risk Evaluation stage, the risk priority and mitigation for the risks were determined based on the risk level.

### 3 ANALYSIS AND DISCUSSION

Thomas & Bertolini (2020) did a case study in several cities (Tokyo, Perth, Melbourne, Montreal, Vancouver, Toronto, Napoli, Copenhagen, Amsterdam-Utrecht, Rotterdam-The Hague, and Arnhem-Nijmegen). Based on the case study, they developed the Critical Success Factor (CSF) with three major factors, namely Policies and plans, Actor, and Application.

#### 3.1 *Application analysis of TOD in Tokyo*

##### 3.1.1 *Policies and plans*

In the case of Transit Oriented Development (TOD) in Tokyo, there was consistency related to policies & plans for developing urban corridors that support the use of transit. It can be seen from the transportation policies made by the Japanese government, which were always revised every 10 to 15 years (ANMC 21 2012).

In addition to the policies issued by the Japanese central government to support the creation TOD, the local (prefectural) governments also provided support by planning and facilitating land use development with several instruments. One instrument was the FAR bonus. The area around the station was given a higher FAR value than its urban environment, targeting higher density development in the station area, encouraging the development of various functional programs around the station by using tax relief such as real estate tax exemptions to attract company with the aim of targeting the development of a higher density around the station (Kidokoro 2019).

##### 3.1.2 *Actor*

Regarding the actors of TOD in Tokyo, the government was the major support based on the policies implemented as already stated. From the perspective of the Japanese people, they also supported the use of public transportation as stated in a survey conducted by the Japan-Guide in 2000 (Japan Guide 2000).

According to the survey results, trains were the most common transportation used to travel in Japan, with the majority 52.5% of students and 48.2% of company workers indicated to go to school/work by train or sub-way. Cars were used only by 24.1% of company workers and 6.3% of students for their daily commute because their destination was close to the station.

##### 3.1.3 *Application*

Regarding the application of TOD in Tokyo, there were many instruments, as previously stated. Developers also gained certainty as the Japanese government focused on the use of public transport, which was reflected in policy updates every 10-15 years. Therefore, many areas were developed by the developers close to the station which were more attractive to the public.



### 3.2 Super block project

#### 3.2.1 Policies and plans

Regarding the policies and plans on the Super Block project by PT.XYZ, the DKI Jakarta Province changed the pattern of development from the Car Oriented Development (COD) to the Transit Oriented Development (TOD). One of the policies issued by the government to support TOD was PERMEN ATRKBPB No. 16 of 2017 on Guidelines for the Development of Transit Oriented Areas. The convenience provided for TOD developers were: incentive zone or bonus zone, transfer of building rights, special fiscal imposition zone, land consolidation, and other supporting tools.

#### 3.2.2 Actor

Regarding actors, both the central government and the regional government of DKI Jakarta, supported the TOD concept. However, the people, especially the people living in DKI Jakarta, were not certain about accepting the TOD concept because the previous concept (COD) and the new concept (TOD) were still in construction.

#### 3.2.3 Application

Indonesia has just implemented the TOD concept, but the tools used to support TOD have already been implemented.

### 3.3 Feasibility study

Net Present Value (NPV) is the present value obtained from running a project. If the NPV is positive, the running project can generate profit. Internal Rate Return (IRR) is when NPV equals to 0. Payback period is time needed for the cash-flow of a project to equal the cost of initial investment.

The results of the calculations are as follows: Net Present Value Rp 458.309,000,000, WACC 6 %, Internal Rate of Return 7,83% , Payback Period 10 Years After Operation. Based on the above results, the project is feasible because the NPV obtained is positive, the IRR obtained is greater than the WACC, and the Payback Period is only 10 years after operation.

### 3.4 Risk analysis

Table 1. Risk analysis.

| No | Risk  | Reason  | Analysis    |             | Skor | Evaluation |          | Risk Mitigation  |
|----|---|---|-------------|-------------|------|------------|----------|--|
|    |   |   | Probability | Consequence |      | Level      | Priority |  |
| 1  | Unable to acquire loan financing to conduct land procurement and develop basic infrastructure | Lack of interest from the public and banks in investing | 3           | 4           | 12   | E          | 1        | 1. Conduct partnership with the current land owner to develop and monetize the land.<br>2. Obtain strategic partners with good financial capabilities to ease the burden of developing the TOD area. |

(continued)

Table 1. Continued.

| No | Risk  | Reason<br>Probability   | Consequence | Analysis<br>Skor | Evaluation<br>Level | Priority | Risk Mitigation   |
|----|---|---|-------------|------------------|---------------------|----------|---|
| 2  | Unable to purchase the required land area                           | 1. Land owners offer above market prices<br>2. The land owners do not want to sell their land | 2           | 4                | 8                   | E 3      | 1. Build relationship with the current land owners.<br>2. Ensure adequate fund to procure the land.<br>3. Ensure all legality to secure the land or hinder other party to purchase the land.  |
| 3  | Delay in construction and cost overrun                              | Inexperienced contractor  | 3           | 3                | 9                   | E 2      | 1. Choose a Contractor who has expertise in TOD construction<br>2. The project is contracted through an EPC Turnkey (lump sum) contract which features a fixed completion date and liquidity damages for delays caused by the contractor<br>3. Proper and methodical documentation of any issues which may cause delays during construction, including the party responsible for the issue<br>4. Regular audit of the contractor's work |
| 4  | Failure to maintain and/or manage the TOD location                  | Lack of ability to perform TOD maintenance  | 1           | 4                | 4                   | E 5      | Ensure the availability of proper talent in the TOD maintenance team  |
| 5  | Unable to capitalize upside of a property market boom in the future | Lack of accuracy in seeing market desires   | 2           | 3                | 6                   | H 4      | 1 Hire consultants for building construction planning<br>2. Implement various payment methods   |

Based on the Risk Analysis results, there are four risks that had an extreme level, which can render the project not feasible. Therefore, PT. XYZ needs to pay more attention to risks.

#### 4 CONCLUSION

From the research results, the Japanese government has long applied the Transit Oriented Development (TOD) concept so the people in Japan have been accustomed to the TOD concept and greater certainty for developers. Meanwhile, Indonesia has only begin implementing the TOD concept so that people have not been not familiar with it, hence developers see uncertainty, but the Indonesian government has supported the development of the concept by issuing the PERMEN ATRK-BPN No. 16 of 2017.

The Super Block project with the TOD concept by PT. XYZ is feasible to run but they must pay attention to the risks because there are so many risks with extreme levels.

This study is expected to help investors, especially in the property business, to determine the feasibility of investing in TOD. Further studies can be done to find out the reason why the people of DKI Jakarta chose not to use private transportation so that TOD developers have greater certainty.

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## Measurement of operational value at risk of earthquake using loss distribution approach-aggregation model

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**ABSTRACT:** Earthquakes may cause a considerable impact, both in loss and the area. The financial implications of a major earthquake can have a long-lasting effect. Therefore, companies need to understand the essential characteristics of earthquake events. This research measures the Operational Value at Risk (VaR) for catastrophe insurance claim using statistical session (MAIPARK) data for 2014–2021. Calculation of operational risk with loss distribution approach aggregation model (Monte Carlo Simulation) aims to estimate capital reserve estimates based on the frequency distribution and severity distribution of historical data. The results showed that the frequency distribution of earthquake insurance claim losses followed a geometric distribution pattern, while the severity distribution showed an exponential distribution pattern. With a 95% confidence level, the operational risk VaR value is IDR 2,792,721,528,565.80, and the validity test or back testing uses the Kupiec test with one error, and the model is acceptable.

**Keywords:** value-at-risk, operational risk, convolution, insurance business risk, frequency, severity distribution, loss distribution approach-aggregation model.

### 1 INTRODUCTION

Geographically, Indonesia is an archipelagic country located at the confluence of four tectonic plates, namely the Asian Continent plate, the Australian Continent plate, the Indian Ocean plate, and the Pacific Ocean plate. This condition is prone to disasters, such as volcanic eruptions, earthquakes, tsunamis, floods, and landslides. Data shows that Indonesia is one of the countries with the highest seismicity rate globally, much higher than the level of seismicity in the United States. An earthquake can cause considerable impacts in terms of the magnitude of loss and the extent of the affected area. The financial consequences of a major earthquake can have a long-term effect on society and insurance and reinsurance companies. From Maipark statistical data, 657 claims were reported with a value of 544 billion Rupiah in 2017 and in 2018 there were 1007 claims with a loss impact value of Rp. 966 billion. Meanwhile, throughout 2020, there have been 1737 earthquakes with a magnitude above 4, 11 of which have resulted in claim reports. However, the damage caused was relatively light, with a total loss of Rp 1.6 billion.

An earthquake can be felt up to 500 km from the epicenter. In large-scale earthquakes, the 500 km radius can be a damage radius. Therefore, an earthquake event can cause damage to various risks/policyholders. This condition exposes companies to considerable insolvency risk. Thus, insurance companies need to calculate the operational value at risk (VaR) measurement value for earthquake claims using the Loss Distribution Approach (LDA)-Aggregation model by combining the frequency distribution and severity distribution of earthquake claims in the last decades.

Consequently, we formulate several problems in this research. First, How do we calculate the risk value in determining the distribution of the earthquake insurance risk claim model in Indonesia, based on data on the frequency and impact of losses experienced in the last decades? Second, what

is the VaR value for the risk of earthquake loss using the chosen approach? Third, is the LDA-Aggregation Model used in calculating the operational VaR Value appropriate to use? Finally, is the management at risk of an earthquake in Indonesia sufficient to withstand the potential losses that will threaten Indonesia under normal and critical conditions?

We hope to find out the frequency and severity distribution model that can describe the trend of earthquake risk in Indonesia with this research. This research will benefit insurance companies by having an alternative operational risk measurement for earthquake risk claims. Insurance companies can determine the amount of risk-based capital reserves by calculating VaR measurements with the alternative LDA-Aggregation method. The VaR value obtained can determine the minimum/maximum limit for loss that insurance companies can receive. Insurance companies can consider proper risk management in implementing an investment portfolio related to the adequacy of capital owned to pay claims caused by natural disasters and can determine the resilience of Indonesia in anticipating possible disaster risks that occur in Indonesia.

The remainder of the article is set up as follows. Section 2 outlines the theoretical foundation used in operational risk to measure VaR, section 3 discusses how to model the frequency distribution and severity distribution of natural disaster claims that occurred in Indonesia. Then from the frequency distribution and severity obtained, we calculated the Operational VaR value of Earthquake claims in Indonesia using the LDA-Aggregation method with the Monte Carlo Simulation. In addition, we measured the validation of the model created to measure the effectiveness of the model that was built. Lastly, section 4 concludes the research.

## 2 THEORETICAL FOUNDATION

Operational risk refers to deficiencies in external processes, systems, people, or events, which can cause harm to the organization. The Basel Committee for Banking Supervision has defined different possibilities for measuring operational risk, although financial institutions can develop their models for measuring operational risk. The Basel Capital Accord (Basel II) states that there are three operational risk measurement approaches, namely the Basic Indicator Approach (BIA), Standardized Approach (SA), and Advance Measurement Approach (AMA).

Basel II proposed three methodologies for modeling AMA: the Internal Measurement Approach, the Score Card Approach, and the Loss Distribution Approach (LDA) (Bonet et al. 2021). Nevertheless, financial institutions “will be free to use models based, for example, on variance-covariance matrices, historical simulations, or Monte Carlo simulations”. This offers financial institutions the possibility to select or create their methods for calculating the amount of capital that is required by the supervising body. For this research, the LDA is used since it is the most common approach within the AMA.

The variables that allow the characterization of a risk event are as follows (Peña et al. 2018):

- Frequency: the number of times a risk event occurs in a period (hour, day, week, month, year).
- Severity: the amount of loss, expressed in a currency and a period (hour, day, week, month, year), caused by a risk event.

VaR calculation with the level of  $q = 95\%$ . For capital reserves, financial institutions often use quantile levels in the range of  $q [0.9995, 0.9997]$ . The LDA is a statistical approach used for generating an aggregate loss distribution using a separate distribution for the frequency and severity of an event type. The approach is particularly popular in the finance and insurance industry. However, the approach has also been applied to model risks from natural hazards such as storm surges and bushfires. One of the most frequently used specifications of this approach is to apply a Poisson distribution for the frequency and a Lognormal distribution for the severity of a particular hazard (Keighley et al. 2018).

Frequency distributions that are often used for the number of annual events  $N$  include Poisson distribution, binomial distribution, geometric distribution, and negative binomial distribution.

While the severity distributions that are often used to measure the number of operational losses include: lognormal distribution, exponential distribution, and gamma distribution.

3 METHOD

This section contains a description of how to model the frequency distribution and severity distribution of natural disaster claims that occurred in Indonesia. Then from the obtained frequency distribution and severity, an approach was carried out by calculating the Operational VaR value of Earthquake claims in Indonesia using the LDA-Aggregation method with the Monte Carlo Simulation.

The research stages carried out were (a) data collection (b) distribution determination (c) LDA-aggregation (d) OpVaR Calculation (e) back testing. This research began with the data collection process. After the data were collected, the distribution of the frequency distribution data and the severity distribution of each existing data were determined by the appropriate distribution type using the R software. After selecting the best distribution, statistical tests were carried out (goodness of fit tests) on it to ensure that the distribution was suitable for the distribution of empirical data. Then the LDA aggregation calculation was carried out to obtain the operational VaR value with a 95% confidence level. A validation test was carried out to determine the feasibility of the model used to measure the operational risk of earthquake insurance claims. In addition, we analyzed the resilience of insurance companies in facing the impact of large claims that will occur in Indonesia based on historical scenarios.

4 RESULTS & ANALYSIS

The results of descriptive statistics based on earthquake claim data for the period 2004-2021 for the distribution of frequency and severity can be seen in Table 1.

Table 1. Frequency and severity data of earthquake claims for 2004–2021.

| Parameter                    | Data Frequency | Data Severity     |
|------------------------------|----------------|-------------------|
| Min                          | 0              | 0                 |
| Max                          | 223            | 1,514,200,000,000 |
| Median                       | 22             | 26,140,325        |
| Mean                         | 29,375         | 24,088,835,583    |
| Estimated Standard Deviation | 31.58603       | 142,592,226,731   |
| Estimated Skewness           | 2.435827       | 8.319578          |
| Estimated Kurtosis           | 12.71621       | 78.55689          |

From the descriptive data, it can be concluded that the data are not normally distributed. Thus, the best fit distribution for each distribution will be determined using the R software by comparing the values of the statistical parameter, Loglikelihood, AIC, and BIC for the frequency distribution and comparing the parameter values, K-S, Cramer Von Mises, Anderson Darling, AIC, and BIC for severity distribution. Based on the results of distribution fittings, a frequency distribution was obtained based on earthquake claim data with geometric distribution with parameter  $p = 0.032922$  and severity distribution with Exponential distribution with parameter  $r = 0.000000000415151301$ . After obtaining the frequency distribution and severity distribution that best fit the data, then the aggregate loss calculation was carried out by combining the two distributions using convolution (Monte Carlo simulation) with 10,000 iterations so that the VaR value was obtained from the merging of the two distributions by generating data with random variables based on parameters previously obtained. The obtained VaR values were sorted from the smallest to the largest values so that they were obtained with a 95% confidence level as shown in Table 2.

Table 2. VaR values and confidence levels.

| Frequency   | : Distribution Geometric ( $p = 0.032922$ )              |                  |
|-------------|--|------------------|
| Severity    | : Distribution Exponential ( $r = 0.00000000004151301$ ) |                  |
| Data        | VAR  | Confidence Level |
| 1           | 0.00   | 0.010%           |
| 1000        | 16,902,286,263.96  | 10.000%          |
| 5000        | 280,560,790,549.49                                       | 50.000%          |
| 9000        | 1,827,844,934,581.79                                     | 90.000%          |
| <b>9500</b> | <b>2,792,721,528,565.80</b>                              | <b>95.000%</b>   |
| 9999        | 20,068,322,320,539.20                                    | 99.990%          |
| 10000       | 23,828,073,562,096.20                                    | 100.000%         |

Then from the results of the model, we tested the validity of the model using the Kupiec test with a test period of 48 months. The validity test resulted in a loglikelihood ratio (LR) of 1.0916 at 95% confidence level and the critical value of Chi-square of 3.8415 at 95% confidence level. It can be concluded that the LDA-Aggregation model can be accepted or valid, and the number of deviations between the actual data and the calculated VaR value is only one deviation (violation).

## 5 DISCUSSION & CONCLUSION

This study concludes that (1) the statistical tests showed that the frequency distribution of earthquake claim losses follows a geometric distribution while the severity distribution has an exponential distribution; (2) Using the parameters of the geometric distribution (frequency) and the exponential distribution (severity) based on historical data by performing a convolution of 10,000 iterations, an aggregation distribution model was generated and the Claim Value for earthquake losses for the next month will be the 500th largest value; (3) The Validity Test of the LDA-Aggregation Model Operational loss looked for deviations by comparing the VaR measurement results from the model with a 95% confidence level with the actual operating losses that occurred. The results of the submission for the actual data for 48 months showed that there is one deviation so the obtained model can be said to be valid or acceptable; (5) The LDA-Aggregation model can be used as an alternative for measuring claims reserves to withstand the possibility of potential loss in earthquake claims that occur in Indonesia.

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## Bitcoin and gold as hedging instruments for ASEAN-5 stock market

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**ABSTRACT:** The development of hedging strategies using commodity and cryptocurrency has been a topic of academic and practical interest. An optimal strategy increases the efficiency of risk management and minimizes the costs of hedging. This paper examines time-varying optimal hedging ratios for the ASEAN-5 stock market, hedged with gold and bitcoin. The best hedging instrument was determined using regression and DCC-GARCH model. The analyses resulted in hedge effectiveness criteria. The daily data covered the period from January 1, 2019 to December 31, 2021. The findings were robust to the distribution assumption and to the use of DCC-GARCH model in examining different refit. Finally, this study provides an invaluable starting point to examine the dynamic hedging.

**Keywords:** DCC-GARCH, hedging effectiveness, ASEAN-5 stock markets, gold, bitcoin

### 1 INTRODUCTION

A number of recurrent crises occurred in the early 1990s, including Asian currency crisis in 1997, the subprime financial crisis in 2007–2008, and the non-financial crisis in March 2020: pandemic status of Coronavirus disease of 2019 (COVID-19). The S&P500, FTSE-100, Nikkei-225 plunged to 9.50% and gold as a safe-haven (Baur & Lucey 2010) plummeted to 3.53%. Contrastingly, the cryptocurrency market rocketed tremendously to \$7000 in April 2020. The Covid-19 pandemic made the stock indexes of ASEAN countries experience a sharp correction. The Lifepal research noted that the average performance of all stock indexes of ASEAN countries from January to July 10, 2020 was decreased to –10.2%. It can be said that none of the stock indexes in ASEAN member countries have moved positively in the last six months. The stock markets of countries in Southeast Asia fell due to the bad sentiment of Covid-19 in March 2020. Since then, the dynamic conditional correlations between different stock markets, commodity, and cryptocurrency markets have significantly increased, motivating the researchers to elucidate the financialization of commodity markets and cryptocurrencies. This new concept immensely appealed investors to hedge their financial assets, in which they diversified their portfolios and achieved a trade-off between asset returns and risk. Consequently, investors were obliged to find new ways to hedge their equity position, which had led them to buy certain commodities, known as hedging or safe-haven assets.

Good understanding of how stock is correlated allows decision-makers to estimate optimal hedge ratios and diversify their portfolios accordingly by incorporating of some commodities and cryptocurrencies (Hachicha et al. 2022). On account of this, several econometric tools, which are useful for dealing with volatility dynamics, dynamic conditional correlations, and hedging effectiveness, seem applicable. Thus, DCC model by Engle (2002) was employed to depict investor-related objectives regarding the most appropriate hedging or beneficial diversification procedures for their portfolios. This study contributes to the empirical literature by extending previous empirical studies through investigations of portfolios of ASEAN-5 stock markets (IHSG, KLCI, PSEi, FTI, and STE) with hedged instruments (bitcoin and gold). This decision is justified by the fact that these indices are generally used as potential hedging instruments for the ASEAN-5 stock markets that can be applied in both short and long terms.



## 2 METHODOLOGY

The data of this study were the Bitcoin (BTC), Gold, and ASEAN-5 stock index (JKSE, KLCI, PSEI, STI, and SETI) data obtained from Eikon DataStream. The choice of instrument to use for ASEAN-5 stock index depends on average performance of all stock indexes of ASEAN countries from January to July 10, 2020 was decreased to -10.2%. To control the potential impact of bitcoin halvings on May 12, 2020, a short-term observation window was deliberately utilized from January 1, 2019, until December 31, 2021. Following previous studies (see, Akhtaruzzaman et al. 2020; Bouri et al. 2017; Corbet et al. 2021), the DCC-GARCH methodology Engle (2002) was performed to examine the dynamic correlation of cryptocurrency, gold, and stock index (JKSE, KLCI, PSEI, STI, and SETI). Bouri et al., 2017 suggest that a strong safe-haven asset is negatively correlated with another asset during times of stress. Firstly, estimation of the GARCH (1,1) process was carried out with  $\alpha$  and  $\beta$  serving as parameters quantifying the effects of previous shocks and previous DCCs on the current DCC. The Estimation of the DCC-GARCH model can be made in two steps. The GARCH parameters could be estimated in the first step. In the second step, the conditional correlations must be estimated. The DCC model is mean reverting as long as the sum of the two parameters  $\theta_1$  and  $\theta_2$  is less than one. To investigate whether the correlations are dynamic, a Wald test was performed. The Wald test result suggested that the correlations were proven dynamic since  $\alpha$  (at one percent) and  $\beta$  (at ten percent) were statistically different from zero. On top of that, the sum of  $\alpha$  and  $\beta$  was less than unity.

Following the investigation of the dynamic correlations, the method of Baur et al. (2018) was adopted and OLS regressions with Newey-West robust estimator were carried out.

$$\begin{aligned} \text{Coint} = & \alpha + \beta_0 \text{JKSE}_t + \beta_1 \text{Covid19} * \text{JKSE}_t + \beta_2 \text{KLCI}_t + \beta_3 \text{Covid19} * \text{KLCI}_t + \beta_4 \text{PSEI}_t + \\ & \beta_5 \text{Covid19} * \text{PSEI}_t + \beta_6 \text{STI}_t + \beta_7 \text{Covid19} * \text{STI}_t + \beta_8 \text{SETI}_t + \beta_9 \text{Covid19} * \text{SETI}_t + \lambda_0 \\ \text{Coint-1} + & \lambda_1 \text{JKSE}_{t-1} + \lambda_2 \text{KLCI}_{t-1} + \lambda_3 \text{PSEI}_{t-1} + \lambda_4 \text{STI}_{t-1} + \lambda_5 \text{SETI}_{t-1} + \epsilon_t \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Goldt} = & \alpha + \beta_0 \text{JKSE}_t + \beta_1 \text{Covid19} * \text{JKSE}_t + \beta_2 \text{KLCI}_t + \beta_3 \text{Covid19} * \text{KLCI}_t + \beta_4 \text{PSEI}_t + \\ & \beta_5 \text{Covid19} * \text{PSEI}_t + \beta_6 \text{STI}_t + \beta_7 \text{Covid19} * \text{STI}_t + \beta_8 \text{SETI}_t + \beta_9 \text{Covid19} * \text{SETI}_t + \lambda_0 \\ \text{Goldt-1} + & \lambda_1 \text{JKSE}_{t-1} + \lambda_2 \text{KLCI}_{t-1} + \lambda_3 \text{PSEI}_{t-1} + \lambda_4 \text{STI}_{t-1} + \lambda_5 \text{SETI}_{t-1} + \epsilon_t \end{aligned} \quad (2)$$

Where Coint is the cryptocurrency (Bitcoin) return at day-t, Goldt is gold return at day-t, Stock (JKSE, KLCI, PSEI, STI, SETI)<sub>t</sub> is stock return at day-t, and COVID-19 is a dummy variable that equals one if day-t is on the pandemic announcement date (March 11, 2020) or the subsequent days. If the bitcoin and gold serve as safe-havens in the pandemic, then the coefficient of  $\beta_1$ ,  $\beta_3$ ,  $\beta_5$ ,  $\beta_7$ ,  $\beta_9$  is expected to be negative (Baur et al. 2018).

## 3 RESULTS

It appeared that volatility inclined to increase during the Covid-19 pandemic. Before and during the pandemic, the daily return standard deviations of Bitcoin, GOLD, PSEI, JKSE, KLCI, SETI, and STI were 4.25% (4.5%), 0.73% (1.11%), 1.01% (1.76%), 0.93% (1.62%), 0.61% (1.10%), 7.03% (1.30%), and 0.85% (1.52%). All returns throughout the pandemic were more volatile than before the pandemic. The return value of ASEAN-5 shares showed a value that was inversely proportional to the return value of hedge assets before the pandemic. However, as the pandemic persisted, the generated return value turned to be directly proportional to each asset being tested. This was due to the fact that stock indices, cryptocurrencies, and commodities follow market mechanisms which cause prices to rise or fall according to economic conditions and market demand.

The results of the DCC-GARCH analysis included five stock indices and two hedge assets under study. The DCC value fell to its lowest point when the pandemic first hit Indonesia in March to April

2020. The indices that suffered from a significant decline were Gold-PSEI with a value of -0.14, Gold-JKSE with a value of -0.06, Gold-KLCI with a value of -0.18, and Gold-SETI with a value of -0.06. Other lowest points, one of which was Gold-JKSE at -0.07, occurred midyear, exactly in June-July when pandemic cases began to gradually spread evenly to different regions in Indonesia. Meanwhile, other indices suffered from their lowest points at the end of 2020 and early 2021, such as Gold-PSEI, BTC-JKSE, Gold-KLCI, and Gold-STI when positive cases of Covid-19 peaked drastically, marked by the arrival of the second wave transmission. Based on this analysis, it can be inferred that the correlation between bitcoin and gold with the ASEAN-5 stock index changes dynamically overtime. The results showed that there was a transmission effect that occurred during the COVID-19 pandemic period. These changes triggered the movement of stock and commodity prices in other countries, or the contagion effect. Furthermore, the integration of capital markets in the Asian and global regions also led to integration of stock markets in the ASEAN and global regions during the COVID-19 pandemic. These effects were due to crisis that resulted in changes in stock prices of a country (Akhtaruzzaman et al. 2020).

The estimation results of the regression model for gold and bitcoin with the addition of Covid-19 as a dummy variable with scenario distribution treatment in the early period of the pandemic, namely 7 days, 10 days, and 14 days were as follows: in all three scenarios, negative Bitcoin returns were significantly associated with JKSE and PSEI returns, while the other assets showed positive values. Similar results for gold can be seen in the table above for all 7, 10 and 14 day-periods in the pandemic scenario. Based on the comparison of yields and level of significance, gold was potentially a better safe-haven for ASEAN-5 stocks than bitcoin because it showed greater values than Bitcoin in all scenarios. These results are in line with a study by Baur & Lucey (2010), suggesting that gold is a safe haven for stocks. The results showed that gold only served as a safe haven for a limited time, approximately 15 trading days. These findings imply that investors are advised to purchase gold on periods with extreme negative returns and sell it when the market exhibits lower volatility.

#### 4 CONCLUSION

During the Covid-19 pandemic that began on March 11, 2020, we tested bitcoin and gold as hedging instruments against ASEAN-5 stocks. The results of dynamic conditional correlation and regression showed that Bitcoin and Gold could be used as short-term safe-haven tools for several ASEAN-5 stocks such as JKSE, STI, and PSEI. Moreover, by comparison, gold was more likely to be the best safe-haven tool compared to bitcoin during short-term extreme periods in the stock market. These results were in line with Baur & Lucey (2010) who claim that gold only serves as a safe haven for a limited time, approximately 15 trading days. While both cryptocurrencies exhibit safe-haven features, bitcoin's volatility was significantly higher than that of gold and the stock indices used. Moreover, incorporating cryptocurrencies into portfolios may not be easy due to costly transaction fees and liquidity. Nonetheless, it is hoped that future additional regulations can lower the volatility of cryptocurrencies. Regulations should increase the availability of market information, and they should rely on the fact that cryptocurrencies differ from existing asset classes such as gold, commodities, or stocks. Additionally, the characteristics of safe-haven coin rely on market conditions and investment horizons as described in previous studies.

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## Factors influencing sustainable entrepreneurship intention among university students: An agenda for sustainable entrepreneurship programs

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**ABSTRACT:** This study aims to explore and investigate the current knowledge and intention for SE among private university students. Yet, the current literature rarely discussed about how private university students foreseen SE, university support, and their intention to build sustainable start-up. To understand how bachelor students of a business school perceived sustainable entrepreneurship, we used focus group discussions (FGD). This study conducted three online FGDs with 14 representatives of bachelor students (registration year 2018) from the school of economics and business in one of the top private universities in Bandung, Indonesia. The collected data are processed by coding the information using open coding and axial coding technique. First, this study found that the students' knowledge about the concept of regular and sustainable entrepreneurship differs significantly. This study is expected to enrich sustainable entrepreneurship literature by enhancing the readers' knowledge about SE practices in higher education. This study also contributes to the literature by providing more insights on the context of developing country such as Indonesia and in information and technology university.

### 1 INTRODUCTION

Although sustainable practices in business have received a growing attention among entrepreneurship scholars and practitioners, the intention to build a sustainable start-up is still lacking among higher education students. The researchers argue that to increase the students' intention to run a sustainable business in the future, they need an action plan, action knowledge, and self-efficacy (Sendawula et al. 2018). In addition, education in university must provide students with knowledge, skills, and experiences in entrepreneurship (Agu et al. 2020). Raising sustainability awareness and values in the early stage of higher education as well as providing SE programs can influence the students' intentions to build a sustainable start-up in the future. Therefore, this study aims to explore and investigate the current knowledge and intention for SE among private university students. To achieve these aims, we formulate two research questions follows: 1) How do bachelor students perceived regular entrepreneurship conducted by the university and their intentions to build a regular venture? 2) How do bachelor students perceived sustainable entrepreneurship conducted by the university and their intention to build a sustainable venture? The researchers argue that it is crucial to support undergraduate students with sufficient theoretical knowledge and practical skills on SE. Yet, the current literature rarely discusses how private university students foresee SE, university support, and their intention to build a sustainable start-up. This study is expected to contribute to the body of knowledge in the sustainable entrepreneurship literature by providing empirical evidence, especially in private universities. Moreover, practically, the study provides a recommendation of programs for the university that could support the students to become sustainable entrepreneurs.

### 2 LITERATURE REVIEW

A growing number of entrepreneurship literature discussed regular entrepreneurship. Regular entrepreneurship emphasizes economic value creation to ensure the financial stability in business

(Lapoutre et al. 2013). Entrepreneurship is argued to be a significant channel for a sustainable society (Soomro et al. 2019). This is due to many of the regular entrepreneurship qualities such as creativity, innovation, and sensitivity are closely related to ethical decision making (Hoogendoorn et al. 2019). Entrepreneurial activities are a vital part of people's life and could maintain their existence. However, traditional entrepreneurship, which focuses on generating profit, might be less desired in the future due to its negative environmental impact yet devaluing human rights. In consequence, entrepreneurs are shifting to a more sustainable entrepreneurship to respect people, protect the environment, and maintain the economy. Sustainable entrepreneurship is defined as entrepreneurial practices that balance the contributions to people, planet, and profits (Agu et al. 2020; Elkington 2004; Gast et al. 2017; Sendawula et al. 2018). To shift towards sustainability, an entrepreneur needs intention and motivation. The following subsections elaborates the topics of sustainable entrepreneurship intention (SEI) and the university support on sustainability.

To comprehend how an individual conducts a certain behavior, i.e., sustainable behavior, entrepreneurship researchers (Yi 2020; Zhang & Cain 2017) employed Ajzen's Theory of Planned Behavior model (1991). In Ajzen's Theory, intention is one of the factors influencing motivations, and motivations are influencing the behavior. This model is flexible to include relevant factors that are influencing the behavior. Meanwhile, intention is defined as a state of mind which directs a person's attention and actions towards a specific goal (Nuringsih & Puspitowati 2018). Consequently, SEI is defined as a person's desire to achieve a certain goal (Frese & Gielnik 2014). In this case, the desire is to develop a venture concerning the balance of the three pillars of sustainability in business: social, economic, and ecological aspects. Previous researchers discovered that positive SEI is significantly affecting sustainable behavior (Nuringsih & Puspitowati 2018; Yi 2020). Although many researchers have discovered the positive relationship between SEI and SE, only a few have discussed the SEI among entrepreneurship students in developing countries. Thus, this study focused on exploring the factors that influence SEI towards SE.

University as an example of a micro-environment for the students can deliver best practices and replicate the practices in a macro environment (Fanea-Ivanovici & Baber 2022). Other researchers mentioned that sustainable behavior among students can be fostered by sustainable entrepreneurial education provided by university (Nuringsih & Puspitowati 2018; Yi 2020). Yi (2020) asserted that entrepreneurial support provided by the university brings a significant direct impact on students' sustainable behavior. Moreover, Fanea-Ivanovici & Baber (2022) mentioned that campus sustainability, environmental sustainability, and education on sustainability are university efforts to encourage students for sustainable behavior. Based on the literature, the researchers argue that entrepreneurial support from university provides a positive influence on students' SE behavior.

### 3 METHODS

This study conducted three online FGDs which were considered the most feasible strategy to collect data due to the restrictions during COVID-19 pandemic. Online FGD offers a more dynamic environment, modernity, and competitiveness compared to the classic face-to-face FGD technique (Nyumba et al. 2018). The FGDs involved 14 bachelor students (seven female and seven male students) from the school of economics and business in one of the top private universities in Bandung, Indonesia. Thus, the participants were purposely selected. The online FGDs were conducted in Indonesian and via zoom for 1 – 1.5 hours.

The collected data were processed by coding the information using open coding and axial coding technique. Open coding is an analysis approach to separate the information obtained into meaningful quotes while axial coding is used to categorize the information into themes (Budiasih 2014). Open coding aims to reduce unnecessary words that have no meaning and focus on the meaningful content of the statements. Once the data was categorized into themes, then the findings were discussed based on the previous literature.

## 4 DISCUSSIONS

Based on the findings, we understand that the students have sufficient knowledge about the concept of regular entrepreneurship. They mentioned having mutual relationships with the customers due to the nature of business activities where the producers provide goods/services needed or demanded by the customers while customers are willing to pay for the goods/services. The students further mentioned sustainable businesses where they emphasized that the business has to endure for at least 1–2 years to prove that they could run well. Other students mentioned that the products/services offered to the customers have to contain an added value. The students pointed out that being an entrepreneur needs entrepreneurial skills whether it is gained or given. The skills must be learned through years of experience in business. These perceived concepts are in line with the previous research conducted by Lapoutre et al. (2013). In contrast, the students possess very limited knowledge about the concept of SE. Only two of them mentioned the correct concept of SE, which refers to entrepreneurship activities and focuses on creating positive impact for the environment, society, and economy. This statement is relevant with Gast et al. (2017), Sendawula et al. (2018), & Elkington (2004). However, most of the students seemed to misunderstand the concept of SE. They mentioned that SE is a business that is inherited through generations, economically sustain, and continuously innovating. Therefore, they might have not learned the concept of sustainability in the university which limits their understanding about SE.

In terms of intentions, the finding shows that four of the students were the owners of a business and the two others were managing their family business. Two students once owned a business but it was discontinued due to limited financial support, and three others decided to postpone their plan to have their own business due to their studies. The variety of intentions to build a regular business might be because they are business management students who are familiar with business and family business activities. In contrast, with SE, the intention is almost insignificant as most of the students have no intention at all for becoming a sustainable entrepreneur. Some of them said that perhaps in the future their knowledge about SE is improving, and only one student said he is very interested in building a business with positive impact for the society and the environment. Therefore, since the students' SEI is lacking, they are less likely to become a sustainable entrepreneur which is in line with the research conducted by Yi (2020), and Nuringsih & Puspitowati (2018).

In relation to the university support for regular entrepreneurship, the finding shows that currently, there are more weaknesses than strengths. According to the students, various entrepreneurship subjects offered by university at the moment helped them to master the theory of entrepreneurship and provide them with early-stage experience in building a new business. However, they felt a lot of knowledge is still lacking, especially related to entrepreneurial practices, financial support, information, and program continuity. Lack of financial support has demotivated the students to perform their best in entrepreneuring. One of the students said that financial support would be an extrinsic motivation to put more responsibility to their project. Information and the continuity of programs also have influence on the students' entrepreneurial intention. Lack of information causes lack of awareness, and lack of continuity causes confusion among students.

Moreover, in regards to SE, the university seems to start introducing sustainability concepts in one of their entrepreneurship subjects and programs, namely Creative Thinking in Business and Innovillage. However, many students testify that they have never heard of sustainability programs. This might be because the programs are not well-communicated so the students were not aware of the programs. As mentioned by Fanea-Ivanovici & Baber (2022), the university can be the micro environment for the students to learn about (sustainable) entrepreneurship before they go beyond their comfort zone and face the world. Thus, university support in increasing students' understanding about entrepreneurship theories and fostering entrepreneurial practices, as well as for SE, has become an important aspect of the development of a(n) (sustainable) entrepreneur.

## 5 CONCLUSIONS

This study provides practical recommendations for the university and the faculty of economics and business. The recommendations are grouped into several categories: subjects, programs, and

regulations & policies. For SE subjects, the researchers suggested that the faculty should start formulating SE curriculum such as workshops to offer the students a different choice. It can be a competitive advantage for the faculty and strengthen its position in the education market. For SE programs, sustainable business incubation and networking might benefit and encourage the students to build a sustainable business. SE ideas should be given the opportunity to be pitched and given feedback by local and international sustainability experts or entrepreneurs. This would enlighten the students to make the business sustainable ecologically, socially, and economically. In terms of regulations and policies, the university is expected to support the students by providing continuous and integrated SE programs with experienced mentors, appreciating SE business through incentives for start-ups and middle-stage entrepreneurs, and encouraging them to form a community in the campus and inspire other students to build their own SE venture. By following these recommendations, the researchers hoped that the university could accelerate the achievement of SDG 12.8, which is that by 2030, every person should have the relevant information and awareness for sustainable development and lifestyles in harmony with nature, as well as becoming the role model for other universities and providing best practices.

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## Airport business strategy in facing crisis: Case study at Yogyakarta International Airport

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**ABSTRACT:** This study discusses airport management strategy, especially Yogyakarta International Airport (YIA). The purpose of this study is to analyze strategic planning for recovering and surviving the impact of the pandemic. A strategic initiative with a survival-based theory approach was conducted with a qualitative In-depth Interview (IDI). The data collection was done by involving resource persons as regulators, shareholders, government and stakeholders. Previous case studies were also analyzed to serve as supporting studies. Strategic planning includes aspects of finance, commercial, operations, human resources and technology. Insights from sources analyzed using NVivo resulted in factors that became a survival strategy, namely increasing airport and non-airport revenues accompanied by strategies for utilizing Capital Expenditure and reducing Operational Expenditure.

**Keywords:** pandemic, survival, strategic, airport, YIA

### 1 INTRODUCTION

The aviation industry is an industry that is vulnerable to global crises, one of which is a crisis caused by a disease outbreak that has a direct impact on the industry's revenue. Before the COVID-19 pandemic, the disease outbreak that had the greatest impact on the aviation industry was SARS in 2003. However, COVID-19 has a different response due to its global spread in a shorter time than the SARS outbreak. According to Airports Council International (ACI), COVID-19 is predicted to eliminate two-fifths of passenger traffic and half of the airport revenues (ACI 2020). This raises uncertainty about the future of the aviation business, especially in this study airport companies. The impact of the COVID-19 outbreak has exceeded the level of the domestic crisis which has decreased by 39.9% and international flights have decreased by 71.3% compared to pre-pandemic levels (Direktorat Statistik Distribusi 2020). Airports need efforts to recover from every crisis that occurs, to be able to maintain their business.

In Indonesia, the airport company responsible for managing and operating Indonesian airports is PT Angkasa Pura (Persero). The biggest impact was felt by one part of this company, PT Angkasa Pura 1 (AP1) who had just completed the construction of Yogyakarta International Airport (YIA) in 2020 and suffered losses (PT Angkasa Pura 1, 2021a, 2021b).

### 2 METHOD

This study employs previous research that allows the authors to assess certain events or processes that arise and produce statistical analysis on this data as in traditional experiments (Serrano & Kazda 2020). This study also uses the explanatory research method, which is a method that explains and confirms behavior or dependencies in the system and tries to explain the picture in the behavior of the system, this method processes and forms a structure. The explanation is an attempt to understand the causes of a phenomenon, and the factors and mechanisms that cause it (Molnár et al. 2012). The drawback of this principle is the lack of a verification process (Henderson 2018)



which will be complemented by the author with a verification process through in-depth interviews with stakeholders who are qualified in their fields.

### 3 RESULT

The findings from the resource persons have been processed using NVivo which produces new insights into the implementation of strategic initiatives that will be carried out by YIA Airport. The results of the analysis are divided into 3 parent nodes, namely challenges, opportunities, and survival strategies.

The main priorities that must be considered as the main challenges YIA Airport is facing are “Pandemic”, “Goeconomics”, and “Restrictions”. The tough challenge for YIA is the high operational costs that do not match the number of passenger traffic that does not match the airport projections due to restrictions due to the pandemic. Collaboration in the monetary, fiscal, and real sectors to secure pricing is the answer to this problem. Responding to the Pandemic Challenge, several new regulations have been made to be implemented by each airport. The party responsible for the uniformity of this regulation is the International Civil Aviation Organization (ICAO) through attachment 17 in the ICAO Technical (technical annex no 17) which produces the Standard and Recommended Practices (SARPs).

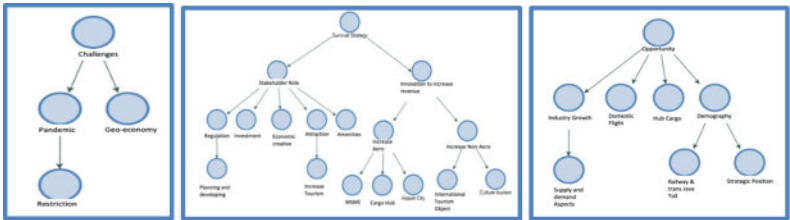


Figure 1. NVivo matrix (challenges, opportunity, and survival strategy nodes).

The challenge of restrictions is to convince the government of airport security accompanied by compliance with procedures including in terms of long distances. Therefore, when the airport provides facilities and implements strict health regulations, the government will encourage the airport and allow them to continue operating with a certain level of capacity. Another challenge is how airports can maximize capacity despite implementing social distancing which affects the limited capacity level. We suggest adding a self-check-in counter considering the trade-off between increasing Capital Expenditures (CAPEX) for lower Operating Expenses (OPEX) but can be used for long-term plans. This consideration needs to be taken into account by the board of directors and stakeholders concerned with the decision to transfer CAPEX financing. The addition of the distance between queues with providing automation in self-check can be implemented to comply with a minimum of 1.7 meters per queue as required by LOS category A. Additional baggage drop-off desk is needed to increase the efficiency of self-check-in.

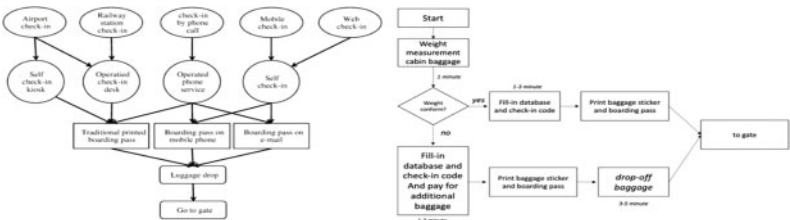


Figure 2. Check-in procedure in Zurich and flow process scheme of self-service in terminal YIA (Wittmer 2011).

#### 4 ANALYSIS AND DISCUSSION

The resulting strategic initiatives can address financial, commercial, operations, human resources, and technology aspects. This study implies that its implementation must be adapted to field conditions and other internal implications that are not yet known through this study. The success of this study is influenced by the gradual monitoring that ensures the strategy is implemented properly.

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Table 1. Analysis of strategic initiatives that can be applied to YIA airport.

| Criteria    | Human Capital   | Operational  | Financial   | Technology  | Commercial  |
|-------------|---|--|---|---|---|
| Challenges  | <ul style="list-style-type: none"> <li>• Reduction of OPEX load in this case the number of airport human resources but still meet 3S +1C</li> <li>• Ability to adapt to new habits (new normal) including the application of new technologies</li> <li>• Competence of creative economy business actors/ MSMEs</li> </ul> | <ul style="list-style-type: none"> <li>Restrictions during the pandemic</li> <li>• Capacity needs when conditions are busy and in normal /low conditions</li> <li>• Seamless implementation of processes</li> <li>• Compliance with very rapid regulatory changes</li> </ul> | <ul style="list-style-type: none"> <li>Cost leadership over OPEX</li> <li>• New investment needs for regulatory compliance</li> <li>• Declining revenue</li> <li>• Geoeconomics (high inflation rate, and interest rates)</li> <li>• Falling profitability</li> <li>• Return on investment</li> <li>• Cash flow management</li> </ul> | <ul style="list-style-type: none"> <li>The need for new equipment adapts to health standards during the pandemic (contactless, sanitation)</li> <li>• Acceleration of passenger processes at the airport (check-in. OTP)</li> </ul> | <ul style="list-style-type: none"> <li>Flight and passenger traffic dropped significantly (only 30% of normal conditions)</li> <li>• Decreased purchasing power</li> <li>• Passengers focus more on health (shopping at the airport is down)</li> <li>• Still focusing on revenue from traffic</li> </ul> |
| Opportunity | <ul style="list-style-type: none"> <li>Human Capital composition is dominated by millennials who easily adapt to new things</li> <li>• DIY as an educational area</li> </ul>  | <ul style="list-style-type: none"> <li>The airport is relatively new and has a capacity of 14 million passengers/year</li> <li>• The establishment of an ecosystem of modes of transportation (Tolls and Trains)</li> </ul>  | <ul style="list-style-type: none"> <li>Explore ACRO revenue from international traffic</li> <li>• New non-ACRO revenue (cargo hub)</li> </ul>   | <ul style="list-style-type: none"> <li>Increase passenger satisfaction (customer journey)</li> <li>• Efficiency and acceleration of check-in to boarding (System integration)</li> </ul>  | <ul style="list-style-type: none"> <li>Strategic position (Hub)</li> <li>• Demographics and growth of the creative economy and investment in DIY and Central Java</li> <li>• The airport as the new economic center</li> </ul>  |

(continued)

Table 1. Continued.

| Criteria | Human Capital   | Operational   | Financial  | Technology   | Commercial   |
|----------|---|---|--|--|--|
| Strategy | HR development implements new business and operational strategies<br>• Active in MSME development education | Adopting the new ICAO (global standard)<br>• Keeping L.A.<br>• Compliance with regulations<br>• Adaptive to change<br>• Cost leadership | Reduce OPEX costs<br>• CAPEX delays on infrastructure, CAPEX only for the fulfillment of new technologies that support operational efficiency<br>• Optimizing Strategic Cooperation with Investors for new CAPEX | Self-check-in, drop baggage<br>Application of technology that is integrated between operational and health activities (seamless)<br>• Implementation of the digital airport for commercial | Direct flights to and from Hindu-Buddhist countries (Tourism culture & pilgrim)<br>• Aerocity development to create new attractions and amenities<br>• Cargo Hub Development to support the creative economy<br>• Stakeholders Collaboration |

## 5 CONCLUSION

To survive, managers need to pay attention to those 5 priorities, that are human capital, operational, financial, technology, and commercial. Specifically, when dealing with airport business, managers have to utilize aeronautical and non-aeronautical revenue with support from the stakeholders:

1. Government: How the government handles the COVID-19 pandemic, that resulted in the closed border tourism.
2. Investors: In terms of investment, 80% of the tourism sector is supported by the accommodation sub-sector.
3. Managerial team: Actively coordinate with API management regarding the planning and development of YIA Airport,
4. MSMEs: Include regional development programs around the airport in the regional development plan and collaborate on this planning with economic development and community welfare around the airport area.

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## Analyzing LQ45 index using principal component analysis

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**ABSTRACT:** This paper presents an approach of dimension reduction using Principal Component Analysis (PCA) to the LQ 45 index of the Indonesia Stock Exchange. Specifically, this paper has several objectives. First, this paper aims to reduce the complexity of the data into a small number of principal components, which forms the linear combinations of prices that minimizes information loss and can explain as much as possible the variation in price data. Second, this paper aims to find the relative importance of the variables in the component. Third, this paper also aims to find whether certain stocks group with others and whether there are some common attributes between certain stocks for us to further study to get more insights. This paper used 44 of 45 stocks included in the LQ 45 index. The first finding is that there are seven principal components formed out of the 45 stocks. For the first principal component, the five largest factor loadings are PTPP, BRPT, WSKT, PGAS, and BBCA, respectively. For the second principal component, the five largest factor loadings are EMTK, ANTM, TBIG, HRUM, and TINS, respectively. Third, the results show that some stocks tend to cluster with others. For the clustering analysis, we can conclude that the PCA can show that some stocks do tend to cluster together and we are able to identify three clusters: cluster of stocks with loading close to zero, meaning they do not contribute much for the variation of the LQ 45 index. Clusters with factor loadings close to  $\pm 0.5$  show moderate contribution to the variation of LQ 45 index. The third cluster tends to have larger factor loadings, either negative or positive.

### 1 INTRODUCTION

Large datasets are important in finance, but at the same time caused problems: they are difficult to process due to their large size. Moreover, not all parts of the data are equally important. There may be duplicate information in different parts of the dataset that caused redundancy because historical prices from one asset may have the same information with historical prices from another asset(s). To be able to deal with the size and information problem, we can break the dataset into a smaller one while still keeping as much information as possible. To do that, we can use the dimension reduction technique known as the Principal Component Analysis (PCA), which is a very important and powerful dimension reduction technique so that we do not overload the model with redundant information but at the same time also do not extract meaningful information out of the data.

This paper presents the approach of dimension reduction using PCA to the LQ 45 index of the Indonesia Stock Exchange. Specifically, this paper has several objectives. First, this paper aims to reduce the complexity of the data into a small number of principal components, which forms the linear combinations of prices that minimizes information loss and can explain as much as possible the variation in price data. Out of the 45 stocks included in the LQ 45 index, we use only 44 stock price information since we take out one stock because of insufficient data. Applying PCA on the remaining data will give us 44 principal components of which we will only consider top N principal components based on how much of the data variance explained by those principal components. Second, this paper aims to find the relative importance of the variables in the component. Third, this paper also aims to find whether certain stocks group with another and whether there are some common attributes between certain stocks for us to further study to get more insights.

This paper proceeds as follows. Section 2 provides the literature review, Section 3 discuss the data and methodology, Section 4 report the results, and Section 5 concludes the paper.

## 2 LITERATURE REVIEW

The topic of PCA is still an interesting for research and development. For the general concept of PCA, we can find many publications, such as Abdi and Williams (2010), Jolliffe and Cadima (2016), Kalantan and Alqahtani (2019), and Souma (2021). Other than general aspects, PCA has many applications in finance, such as risk (Cheng et al. 2012; de Guevara Cortés & Porras 2013; Kritzman et al. 2011; Kwong & Mak 2017; Fahmi & Geetha 2019; Su et al. 2019; Pelger 2019), portfolio formation and analysis (Chen 2014; Pasini 2017), stock market performance (Acha 2018; Lee & bin Jais 2019; Nobil & Lee 2016), stock price prediction (Ghorbani & Chong 2020), yield curve modeling (Redfern & McLean 2014), financial insights (Yang et al. 2017), investor sentiment measurement (Chong et al. 2017), financial analysis (Li & Chang 2011; Puri, et al. 2022), and stock clustering (Agarwal et al. 2021; Sharma 2018; Yang 2015).

## 3 DATA ND METHODOLOGY

### 3.1 Data

We used stocks included in LQ45 index. 1 stock, Bukalapak (BUKA) was excluded from our sample because of insufficient data. The other 44 of 45 stock data were taken from January 2016 to December 2021, giving each stocks about 1500 data points.

### 3.2 Method

For the method, we follow the steps below:

#### 1. Standardizing the dataset.

The data is standardized so that all the data has similar ranges since standardizing data means we convert each data into new data with mean zero and standard deviation of one. For the standardization we use the formula:

$$z = \frac{\text{value} - \text{mean}}{\text{standard deviation}}$$

#### 2. Calculating the covariance matrix for the features in the dataset

Calculation of covariance matrix has the aim to see if there is any relationship between them because highly correlated data may contain redundant information. For the covariance calculation we use the formula:

$$\text{cov}(X, Y) = \frac{1}{n-1} \sum_{i=1}^n (X_i - \bar{x})(Y_i - \bar{y})$$

#### 3. Calculating eigenvalues and eigenvectors for the covariance matrix

Calculation of eigenvalues and eigenvectors follow the following formula:

$$AV = \lambda V$$

where  $A$  is the covariance matrix,  $V$  is the eigenvectors,  $\lambda$  is the eigenvalues. To calculate the eigenvectors and the eigenvalue, we rearrange the equation to become:

$$V(A - \lambda I) = 0$$

where  $I$  = identity matrix, and solve for  $\lambda$  using  $\det(A - \lambda I) = 0$  and also solve for  $V$

4. Sorting eigenvalues and their corresponding eigenfactors from the largest to the smallest
5. Picking  $k$  eigenvalues and form a matrix of eigenvectors, and,
6. Identifying clusters of data

## 4 RESULTS AND DISCUSSION

Before we find the principal components, we need to find whether our data is suitable to be analyzed using PCA. To find out, we use the Kaiser-Meyer-Olkin (KMO) test and, may also use the Bartlett's test of sphericity. Data is considered good to be analyzed using PCA if the KMO score is higher than 0.5. Since the KMO value of our data is 0.904, and actually the Bartlett's test of sphericity gives the same result because the result is significant, it is suitable to be used using PCA.

### KMO and Bartlett's Test

|  |                    |             |
|--|--------------------|-------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | 0.904       |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 160,670.624 |
|  | Df                 | 946         |
|  | Sig.               | 0.000       |

Further analysis shows that we can use seven principal components because they have large enough explanation power (eigenvalue  $> 1$ ).

Total variance explained using seven principal components is 91.275% meaning that the other 37 principal components only accounts for 8.725% explanation power. Using dimensional reduction then only cost 8.725% so that we can say that using PCA gives great benefit because we only need to further analyze the seven principal components than to analyze all the 44 stocks.

For the clustering analysis, we can conclude that the PCA can show that some stocks do tend to cluster together and we are able to identify three clusters: using the principle component 1 and principle component 2 as the tool for clustering identification, we can see that the first cluster consists of stocks with loading close to zero, meaning they do not contribute much to the variation of the LQ 45 index. We also have the second clusters with factor loadings close to  $\pm 0.5$ , showing moderate contribution to the variation of LQ 45 index. The third cluster tend to have larger factor loadings, either negative or positive. The interesting condition is that in the third cluster, all stocks with negative loadings in principle component 1 also have negative loadings in principle component 2, while all but one stocks with positive loadings in principle component 1 have positive loadings in the principle component 2.

## 5 CONCLUSION

We can conclude that the data is suitable to be processed using PCA. After data processing, we can find fewer principal components – only seven – compared to the initial 44 variables with more than 90% explanation power and less than 9% loss of explanation power. Moreover, our analysis was able to find clusters in the stock data, which can be analyzed further

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