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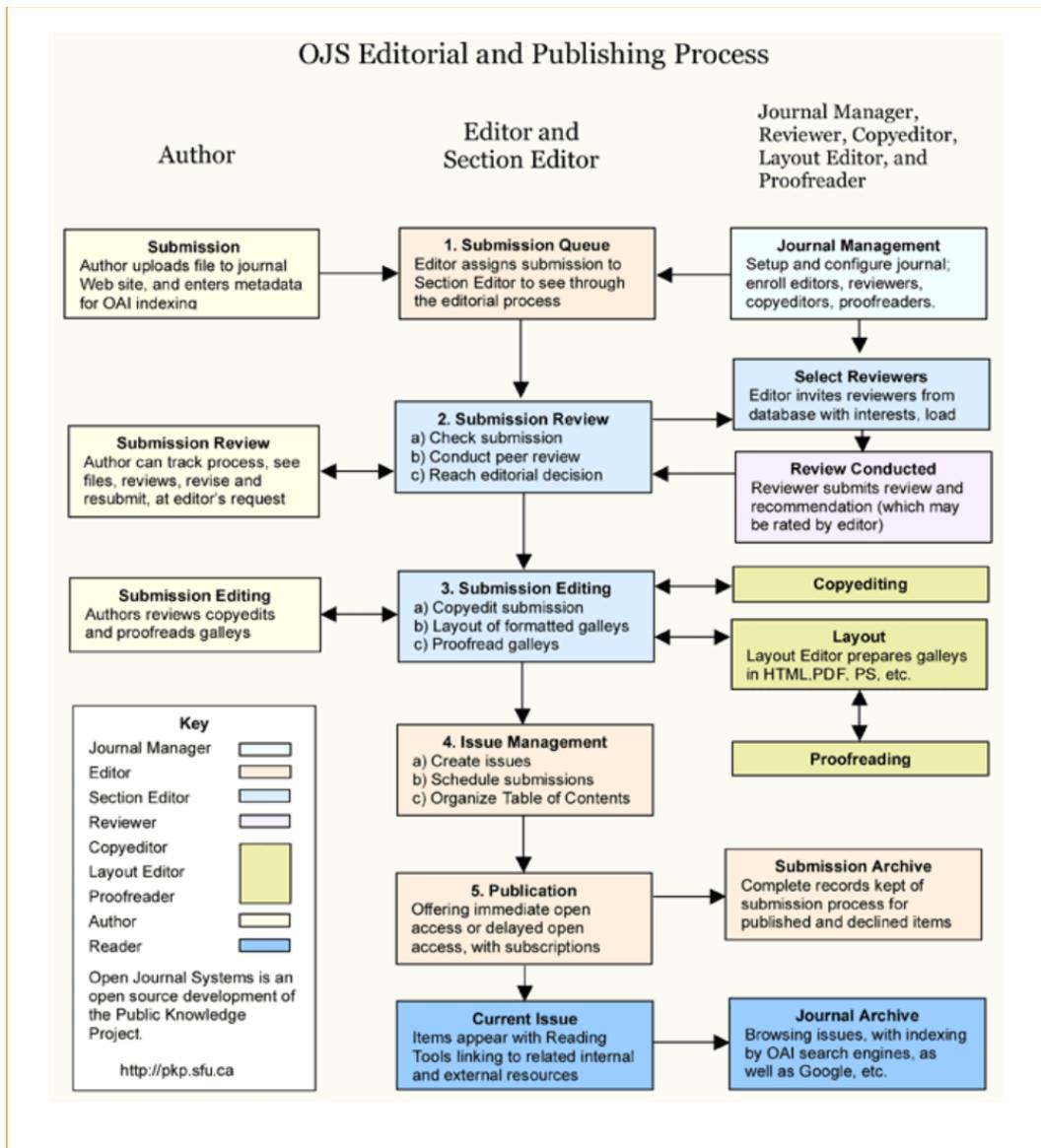
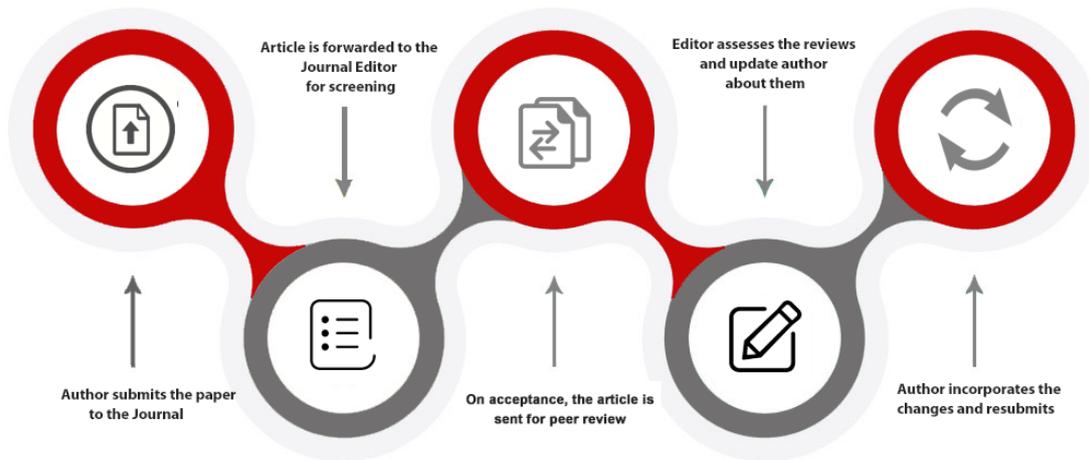
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Table of Content

Influence of Lean-Green Practices on The Relationship Networks and Performance of Medium Hotels in the Kenyan Cities

Joseph Karimi Jokang, Teresia Kyalo, David Gichuhi
805-811

Effect of Cyber Security on Business Sustainability of Listed Microfinance Banks in Nigeria

Cosmas Anayochukwu Nwankwo, Macdonald Isaac Kanyangale
812-825

Societal Perception Of Business Education Graduates In Nigeria

Seyi David, Remi Elizabeth Ore
826-831

Cryptocurrencies in Nigeria: Its Place in Entrepreneurship, Accounting, and Taxation

Izevbigie and Alegbe
832-835

Inundation Prediction Model Based on Land Use in Krukut Watershed

Boris Karlop Mubangaol, Agustinus Purna Irawan, Wati A. Pranoto
836-849

Agrotourism Tourism Village Development Model Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency

Chandra Kartika, Mei Indrawati, Rena Febrita Sarie, Veronika Nugraheni Sri Lestari
850-858

BUMDesa Development of BUMDesa to Increase the Economic Resilience of the Community in Au Wula Village

Kandidatus Angge, Pardiman, Eka Farida
859-868

Organizational Culture in Cultural Organizations in East Java

Arif Rofiq
869-875

The Effect of Knowledge, Commitment, Discipline and Workload on Service Performance with Stress and Burnout as Mediation and Achievement Motivation as Moderation of Medical Practitioners in Grobogan and Kudus Regencies, Central Java

Aris Setyawan, Tri Andjarwati, Riyadi Nugroho
876-884

Implementation of Driver Briefing Policy in Improving Driver Safety at Multinational Company Workshop in Batam, Indonesia

Fabiola Frederica Rafaelin, Andri Irfan Rifai, Muhammad Isradi, Joewono Prasertijo

885-899

The Effect of Marketing Capability and Financial Capability on Improving Coffee Commodity Performance and Implications for Value Added in Kerinci Regency

Heppi Syofya

900-911

Sorghum Sticks (Sorghum Bicolor) with Added Protein Source : Dumbo Catfish Meal (Clarias Gariepinus)

Ryan Rahardiantoro, Endang Noerhartati, Tri Rahayuningsih

912-919

Analysis of the Effect of U-Turn Access Closure on the Performance of Gajah Mada Road, Batam Indonesia

Tohmas Saputra, Andri Irfan Rifai, Muhammad Isradi, Joewono Prasetijo

920-932

Suitability of Work Role and Organizational Commitment on Work Engagement in District Government Employees in the Province of Bali

Putu Anggi Suryantari, I Made Satriawan, Ni Made Ary Widiastini

933-944

Analysis of Annual Rainfall Distribution and Planned Rain Intensity at 11 (Eleven) Rain Post Stations in Serang District

Tony Kistiawan, Agustinus Purna Irawan

945-958

The Influence of Halal and Conventional Tourism on NTB's Regional Original Revenue: A Comparative Analysis

Siti Maryama, Lukman Insan Kamil, Berlianingsih Kusumawati, Amir Hamzah, Ermalina Ermalina

959-967

Impact of Social Media Marketing and Brand Awareness on Purchase Intention in Coffee Shop Culinary in Surabaya

Achmad Daengs GS, Budi Pramono, Enny Istanti, RM Bramastyo KN, Syafi'i

968-977

The Influence of Online Cash Loan Service, Collection Ethics, and Service Integrity towards the Emotional Condition of User

Yuli Kurniawati, Nindya Kartika Kusmayati

978-988

The Effect of Creativity and Social Capital on Business Sustainability in SMEs Sulam Tapis East Ika

Nur Fadhillah, Citrawati Jatiningrum, Sudewi, Sugiono

989-997

Factors Influencing Job Performance in the Mining Industry: An Empirical Study at PT Pamapersada Nusantara

Kurniawan Pitta Wardana, Erfan Sugiharto, Futra Kurnia Yuansa, Ahmad Syamil

998-1012

Effectiveness of Social Media Marketing and E-Service Quality on Repurchase Intention through Brand Loyalty

Nanik Wahyuningtyas, Tri Sugiarti Ramadhan

1013-1023

Influence of Lean-Green Practices on The Relationship Networks and Performance of Medium Hotels in the Kenyan Cities

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ABSTRACT

Purpose: Examine the influence of lean-green practices on the relationship between networks and performance of medium hotels in the Kenyan cities.

Design/methodology/approach: The study was anchored on dynamic capability theory. Pragmatic research paradigm employing mixed method was applied which utilized concurrent triangulation research design. The target population was 534 medium hotels. Stratified random sampling technique was used to determine a sample size of 229 hotels.

Findings: The study found that networks positively influenced performance of medium hotels in Kenyan cities and lean-green practices positively and significantly influences on the relationship between networks and performance of medium hotels in Kenyan cities. Designing, implementing and utilizing lean-green practices in collaboration with networking in medium hotels is important in production matrix.

Research limitations/implications: Focus was on medium hotels in the Kenyan cities.

Practical implications: Results of this research shows that lean-green practices constitute one of the most important strategies resulting in performance.

Originality/value: This research is original because the research was conducted in Kenya and there is no other similar research in Kenya.

Keyword: *Lean-green practices, Networks and performance*

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I. INTRODUCTION

The hotel sector has been accused of being the most polluting, consuming a substantial amount of resources and releasing huge volumes of wastes which impacts negatively to the environment. This is contrary to (IHEI) revelation that 90% of the hotel guests prefer to stay in a hotel that cares for the environment (Kularatne, Wilson, Månsson, Hoang & Lee, 2019). The investors in particular hotels have to look for new strategies aimed at protecting individual hotels' reputations and maintenance of the positive image. Mbasera, Saayman, Du-plessis, and Kruger (2016) revealed that in Africa, most hotels lack adequate green management policies, and a few engage in eco-friendly practices while other hotels do not have any clue regarding implementing green initiatives and how to mitigate on environmental challenges emanating from hotel operations. This revelation had come when there is sprouting of techno hubs in Kenya and the country is expected to host an increasing number of travelers by the year 2030 based on government's vision 2030 strategy.

Unfortunately, even though Kenya has been rated among the top innovation leaders in Africa, in 2017 it was ranked 80th out of 127 countries in the Global Innovation Index, and in 2019 it moved to position 56 among 190 countries on the World Bank Ease of doing business index (Kenya's SMEs Performance index 2019). This shows the need to enhance strategic entrepreneurship and in essence widen networking capability with lean-green strategies to be able to minimize operational costs and enjoy sustainable competitive advantage. This comes at the backdrop of the hotel industry being identified as the most polluting in its endeavors to satisfy a range of customer needs such as accommodations, food and beverages (Ronra & Chaisawat, 2016). According to Alipor et al (2019)

about 62.0% of travelers are concerned about the environmental issue when deciding to stay at a hotel, where 87.0% of guests are aware of the importance of eco-friendly hotel, about 80.0% of guests consider themselves as Eco-conscious customers with about 30.0% of them showing willingness to pay more for environmentally responsible hotels.

There are several gaps that have not been addressed by previous researchers in the area of hotel and sustainability. Previous researchers have not investigated the synergy of lean-green to unravel the puzzle of how to transform that into output that improves sustainable competitive advantage in the hotel sector. The complexity of blending lean-green practices and networking has not been adequately addressed. Although many researchers have argued that going green can be a holistic business strategy that adds value to the firms and their stakeholders no study has shown how to achieve this. Most studies have addressed either lean or green separately without giving weight to the combined synergy. Therefore, this study attempts to bridge these knowledge gaps through examining the influence of lean-green practices on the relationship between networks and performance of medium hotel in the Kenyan cities. The main objective was to test the hypothesis that networks does not influence the performance of medium hotels in the Kenyan cities.

To outperform competitors persistently depends on how a corporation can access unique information and resources not known by rivals. Many researchers have argued that going green can be a holistic business strategy that adds value to the firms and their stakeholders (Amegbe, Owino & Nuwasiima, 2017), but the achievement of such a magnitude is somehow hinged to the firms' alliances with other entities that stimulate formulation and distribution of its goods or services (Muteshi & Kariuki, 2020). Networking as a strategy encompasses blending resources that physically interact with routines and joint projects (Baraldi, 2008). This requires associations at personal levels with linkages that are likely to overlap with national networks. Firms therefore have to toil on how to uniquely use these integrations both locally and internationally to realize high performance. These linkages are operationalized as networks in this study falling under; network size, network intensity and network diversity.

Linkages enables a firm to obtain valuable and specialized knowledge, capabilities and competences leading to implementation of proactive corporate strategies such as green strategies. Although going green has been advocated as a unique strategy, adopting green production methods automatically incorporates lean practices (Basuki, 2015). Lean production as an organizational strategy is driven by the idea of doing more with less (Maia, Alves & Leão, 2017). This strategy is flexible in cost reduction through process improvement culminating in minimization or elimination of all wastes (Carvalho, Duarte & Machado, 2011). Lean-green therefore as a practice calls for commitment by entrepreneurial firms to adopt various ecologically sound practices such as saving water, saving energy, reducing solid waste and recycling where necessary.

II. METHODS

The study adopted pragmatism research philosophy because it enabled the researcher to use mixed method and ally triangulation. The target population was of 534 medium hotels adapted from Booking.com (2021) in the Kenyan cities from which a sample of 229 top managerial participants were drawn. The study adopted stratified random methods because the Kenyan cities at that time were three. The medium hotels categories comprised of those hotels whose accommodation capacity ranged from 26 beds to 100 beds. By adopting this criterion 93 hotels were picked from Nairobi, Mombasa 347 and Kisumu 94 making a population of 534 medium hotels from which a sample was drawn. The names of all hotels were written on separate pieces of papers and placed in three baskets depending on the city's total hotel enumeration. From the Nairobi basket 40 papers were picked randomly, 149 from Mombasa and 40 from Kisumu basket respectively making a total of 229.

The sample size was determined through an applying scientific formula which objectively provided the representation of target population. The sample size for this study was determined using the formula for estimating sample sizes provided by Yamane (1967) that states $n = N/1+N(e)^2$. Where n is the sample size, N is the target population and e is the level of precision which in this case was 5%, and it is the accepted level of significance in social science research. The application of the formular led to $n = \frac{534}{1+ 534(.05)^2} = 229$. The inclusion of all cities was a form of data triangulation.

The researcher collected the data using questionnaire and a checklist. This helped to improve on accuracy and also to arrive at a holistic view as well as avoiding the biases of single methods (Denscombe, 2008). The researcher distributed 229 questionnaires to the respondents in senior management out of which 205 questionnaires were fully filled when returned. Data was analysis was based on the 205 returned questionnaires representing a response rate of 87.5%. Sekaran (2004) argues that any response rate above 75% is classified as best and appropriate for any study.

Table 1: KMO and Bartlett's Test

<i>Tests</i>	<i>Value</i>
<i>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</i>	<i>0.817</i>
<i>Bartlett's Test of Sphericity</i>	<i>Approx. Chi-Square</i>
<i>Df</i>	<i>1128</i>
<i>Sig.</i>	<i>.000</i>

To assess the appropriateness of factor analysis in measurement scale development of the questionnaire items KMO test was conducted and a value of 0.817 which tends to be close to 1 was obtained as shown in Table 1. This indicating that the patterns of correlations were relatively compact and therefore factor analysis should yield distinct and reliable factors. The index also meant that more than 81 percent of variance in the measured variables was a common variance. Bartlett's test of sphericity was also determined to tests the null hypothesis that the original correlation matrix was an identity matrix. The bartlett's was statistically significance with achi-square and degree of freedom (1128= 6729.466, p= .000) an indication that there was sufficient relationship among the variables worth investigation.

Validity and reliability measures were undertaken to ensure that the instruments used were accurate and consistent (Bryman and Bell, 2011, Biggam, 2011). Convergent, discriminant, content and criterion related validity were used to ascertain the credibility of the research procedure. The factor analysis results were used to determine average variance extracted to test convergent validity of the constructs. Criterion validity was assessed through factor analysis to reduce or summarize the large number of variables into factors or components based on correlation between those variables. Convergent validity was determined through calculating average variances extracted (AVEs) for each construct. The results shows that the lowest construct had an AVE of 0.723 while the highest had an AVE of 0.841 and therefore all the constructs achieved convergent validity and were above the threshold mark of 0.5 of convergent validity as shown in Table 2.

Table 2: Average Variance Extracts

<i>Construct</i>	<i>AVE</i>
<i>Mindset</i>	<i>0.756</i>
<i>Innovations</i>	<i>0.841</i>
<i>Capital Mobilization</i>	<i>0.736</i>
<i>Network</i>	<i>0.723</i>
<i>Green Practices</i>	<i>0.770</i>
<i>Lean Practices</i>	<i>0.766</i>
<i>Firm Performance</i>	<i>0.736</i>

Source: Author 2023

Discriminant validity was assessed to ensure that items measuring different constructs were not actually related. This study tested for discriminant validity using chi-square difference test because the method allows the researcher to compare two models, one in which the constructs are correlated and one in which they are not. The difference test result was significant (p=0 < 0,05) which means that the two constructs present discriminant validity as shown in Table 3. The content validity was addressed by constructing a measuring scale in line with the literature and pre-testing the research instruments during piloting. The lean observational indicators were

adopted from Lean Manufacturing and Environment checklist while green indicators were extracted from Green Design Guide pamphlet.

Table 3: Chi-squares Differences

<i>Model 1</i>		<i>Model 2</i>	
<i>Chi-square</i>	<i>= 1849.428</i>	<i>Chi-square</i>	<i>= 1376.593</i>
<i>Degrees of freedom</i>	<i>=663</i>	<i>Degrees of freedom</i>	<i>=642</i>
<i>Probability level</i>	<i>= 0.000</i>	<i>Probability level</i>	<i>= 0.000</i>
<i>$\chi^2_1 - \chi^2_2 = 472.835 = 22.52$</i>			
<i>df1 - df2 = 21</i>			

Source: Author 2023

Reliability was tested using internal consistency technique. The test for reliability measures consistencies of correlation analysis to avoid Type 1 and Type II errors (Osborne, Christensen & Gunter, 2001). To assess the reliability, this study used Cronbach alpha as it assesses the internal consistency. The reliability statistics for the variables was 0.878 above 0.7. This was sufficient confirmation of the reliability of the data collection tool as shown in Table 4.

Table 4: Cronbach's Alpha for Reliability test

<i>Variable</i>	<i>Cronbach's</i>	<i>Alpha Number of Items</i>	<i>Decision</i>
<i>i) Networks</i>	<i>.942</i>	<i>6</i>	<i>Reliable</i>
<i>ii) Green practices</i>	<i>.848</i>	<i>4</i>	<i>Reliable</i>
<i>iii) Lean practices</i>	<i>.903</i>	<i>6</i>	<i>Reliable</i>
<i>vi) Performance</i>	<i>.908</i>	<i>8</i>	<i>Reliable</i>

Source: Author 2023

A normal residual curve on residuals was used to test the normality of the data. The study adopted the ANOVA test of linearity. The ANOVA test statistics of the inverses of both dependent and independent variables were significant and hence linearity was confirmed as shown in Table 5. Homoscedasticity was tested using the regression standardized residuals plot. This study tested the analysis variables for multi-collinearity using the multi-collinearity statistics of Tolerance and Variance Inflation factors (VIF). The highest VIF was 2.086 and the lowest 1.449 all the variable had a VIF less than 3, while highest tolerance level was .690 and the lowest .479 and all the variables had a tolerance value above .2 cut off limit as shown in Table 6. Therefore, for all the independent variables had no multi-collinearity issue.

After conducting the required tests to ascertain conformity with factor, data analysis was subjected to the linear and multiple regression analysis to establish the relations between independent and dependent variables. To examine the influence of lean-green practices on the relationship between networks and performance of medium hotels, a moderated multiple regression was used. Moderated multiple regression (MMR) models was employed because the dependent variable (firm performance) is continuous, as recommended by Lucky (2012) using step-by-step method (Field, 2009). The goodness of fit test were carried out by use of Root Mean Square Error of Approximation (RMSEA) because it is sensitive to the number of parameters being estimated and insensitive to the sample size. Goodness of Fit Index (GFI) and Adjusted Goodness of Fit Index (AGFI) were also computed to validate the goodness of fit.

III. RESULTS AND DISCUSSION

In the inferential stage of the analysis, the researcher sought to explore the nature of relationships between lean-green practices, networking and performance of medium hotels in the Kenyan cities. Factor analysis was conducted using Principal Components Method (PCM) approach varimax rotation. This was carried to check the factor loadings of every statement and ascertain whether they met the threshold of 0.5 to be retained for further analysis. The first objective of this study was to establish the influence of networks and performance of medium hotels in Kenyan cities. The goodness of fit indices indicated that the hypothesized Structural Sub Model of influence of networks on performance provided a good fit between the data and the model. The likelihood Chi-square ($\chi^2=51.457$; $df= 23$, $p= 0.001$) was significant while the other fit measures showed that the model fitted the observed data. The absolute measure GFI was 0.948, incremental CFI was 0.982, TLI was 0.973 and parsimony RMSEA was 0.078 indicating good absolute fitness of the model. The fit results are indicated in Table 7 and the cut off or acceptance limit statistic below each measure.

The standardized path coefficients of networks on performance statistics were ($\beta=.615$, CR 11.002) as shown in Table 8. The CR of the coefficient of networks was found to be 11.002 which was greater than 1.96 the standard normal distribution critical ratio at 0.05 level of significance. This means that when the networks goes up by 1, the performance of medium hotels goes up by 0.615 or 61.5 %. The findings therefore indicated that networks significantly influence performance of medium hotels positively. Chuang, Hang, & Huang (2015) study indicated that, when doing business in emerging economies such as China, only a proper fit between organization learning and guanxi networking can yield higher degree, or extent of strategic performance. Fernando, Jabbour & War (2019) study confirmed that transforming into network type of organizations where coordination, relationship building, partners’ knowledge and internal communication are important constituents of increasing business performance in the long-run and helps in sustainability and competitiveness.

The study further conducted analysis of variance between networks and performance of medium hotels to test the hypotheses which stated that there is no significant relationship between networks and performance of medium hotels in Kenyan cities. The analysis of variance result ($F= 34.134$, $p\text{-value} < 0.05$) showed a significant influence between networks and performance of medium hotels as shown in Table 9. These findings concurs with Mathuki, Ogutu & Pokhariyal, (2019) who indicated that strategic alliances had a strong statistically significant influence on the performance of firms in Kenya. Also Kamau (2020) study on strategic alliance practices and organization performance established that strategic alliance practices had a positive influence on the overall organization performance. The findings are indicated in analysis of variance Table 2. The null hypothesis was therefore rejected and the alternative hypothesis confirmed.

The influence of lean-green practices on the relationship between networks and performance of medium hotels in Kenyan cities was explored. The goodness of fit indices indicates a good fit between the data and the model. The likelihood Chi-square ($\chi^2=180.921$; $df= 135$, $p= 0.025$) was significant while the other fit measures showed that the model adequately fitted the observed data. The absolute measure GFI was 0.916, incremental CFI was 0.983, TLI was 0.979 and parsimony RMSEA was 0.041 indicating good fitness of the model. The model of fit results are in Table 10 accompanied with acceptable statistic underneath.

The study employed Hierarchical Multiple Moderated Regression (MMR) analysis to test the influence of lean-green practices on the relation between networks and performance of medium hotels in the Kenyan cities. The results are presented in the Table 11. The results show that the sub model has an R-square of 0.537, which shows that 53.7 % of the variation in the performance of medium hotels in Kenyan cities was explained by the variation of networks in the model. Based on the ANOVA F statistic, the model is generally significant with a p-value of 0.000 which is less than 0.05. After introducing the moderating variable Lean-Green Practices (LGP) the model experienced a change in R-square of 0.216 (from 0.537 to 0.753). The change in R-square was significant as shown by the significant change in F with a p-value of 0.000 which is less than 0.05. The change in R-square shows a significant 21.6 % increase in variation of performance of medium hotels is explained by predictors in the model due addition of LGP.

Table 12. shows the coefficients of model 1, 2, and 3, of the performed stepwise regression model. In model 1 internal networks has a significant influence on performance of medium hotels in Kenyan cities ($\beta=.733$, $t=15.357$, $p< .05$). The coefficient of networks has a t-statistic of 15.357 and a p-value of 0.000 which is less than 0.05 implying significant at the 0.05 level of significance. The equation generated from model becomes;

$$\hat{Y} = 0.00 + 0.733X4 \dots \dots \dots \text{Equation 1.}$$

Model 2, shows that by adding Lean-Green to the model, the results had a significant effect. The coefficient of Lean-Green is significant at 0.05 level of ($\beta = .571$, $t = 13.278$, $p < .05$) showing that Lean-Green practices has a significant influence on performance of medium hotels in the Kenyan cities. The equation generated from the model becomes;

$$\hat{Y} = 0.00 + 0.571X4 + .401Z \dots \dots \dots \text{Equation 2.}$$

The coefficients for multiple moderated regression with networks as predictor are shown Table 12.

IV. CONCLUSION

The study shows that networks had a significant statistical influence on performance of medium hotels in the Kenyan cities. Analysis of variance between networks and performance of medium hotels in Kenyan cities had an ($F=23.620, p < .05$). The effect of lean-green synergy on performance of medium hotels in Kenyan cities was found to be significant at 0.05 level ($\beta = .571, t = 13.278, p < .05$). Therefore a proactive approach should be adopted to address lean-green issues in the hotel industry. Integrating lean-green practices as a strategy in the production matrix of medium hotels in the Kenyan cities is not in vain since the practice amplify networks contribution to performance.

V. RECOMMENDATIONS

Since the influence of networks on performance was established in medium hotels with R-square of 0.370 and therefore this study recommends the Government to subsidize or allow tax free importation of networking facilities in hospitality industry to make them accessible and affordable by the medium hotels for use in areas like virtual reality tours. Also networked medium hotels will be able to interact with players in tourism and hospitality industry because they are interconnected. There is need to introduce gamification to boost customer loyalty, brand awareness, user-generated content and online engagement as well as revenue growth.

The government through the commercial attachés should organize tours for domestic entrepreneurs to visit the rural outskirts of host countries to tap from this powerful tool of learning from experience. The local communities' involvement and education needs to be enhanced to awaken dormant local entrepreneurs to participate in supply chains in relation to supplying fresh organically grown vegetables and other ingredients alternatively sourced from far away and even abroad.

VI. CONTRIBUTION TO KNOWLEDGE

The study contributes to literature on the area of lean-green synergy and networking and can act as a reference for scholars, policy makers and agencies dealing with enhancing sustainable service delivery. The Government will find the results useful when developing policies to promote productivity by supporting lean-green initiatives through emphasizing cleaner, competitive and decent employment for all. The study will enrich the knowledge of curriculum designers in entrepreneurship to incorporate lean-green practices aspects in line with changing lists of good practices and marketing.

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Effect of Cyber Security on Business Sustainability of Listed Microfinance Banks in Nigeria

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ABSTRACT

Purpose: In Nigeria, microfinance banks (MFB) face the burden of investing in cyber security to protect their databases, prevent monetary losses, maintain customer trust, and remain afloat in a competitive business environment. However, there are incessant cyber risks and attacks by criminals who gain undue access to the cyber-space of MFB and cause financial and non-financial loss.

Design/methodology/approach: The objective of this quantitative study was to examine the effect of cyber security on the business sustainability of three listed, and most valued MFBs in Nigeria. The population of the study was 315 senior, medium and junior employees of three MFBs in Nigeria. As the target population was manageable, the research adopted a census. Data were collected using a semi-structured questionnaire, and the formulated hypothesis was analysed using multiple regression.

Findings: The study found that cyber security has a significant and positive impact on the sustainability of MFB in Nigeria. Data availability account for the largest contribution to the sustainability of MFBs, followed by data confidentiality and data integrity. Employees in a MFB uphold that data availability, confidentiality, and integrity are pivotal elements of cyber security that influence the sustainability of their organisations in Nigeria. Given these results from the viewpoint of employees, MFBs are implored to regularly review and strengthen their risk management strategy and adopt a more integrative approach of human-centric cybersecurity, which brings technology and human elements together to address current and future cyber risks and build and sustain consumer trust in digital financial transactions. The implication of the study and areas for future research are highlighted.

Paper type: Research paper

Keyword: *Cyber Security, Business Sustainability, Listed Microfinance Banks, Nigeria*

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I. INTRODUCTION

In the 21st century, more Micro finance banks (MFBs) are offering services and conducting operations in a highly sophisticated environment where business sustainability faces various security hazards from internal and external cyber-attacks (Perwej, Abbas, Dixit, Akhtar & Jaiswal, 2021). The sophistication and systemic risks of cyber-attacks necessitate the persistent need for Micro finance Banks (MFBs) to safeguard data and other organisational resources from hacker operations to ensure business sustainability. Xu, Fu and Liu (2019:1) assert that.

“MFB distinguishes itself from traditional financial institutions, such as the commercial bank, by operating small loans to “unbankable poor people and small businesses”, is not only considered an effective way for the poor to manage their finances and take advantage of economic opportunities while managing risks, but also an important way to promote economic development, employment and growth, through the financial support of small businesses”.

Since Bangladesh introduced the microfinance banking system in the middle of the 1970s, several other nations, especially third-world countries, have copied similar financial strategies or models. The potential for poverty reduction is the basis for the micro finance model's apparent popularity in emerging nations. In Nigeria, the acronyms of MFI and MFB are used to mean the type of organisation and provider of micro finance services.

Over the years, the business survival of MFBs is undermined by the growth and variety of crimes conducted through digital technologies (Seemba, Nandhini & Sowmiya, 2018). Morgan (2020) warned that cybercrime is expected to cause about six trillion dollars in worldwide damage by 2025 if not well managed in the global economy. The buoyant digital economy thrives on stable, safe, resilient and dynamic cyberspace for financial service providers and businesses.

Digitalising services to achieve higher efficiency, increased productivity, lower operating costs, improved customer experience, and enhanced competitive advantage are topics relevant to cybersecurity researchers and MFBs. First, cyber threats and attacks against MFBs can negatively impact the sustainability model of MFB (Miracle, Armah, Mohammed & Sackey-Sam, 2021). Payments, withdrawals, deposits, and fund transfers between banks are among the banking operations that are financially disrupted by security breaches in MFIs. Non-financial consequences of cyber-attack include losing clients' trust in the banks' ability to protect their money and private information, legal actions, and compensation claims from the affected clients or third parties.

Second, MFB faces the burden of enhancing cyber security, which is evident in additional cyber overhead costs to build cyber-resilient technology infrastructure adequately. Generally, it is anticipated that by 2025, global cyber security spending will hit \$200bn, which would have been re-directed and reinvested for better economic development but is budgeted for fighting cybercrimes and internet-related risks (Morgan, 2020). For MFBs, there is a chance that excessive investment in cyber technology will wipe out the marginal profits and harm their capacity to sustain their finances. Due to the rising digitalisation of banking operations and the systemic danger of technology, it might be argued that MFBs must significantly boost their spending on cyber technology. A breach in the network of MFB might bring down the entire integrated banking system. In this way, systemic cyber security hazards escalate operational risks, adversely affecting the financial results of financial institutions like banks. Experts in cyber security face a dilemma in determining the best investment to make in MFB's cyber security infrastructure to slow the spread of cybercrime.

Nigeria was ranked 47th on the global cyber security index (GCI) in 2020. Cybercriminals in Nigeria are not just sharpening their cyber skills but also busy scaling up by training new and younger people in various types of internet frauds (e.g. love frauds, online trading frauds, and identity theft) to inflict colossal losses and financial burdens on vulnerable MFIs (Aragba-Akpore, 2022). "Yahoo yahoo" is a term for internet fraud that has become common in Nigeria (Aragba-Akpore, 2022). As a result of cybercrimes, Nigerians across the globe have a negative image as they are always perceived as fraudsters.

There is a relative ease with which criminals in Nigeria can learn the necessary cyber skills. On the other hand, it is startling that businesses in Africa repeatedly lament the unavailability of individuals with the essential skills to implement appropriate cybersecurity controls in organisations (Miracle, Armah, Mohammed & Sackey-Sam, 2021). Web and mobile security, security operations, and incident management are the three areas where cybersecurity practitioners have the most knowledge gaps (Catal, Ozcan, Donmez & Kasif, 2022). Detection of intrusion and secure software development is the most challenging skill for organisations (Catal, Ozcan, Donmez & Kasif, 2022).

Lastly, both MFB and small and medium enterprises (SMEs) are attractive targets for cybercriminals. SMEs are targeted because they neither have the reserves, resources, nor sufficient skill levels of employees to build and maintain robust security measures against cyber threats (Duncan & Westerlund, 2022). Cybercriminals consider MFBs attractive because of financial gains and a systemic risk that allows them to access customer data, corporate espionage, or massive customer attacks through networks (Duncan & Westerlund, 2022).

Integration of technical and non-technical measures (e.g. policy development, regulatory compliance, external collaboration, organisational reform, and capacity building) as part of cyber security management practices is vital as no technology system is free from cybercrimes. As technology evolves, cyber investment is a strategic necessity for MFBs to undermine any innovative cybercrime practices (Miracle, Armah, Mohammed & Sackey-Sam, 2021).

Scholars such as Uddin, Ali, and Hassan (2020) have investigated (i) how cyber security risks increase banks' operational costs, (ii) how security lapses affect institutions' performance, (iii) how broadly applying cyber technology increases operational risk, and (iv) the current practises of cyber security disclosure and governance. However, Garcia-Perez et al. (2020:2) underscore that "microfinance has been scarcely investigated from the point of view of sustainability or its impact on sustainable development, where the contexts of the regions should be considered".

While extant research in Nigeria has widely delved into the relationship between cyber security, Microfinance Banks (MFBs) growth, and sustainability in the past few years, there is a limited link to SMEs. Yakubu (2017) investigated the methods of cybercrime, identified reasons for cybercrime, and the possible ways it could be reduced if not eradicated. Omodunbi, Odiase, Olaniyan, and Essan (2016) evaluated the level of students' involvement in cybercrimes. Therefore, there is a compelling need to understand the cyber security and sustainability of MFBs as a critical aspect of the financial sector and the Nigerian cyber environment.

The objective of this study is to examine the effect of cyber security on the business sustainability of MFBS in Nigeria. In line with the objective of the study, the hypothesis for this study is stated below:

H01: Cybersecurity has no significant effect on the business sustainability of MFBS in Nigeria.

The article begins by unpacking the cyber security concept and confidentiality, integrity and availability (CIA) triad cybersecurity model before focusing on business sustainability in MFBS. The article discusses the research methodology, results and discussion. Lastly, the chapter presents managerial implications and areas of future research. The current study is valuable for micro finance practitioners as it enhances their understanding of how confidentiality, integrity and availability of data are foundational in the provision of digital financial service in ways that positively affect business sustainability in MFBS. The study is equally valuable as it pronounces the need to shift from the orientation of cyber security as tech and exclusive to a more integrative, multi-stakeholder orientation and human centric cyber security.

A. Literature Review

In this study, it is critical to gain clarity on cyber security and business sustainability as crucial concepts relevant to MFI.

1. Unpacking the concept of cyber security

The concept of cyber security has been defined in different ways by scholars such as Chang and Coppel (2020) and Perwej et al. (2021:673), but there is no consensus. Illegal and unauthorised access, safeguarding of the digital system, risks in internet-connected systems, cyber-attacks, cybercrimes and cyber terrorism are common aspects in scholarly efforts to define the phenomenon of cyber security. Individuals and businesses employ techniques to guard against illegal access to data centres and other digital systems. In many ways, the internet has shrunk the world, but it has also exposed the business to fresh obstacles in the online environment.

For example, Perwej et al. (2021:673) construe that "cyber security is a set of strategies and processes for defending computers, networks, databases, and applications against assaults, illegal access, modification, or destruction". Lowering the danger of cyber-attacks and protecting businesses and individuals against unauthorised, unwarranted access and illegal use of systems, networks, and technology is the core of effective cyber security. According to Chang and Coppel (2020), cyber security protects electronic systems, networks, computers, servers, mobile devices, and data from harmful attacks. Some scholars, such as Chang and Coppel (2020), surmise cyber security as information technology or electronic information security. However, it is vital to realise how broad cyber security embraces various contexts (e.g. mobile, business computing) and activities. Cyber security includes a variety of aspects such as (1) network security (protecting a computer network from intruders), (2) application security (keeping the software and devices safe from threats), (3) information security (protecting the integrity and privacy of data while it is in storage and transit), (4) operational security (protecting processes and decisions for handling and protecting data assets), and (5) disaster recovery and business continuity response to a cyber-security incident, restoration.

a. Cyber security risks and cost

Uddin, Ali and Hassan (2020:239) assert that "cyber security risk occurs because institutions are often unable to ensure an appropriate set of tools, technologies, training, and best practices to protect networks, devices, programs, and data from unauthorised access" in the virtual environment. Cyber security and cybercrime are two interdependent, opposing sides of the same coin. One cannot discuss cybersecurity without mentioning cybercrime and the risks it poses to businesses. It is important to emphasise that cyber-security can fend against three threats. First, cybercrime involves lone actors and groups who target systems for harm or financial benefit. Second, political information collection frequently goes hand in hand with cyberattacks.

Last but not least, cyberterrorism aims to disrupt electronic networks to spread fear or panic. Cybersecurity is a target for malicious actors in many ways. Therefore, training employees is essential to creating a more durable operational infrastructure.

According to Morgan (2020), the costs of cybercrime include data loss and destruction, financial loss, increased production costs, intellectual property losses, theft of personal, corporate, and financial data, financial fraud, disruption of regular business operations, programmes, and processes, high-cost forensic investigation, high costs for the restoration and deletion of hacked data, and, most importantly, reputational damage to the institutions and society at large. All organisations must lessen cybercriminal activities of external and internal parties that want to acquire unauthorised access to compromise the integrity and confidentiality of information in a virtual environment as Nigeria transitions to a cashless society (Miracle, Armah, Mohammed & Sackey-Sam, 2021).

Anoke and Ndubuisi-okolo (2022) opined that cryptocurrency, and the just-introduced e-Naira, a new type of technology platform for virtual trading currencies and other transactions, confirm the rapid worldwide technological expansion and the need to regulate these activities. Ebelogu, Ojo, Andeh, and Agu (2019) claim that Nigeria has many cybercrimes, including online fraud, software piracy, hacking, online scams, ATM or credit

card fraud, virus distribution, phishing, cyber-stalking, and cyber-defamation. E-banking fraud has undergone a parallel digital revolution to that of e-banking. The dilemma of MFB is that while cyber security adversely impacts cyber overhead costs, cybercrimes create direct losses from cyber security breaches (Anoke, Nzewi, Agagbo, & Onu, 2021).

In this study, cyber security is defined as a set of procedures and actions designed to safeguard the safety of individual and corporate data, networks, and information against any dangers, threats, cyber-attack, and cyber-crime that may arise internally or externally in an organisation. This definition is used because it enables the study to properly dissect cybersecurity concerning microfinance banks' sustainability in an emerging economy like Nigeria.

b. Confidentiality, Integrity and Availability (CIA triad model of cybersecurity)

The three broad components of data and information are confidentiality, integrity, and availability, otherwise called the CIA triad (Prakash,2022). In the CIA, Prakash (2022) is explicit that three constitute elements together form the information security concept known as the CIA triad. Each element stands for a core goal of information security.

Firstly, confidentiality in cybersecurity is about access control for data users to prevent unauthorised activities (Prakash,2022). In this regard, consideration is paid to both the sensitivity of the material and who should have access to it when information is. The variety of techniques used for confidentiality includes secrecy classified from public to top secret, authorisations and access rights according to the nature of their job, use of passwords, encryption, locks and keys, and safes. On the other hand, various methods, including social engineering and hacking, may be used to violate confidentiality. Confidentiality measures used in an MFI mustn't inhibit data transfer and sharing processes to be responsive to user needs. It is unreasonable to lock everything down, stop all communications, and limit employee access to the least amount of data necessary to perform their tasks and make services available to users.

Secondly, data integrity is the guarantee or certainty that the data has not been corrupted or changed before, during, or after submission (Prakash,2022). Similarly, Popescul and Cuza (2011) define integrity as keeping data and information in the correct and complete form and must not be modified without authorisation, either accidentally or on purpose. Data integrity hinges on the need to avoid any unauthorised change or compromise during the upload or transmission of data or the document's storage in the database or collection.

Lastly, availability means that the data is easily accessible to authorised users (Prakash,2022). Accessibility refers to assuring access to data and information, for authorised users, at any time. The well-functioning of the hardware equipment and the networks, back-ups (e.g. power generation, safety systems) and observance of laws all lead to availability. Availability also relates to the resilience of processes and systems against cyberattacks and safeguards against hardware failure, power outages, and other situations compromising the system's availability when users need it. Figure 1 depicts the components of information security and how they interact and reinforce each other to ensure cybersecurity.



Figure 1: Components of the CIA Model in cybersecurity

Source: Prakash (2022).

Data and information for every organisation typically come from various sources, including operational and information technology and personal and operational data. These data and information must be appropriately

managed and always protected. According to Prakash (2022), one of the limitations of the CIA triad is that it is specific and restricted to data. Additionally, the CIA triad does not offer suggestions for building a comprehensive security model for an organisation (Prakash,2022). Furthermore, the CAI triad focuses on data and information security, yet some employees are knowledge workers who require more knowledge than data security. Given the above discussion, this study adopted the CIA triad to operationalise cybersecurity.

2. Dimensions of Business Sustainability

The notion of “business sustainability and sustainable MFB has multi-dimensional elements traceable to the Brundtland Report for the World Commission on Environment and Development (1987:8). Generally, the report echoes that sustainability is about "meeting the needs of the present without compromising the ability of future generations to meet their own needs". At its core, sustainability implies the continued flourishing of human societies in a constantly changing world with competing for social, economic and environmental conditions. The triple bottom line approach (TBL) exhibits that sustainability is complex. It centres around three domains: social, economic and ecological. In this regard, sustainability's environmental aspect includes reducing people's negative environmental impacts and protecting nature and ecosystems (Tsaia & Lu, 2021). Humans must act responsibly and sensitively to use all resources as they have a limit. The economic dimension relates to the link between economic activities, growth, and effects, while the social dimension refers to human, institutional, cultural, and societal aspects. The three spheres of sustainability are interdependent and interconnected and interact in non-linear ways. A shift in one can, in turn, cause a series of knock-on effects in the others.

In a different vein, four dimensions of sustainability proposed by Ashrafi, Acciaro, Walker, Magnan and Adams (2019) are (1) environmental-based sustainability, (2) corporate sustainability, (2) business-related sustainability, and (4) sustainability in education.

Sustainable business requires managers and employees to see themselves as part of a larger organisational, social and ecological system. Business sustainability means businesses should create wealth and improve people's lives. When the microfinance banking program was launched in Nigeria in 2005, the system was put in place to give employment, encourage rural development, alleviate poverty, and supply funding to economically active people who were excluded from the conventional financial markets (Okonkwo & Okeke, 2019).

Notably, some notions of sustainability in strategy have little to do with society as it is only about business. In this case, successfully running a business such as MFI is not sustainable if it entails sacrificing the future for present gains (Anoke, 2019). Both internal and external macro-environmental elements, such as macroeconomics, information technology, and financial sector environments, impact MFB's success (Fashagba, 2018).

Figure 2 below depicts how MFB, the micro-finance institution (MFI), interacts with the social and economic system and constitutes the financial sector.

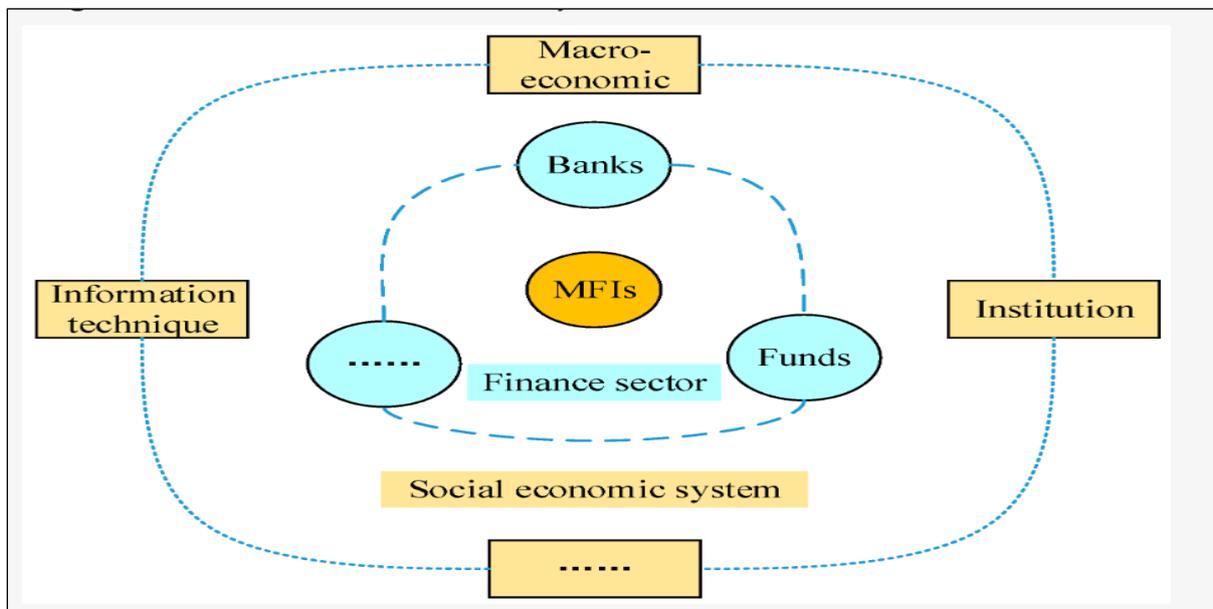


Figure 2: MFB/MFI and Social Economic System.

Source: Xu et al., (2019:3)

a. The Sustainability of MFBs

Understanding the characteristics of MFB is fundamental before one examines the sustainability of this type of institution. Low-cost goods and services, simple opening procedures, accessible financial instruments, and regulated return guarantees define MFB (Garcia-Perez, Fernandez-Izquierdo and Munoz-Torres 2020). MFBs aim to provide the most vulnerable people with the resources they need to meet necessities, deal with personal problems, or grow a small business, among other things (Garcia-Perez et al., 2020). Given the characteristics of MFBs, the notion of their sustainability differs slightly from that of sustainability in general. From a comprehensive standpoint, sustainability is viewed as a balance between the financial, environmental, social, and governance (FESG) dimensions, underlining the significance of the interrelationship among the four dimensions in the short- and long-term (Garcia-Perez et al., 2020).

A slightly different approach emphasises the financial (economic) and social sustainability pillars in the notion of sustainability for MFBs. The importance of financial sustainability is highlighted by MFBs' increased financial independence and decreased reliance on donor financing. Focus is placed on social outreach in social sustainability. Sustainable MFB is described by Navajas, Schreiner, Meyer, Gonzalez-Vega, and Rodriguez-Meza (2020) as the continuity of ongoing financial services to "unbankable poor and small companies". In this regard, it is essential to note that sustainable MFBs maintain outreach and profitability simultaneously. The social impact of MFBs is related to social sustainability (Xu et al., 2019). More studies have recently focused on the environmental sustainability of MFBs, while examining the green environment performance of MFBs, in addition to social and financial sustainability (Nawaz, Selva and Savino, 2016). To achieve social and environmental sustainability, an MFB must be financially sustainable. Garcia-Perez et al. (2020) considered economic, social, and environmental factors when analysing the sustainability concept of MFBs. Below is figure 3, which depicts the three essential aspects when defining the sustainability of MFB.

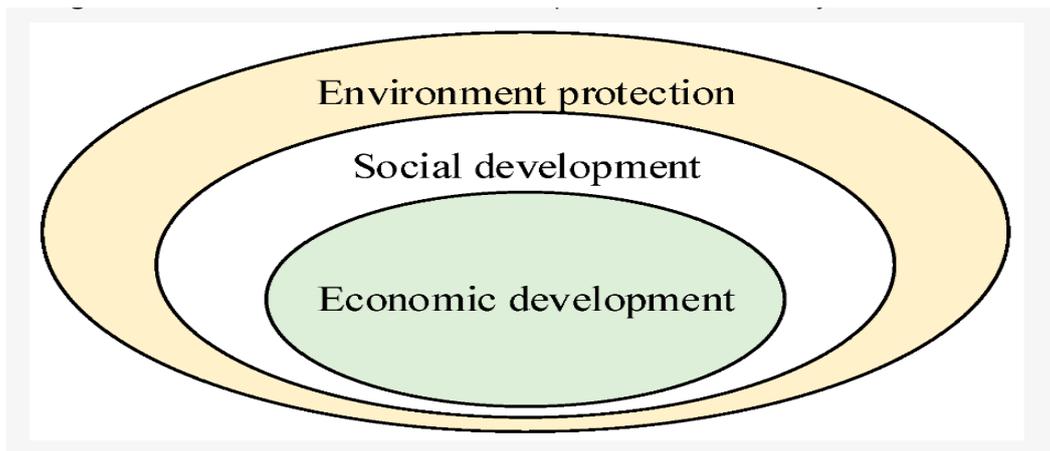


Figure 3: Three interrelated sustainability definition domains or pillars

Source: Xu et al., (2019:4)

For this study, the sustainability of MFB is defined as the capacity of a microfinance provider to cover all of its expenses and to continue offering and expanding financial services to the underprivileged. The sustainability of MFB is operationalised by two items, namely continued operation and expansion of operations by the MFB. Financial sustainability in the microfinance industry suggests that sector revenue should exceed service costs.

II. METHODS

This study adopted a positivistic paradigm to determine the effect of cyber security on business sustainability in Nigerian MFBs. The target population of this research is twenty-five (25) listed microfinance firms on the Nigeria Stock exchange as of December 2021 (NSE Facts book, 2020). A simple random sampling technique was utilised to select Nigeria's three most valued microfinance banks in terms of high capitalisation, national coverage, and covered by Nigeria Deposit Insurance Corporation (NDIC). KUDA, LAPO, and Accion Microfinance banks were selected based on these conditions.

Table 1: Sample of selected MFBs in Nigeria

<i>SS/N</i>	<i>Names of MFBs</i>	<i>Number of employees (senior, medium and junior)</i>
1	<i>KUDA Microfinance Bank</i>	114
2	<i>LAPO Microfinance Bank</i>	108
3	<i>Accion Microfinance Bank</i>	93
	<i>Total</i>	315

Source: Field Survey, 2022

The population size was used in this research as the sample. The decision to adopt a census was adopted in this study because the size of the population is manageable. Additionally, the senior, medium and junior employees of the sampled MFBs were considered in the study because cyber security is always considered everybody's business.

Data were collected from the (senior, medium and junior) employees of the sampled MFBs using a questionnaire with a five (5) point Likert scale. A total of 305 respondents filled and returned their questionnaires used for the analysis, while ten respondents could not return theirs.

To maintain the instrument's validity, the first draft of the questionnaire went through content and face confirmation. The initial draft of the instrument was given to experts in the banking sector in Abuja, Nigeria, as well as other Security and Forensic experts in Abuja (identities withheld for security reasons). These experts were employed to examine the items in the instrument and expressed their views on the suitability and clarity of the statement in the questionnaire. The final copy was modified based on the expert suggestions and opinions. The questionnaire underwent a reliability test using Cronbach's Alpha. The reliability of the questionnaire was found not to be less than the Alpha value of 0.7, as Nunnally (1978) approved.

Table 2: Summary of the Reliability Measurement (Cronbach's Alpha)

<i>Questionnaire Variables</i>	<i>Cronbach's Alpha</i>
<i>Cyber Security</i>	0.795
<i>Microfinance bank Sustainability</i>	0.781

Source: SPSS-25, 2022

Table 2 reveals that the reliability of the variables has an Alpha value above 0.70, which implies that they are reliable.

Multiple regression analysis is used to analyse the collected data. Multiple regression analysis was used to determine the degree of effect of the independent variables on the dependent variable in the study. Below is the model specification for this study:

$$Y = \alpha + \beta_1 x \dots\dots\dots 1,$$

Y=dependent variable, α =intercept,

β_1 = coefficient, X is the independent variable.

$$SMFBs = \alpha + \beta_1 CS + \mu \dots\dots\dots 2.$$

Where: SMFBs = Sustainability Microfinance Banks.

β = coefficient,

α =intercept,

μ = error term.

III. RESULTS AND DISCUSSION

The three listed and some of the most valuable MFBs in Nigeria were studied using Pearson's correlation coefficient and multiple regression analysis to determine the relationship between cyber security and the sustainability of MFBs. Pearson's correlation coefficient was used to determine the relationship between cyber security and MFB sustainability. The contribution of each cybersecurity element on MFBs sustainability was also determined using multiple regression analysis. As a result, table 3 demonstrates the relationship between these variables.

Table 3: Pearson's correlation coefficient between cyber security and business sustainability

		Cyber-security	Business sustainability
Cyber-security	Pearson's Correlation	1	.531**
	Sig. (2-tailed)		.001
	N	305	305
Business sustainability	Pearson's Correlation	.531**	1
	Sig. (2-tailed)	.001	
	N	305	305

** . Correlation is significant at the 0.01 level (2-tailed).

The relationship between cyber security and MFBs sustainability is correlative ($r = 0.531$, $p 0.05$) and is shown in Table 3. Cybersecurity and the dependent variable are significantly and positively related, according to the table of correlation coefficients (business sustainability). With a correlation coefficient of 0.531 or 53.1%, the p-value is less than 0.05. The null hypothesis was rejected at this significance level, indicating a significant and favourable relationship between Nigerian MFB's sustainability and cyber security (confidentiality, integrity, and availability).

However, the relationship between the two variables is equally strong and favourable in addition to being significant. A multiple regression analysis was used to conduct additional tests after determining a relationship between cyber security and business sustainability. These tests sought to determine the individual contributions of each cyber security component to the sustainability of MFBs in Nigeria. The findings of the exploratory factor analysis (EFA), which determines the factor loading of each cyber security attribute, are shown in Table 4.

Table 4: Exploratory factor analysis of the attributes of cyber security

Item	Mean	SD	Factor loading	Item total correlation
<i>Cyber security</i>				
<i>Factor 1</i>				
Data confidentiality	4.71	1.231	.771	.573
Data integrity	4.12	0.927	.628	.524
Data availability	3.92	1.524	.659	.512

KMO = .731; X2 = 542.113; DF= 4; P < .002; Cronbach’s α = .672; Percentage of variance explained = 63.76%.

This study assessed the internal consistency of the many measurements employed in the research construct using reliability. Using IBM SPSS statistics version 26, the internal consistency of the component factors and items from the EFA test was examined. The Cronbach's alpha coefficients are given as data: confidentiality (0.678), data integrity (0.563) and data availability (0.724). A factor consisting of MFBs sustainability produced an internal consistency of 0.685. Since Cronbach's alpha coefficients were over 0.600, no factor was eliminated from the measurement model. The cyber security components of this study were analysed using the multiple regression analysis/model measurement shown in Table 5 based on the outcomes of the EFA. The result combines the model summary, the ANOVA, and the coefficients in table 5 to give a clear and comprehensive picture.

Table 5: Cyber-security as predictors of business sustainability

	R	R2	Adjusted R2	F	Beta	T	Sig
	.798a	0.638	0.513	19.832	----	----	.000b
Data Confidentiality					.161	-.531	.000
Data integrity					-.282	-1.853	.002
Data availability					.311	2.982	.001
(Constant)					---	2.715	.007

a. Dependent Variable: business sustainability

b. Predictors: (Constant) confidentiality, integrity, availability

Table 5 reveals that the regression model's R square is 0.638, and its adjusted R square is 0.513. In other words, 51.3% of the variations in the MFBs' ability to sustain their businesses in Nigeria may be predicted by the model (cybersecurity). This is significant at the level of 0.05, indicating a significant correlation between the independent variables of cyber-security features and the dependent variable, namely business sustainability. These findings are consistent with the alternative hypothesis that cyber security affects Nigeria's MFBs' capacity to sustain their businesses. Notably, the standardised Beta and the corresponding P-values for *data confidentiality* ($\beta = -0.161$, $p < 0.000$), *data integrity* ($\beta = -0.282$, $p < 0.002$), *data availability* ($\beta = 0.311$, $p < 0.001$), show that data availability made the largest contribution to the model, followed by data confidentiality and data integrity which pose a negative sign. In light of these findings, data accessibility and confidentiality work together to forecast the sustainability of MFBs in Nigeria.

A. Discussion of Findings

The findings of this study reveal that employees of MFBs uphold the view that cyber security has a positive and significant effect on the sustainability of MFBs in Nigeria. From the viewpoint of employees in this study, data availability makes the largest contribution to the business sustainability of MFBs in Nigeria, followed by data confidentiality and data integrity. While digital financial service provision by MFBs is conceived as more efficient especially because of the ability to deliver at significant scale with significant reduction in delivery costs, a bigger opportunity for business sustainability is missed when service and data is inaccessible to authorised users and customers. This study underscores that the sustainability of MFBs is easily jeopardised by the lack of availability of data and services when required by internal and external stakeholders (e.g. employees and customers) in many ways (e.g. system access error, power outage, internet problems). Drawing from the market rather than organisational perspective, Kolade (2022) asserts that users of financial services by banks in Nigeria face availability threats, such as the collapse of hardware or software, power failure, natural circumstances beyond one's control, and human error. One of the most well-known attacks that jeopardise the availability of MFBs is the denial-of-service (DoD), or when financial service is knowingly and maliciously tarnished, or the system becomes completely inaccessible.

Consistent and timely availability of service and data with easy accessibility by authorized customers and users is a strategic component of cyber security which enhances the supply side and sustainability of micro banking business (Kolade, 2022). Market penetration and growth in a micro banking market are easy when customers trust the digital finance services and its accessibility. Garcia-Perez et al. (2020) uphold that the goal of MFBs is to provide the most vulnerable people in society with the resources they need to meet necessities, deal with personal problems, or grow a small business, among other things. Kolade (2022) is cogent that digital finance by MFB is widely regarded as one of the most viable, effective, and result-oriented tools to empower poor people and increase their financial inclusion. However, MFBs can only scale up their activities and maximise coverage of financial services if they effectively leverage technological advantages, especially Information and Communication Technology (ICTs) to meet customer and market demands (Chang & Coppel, 2020). Succinctly, the social and financial dimension of the sustainability of MFBs may not be achieved and sustained if the service is unavailable and not resilient in the face of challenges such as power outage. Unauthorised access to financial systems undermines not only availability of service to user, but also the confidentiality, and integrity of service and data for authorised users (Perwej et al., 2021).

The finding that cybersecurity positively affects the sustainability of MFB also invokes questions on the strategies used by various stakeholders, especially customers of financial services and MFI, to deal with different forms of cyber risks in the environment. A study by Ugwuja and Adesope (2021) revealed a variety of cybersecurity measures used mainly by female heads in Nigeria. These include avoiding isolated ATMs, not going to the ATM during late hours, and ignoring and deleting emails and text messages requesting online banking information. Female heads of households stopped using birthdates, addresses, and other words or numbers in their passwords, which makes it easier for attackers to guess and not use the same password for all their different bank accounts. These behaviours indicate that the individual customer has a significant role in achieving cyber security. It is prudent that MFBs understand not only the impact of cyber security on the supply side, but also the demand side of digital financial service. For example, customers may lose confidence and trust in the financial service, and also suffer a financial and psychological harm if they become a victim to a scam or experiencing system access errors (Ugwuja & Adesope, 2021). More importantly, it is arguable that the majority of the customers of MFBs do not have digital literacy but also lack adequate technical competence and familiarity to mitigate cyber crimes. Customers of MFBs are also more likely to use devices and channels not designed to offer the security needed for a financial transaction (e.g., USSD technology) (Anoke et al., 2021). Thus safety, security and resilience are key building blocks for availability as part of cyber security to build customer trust to navigate the cyberspace. Customers are potential victims of cyber-attacks and external beneficiaries whenever there is strong cybersecurity in a MFB.

From the business and cybersecurity perspectives of sustainable MFBs, it is cardinal to ensure ongoing customer education on cyber risks and promote behaviours that enhance cyber security at the individual level when operating in cyberspace. Additionally, MFBs need to continuously monitor e-banking channels (such as cards, point-of-sale systems, ATMs, and other channels) to ensure the availability of service and integrity of data and to build stakeholder trust in digital financial transactions.

This study has illuminated that data availability, confidentiality and integrity complement each other as parts of CIA triad in MFBs. MFBs use techniques which govern permission to access data and encryption so that data availability is only to authorised parties. Arguably, the sustainability of MFBs can be negatively affected if stakeholders hold the belief or perception of compromised data integrity. In a nutshell, users of financial services may be discouraged from using financial services if they suspect that data will be corrupted or changed before, during, or after submission (Navajas et al., 2020). Cyber hygiene programmes for the users of financial services and the public are essential to ensure data integrity is not undermined by corruption in the banking sector and Nigerian society. Any alteration of data for selfish reasons by staff negatively affects the MFB's sustainability and its image. In devising strategies to enhance cybersecurity, MFBs need to be holistic (e.g. focus on each aspect of CIA, external and internal sources of cybersecurity threats). A study by Omodunbi, Odiase, Olaniyan, and Essan (2016) revealed that Nigeria's cyber security could prevent cybercrime from inside and outside an organisation's cyber environment. Financial institutions are forced to invest heavily in strengthening and innovating their cybersecurity defences as cybercriminals are becoming more sophisticated in their attack methods (Aragba-Akpore, 2022). Generally, cyber-attackers do not only have a thorough understanding of the banking system's inner workings and crimes that affect computer networks and devices directly but also crimes facilitated by computer networks or devices (Aragba-Akpore, 2022).

One critical aspect of enhancing cybersecurity relates to the human resource capacity of technicians and IT staff to detect and respond to the threats of cyber attackers. Aragba-Akpore (2022) asserts that without ongoing training, the human element is considered inadequate to deal with the ever-changing trends of cybercrimes in many MFBs in Nigeria. Continuous training of IT officers, especially with emerging trends of attacks and counter-measures to defuse attacks which undermine the sustainability of MFBs, is very important in MFBs. As the nature and complexity of cybersecurity change, MFBs are implored to ensure that risk management strategy is regularly

reviewed, revised, and strengthened to address new difficulties as they introduce more innovative financial products and services. A study by Alawonde (2020), which focused on six chief information security officers from six financial institutions, illuminated four strategies used by financial institutions in Nigeria to prevent cyber exploitations. First, the study revealed strategies depicting policies, processes, and procedures (Alawonde, 2020). These strategies cover information and IT tools and services to ensure the ongoing security of information assets. In MFBs, information security risk management is critical as it involves determining an organisation's information security risks, identifying risk tolerance levels, and deploying controls to ensure that information security risks are at acceptable levels.

Second, financial institutions also use a variety of people strategies to enhance cybersecurity (Alawonde, 2020). These strategies cover the human element that financial institutions use to avoid cyber exploitations. Training of customers and system users to understand acceptable behaviour to prevent cyber exploitations of confidentiality, integrity and availability of information assets) is vital in any organisation. Even where other controls are in place, the human element can allow evasion of controls. While people-related strategies address potential human errors that lead to a breach of information security, they also seek to forestall insider-related threats. Multi-stakeholder orientation acknowledges that there are diverse key actors in achieving cyber security while human-centred cybersecurity relates to the interaction between the human and the data (e.g. malicious insider, an accidental insider, or a compromised insider).

Third, an effective consumer protection framework (e.g. dealing with complaints, consumer education and financial literacy) and promotion of consumer confidence in the financial system are essential to ensure an appropriate level of protection in terms of confidentiality, integrity, and availability of information assets (Alawonde, 2020). Lastly, technology-related strategies and solutions affect the network, applications, databases, operating systems, endpoint, user devices and other technology tools within the IT environment of organisations.

Kolade (2022) acknowledges that in Nigeria, there are challenges to enhancing consumer trust and security in the digital environment. For example, Nigeria's central bank digital currency, known as the eNaira, suddenly vanished from Google Play, further raising skepticism among users. To build customer trust, MFBs must deploy mechanisms to ensure their risk management process and information security management tasks are holistic and cover the universe of information security (e.g. awareness, continuous capacity building and monitoring). Technology-related aspects of cybersecurity have a systemic risk arising from the interconnection between various actors and elements within a system and network of financial systems in the cyber ecosystem. At the societal level, MFBs' fighting cyber-crimes through cyber security can yield better results by lobbying the government to enhance the closure of "yahoo yahoo" academies enrolling youth to train in cybercriminal activities, and the support of the Nigerian youth to re-direct their energy and intellectual power in gainful, legal and productive work (Aragba-Akpore, 2022). MFBs require a more supportive ecosystem (e.g. programmes to enhance digital financial literacy, robust anti-cybercrime laws, youth economic empowerment) to be able to undermine and manage the cyber risks associated with digital financial services against the backdrop of aggressive recruitment of youth into cybercrimes as a rewarding activity. MFBs are cautioned not to overlook the human elements and multi-stakeholder orientation by simply focusing on adopting new technologies, processes, and cybersecurity standards.

B. Three Managerial Implications and Areas of Future Research

Three implications of this study relate to a paradigm shift, pursuit of integrative and collaborative cyber security strategy and re-conceptualisation of cybersecurity for research in future.

1. Shift to pronounce human-centric cybersecurity

Firstly, there is a compelling need for MFBs to shift to human-centric cybersecurity from the prevailing paradigm of cybersecurity, which is construed as exclusively the domain of IT experts and focused on technology. As business sustainability involves business, technology and people, MFBs are implored to pronounce human-centric cybersecurity, which works in tandem with cybersecurity defence technology to achieve optimal efficacy and customer trust. This re-orientation implies clarity that cyber security is not just about cybersecurity technology alone, as there is a human element capable of enabling or impeding cyber security as well as the social and financial dimension of the sustainability of MFBs in Nigeria. As such, it is prudent for MFBs to adopt a multi-stakeholder approach in implementing cybersecurity strategies targeting financial services if they are to ensure that cybersecurity positively influences the sustainability of MFBs in Nigeria.

2. Integrative pursuit of cybersecurity strategy

Secondly, the pursuit of an integrative cybersecurity strategy by MFBs is salient to deal with systemic risks arising from technology and interconnection between the various elements of their systems and sub-systems involved in the service chain for financial services. The integrative approach implies that MFIs integrate technology, information risk management processes, and human elements within the organisation to achieve data availability, confidentiality, and integrity goals. Collaborative implementation of public communication as a tool

must educate the public and target financial services, products and their usage in ways which build trust among various stakeholders to engage in a secure online space.

3. Process, outcome and stakeholder centrality

Lastly, future research to enrich the complexity of our understanding of cybersecurity needs to move beyond the restricted notion of the CIA triad. Re-conceptualising cybersecurity in a way that elaborates both the process and outcomes of how the tech, human and business aspects of cybersecurity integrate into a whole can aid our understanding of cybersecurity from a business and strategic viewpoint. More importantly, it is imperative that the re-conceptualisation of cyber security takes cognisance of multi-level interactions of individual and organisational level strategies in the cyber environment when using and providing digital financial services. Mindful that cybersecurity is the task of every individual in a MFB, scholars are implored to re-conceptualise the phenomenon of cybersecurity in ways which embrace stakeholder-centricity. This aspect in re-conceptualising cyber security is pivotal in situating cyber security at the intersection of the individual as an attacker, customer or insider user and collective responsibility within a MFB while recognising the role of the industry and society.

One of the limitations of this study is the exclusive and inward focus on employee perspectives on cybersecurity and business sustainability of MFBs. While the study used a sample of diverse employees at different levels in the organisation, it is clear that the focus has exclusively been on views of employees to understand business sustainability. As cyber risks affect both internal and external stakeholders, it is critical that future research on cybersecurity and its effect on business sustainability is more inclusive to embrace at least the customer's perspectives. This resonates with the view that customers are a source of revenue critical for business sustainability in the business arena. Employee views on cybersecurity and business sustainability are key, but needs to be complemented with customer perspectives in future research if we are to enrich our understanding of the effect of cybersecurity on business sustainability in MFBs but also any other type business.

V. CONCLUSION

The study has investigated the effect of cyber security on MFBs' sustainability in Nigeria. The results reveal that employees of MFBs in Nigeria uphold the view that cyber security positively and significantly affects the business sustainability of their organisations. From the employee perspective, cyber security is a critical strategy for the sustainability of MFBs, which calls for attention to data availability to authorised internal and external stakeholders when required in ways that ensure data confidentiality and data integrity in Nigeria. It is pivotal for MFBs to ensure that risk management strategy is regularly reviewed, revised, and strengthened to address new difficulties brought on by introducing innovative financial products and services.

Overall, this study is a critical step in reinforcing that digital financial systems and financial services require cyber security as a central feature which impacts internal and external stakeholder trust in digital financial services in cyberspace and the business sustainability of MFBs in Nigeria. While the CIA triad remains insightful in unravelling cybersecurity, it is more prudent for future researchers to adopt a more integrative and collaborative approach that captures the multi-dimensional, processual and human aspects of cybersecurity and link these to businesses sustainability.

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Societal Perception of Business Education Graduates in Nigeria

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ABSTRACT

Purpose: This paper focused on the societal perception of Business Education graduates in Nigeria. Business Education is a course of study in higher institution of learning that provides specific business-related skills and education which are crucial to graduates of this programme to succeeding in the corporate world.

Design/methodology/approach: The method used is the Qualitative method.

Findings: The programme is purposely designed to produce competent, knowledgeable, skilful and efficient workforce who can favourably compete with the dynamics of work environment and also become self-reliant. However, most Business Education graduates are not well recognised by the society because of the negative perception such as less prestigious course of study and low public interest that the society have towards the programme.

Practical implications: The study thus recommended among others that Business Education curriculum should be made more relevant, updated and tailored towards the development of graduates' entrepreneurial and employability skills, government should make Business Education programme more lucrative and highly prestigious as it is a known fact that inconsistency in government policies is contributing to the poor perception the public holds towards Business Education programme in Nigeria, teaching and learning should be re-directed from theoretical to practical as this will make graduates of the programme more capable to perform wherever they find themselves and there should be serious public enlightenment on the relevance and prospects of Business Education in Nigeria.

Paper type: Research paper

Keyword: Societal Perception, Business Education, Social Appraisal

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I. INTRODUCTION

Business Education provides specific business-related skills and education which are crucial to succeeding in the corporate world. In Nigeria, Business Education is taught across various educational levels, up to the tertiary level. Business Education is important to the country as it makes Nigerians inculcate skills that make them employers of labor, thus adding to the economic development and growth of the country (Nigerian finder). However, the society is oblivious of the importance of this programme in Nigeria as the programme is not well recognise like other disciplines such as Medicine, Law, Engineering and Nursing.

II. METHODS

A. Concept of Business Education

It could be deduced from the introduction that Business Education is an education for and about business. A Business Education graduate is one who major in Business Education at a higher institution and has a degree after successful completion of the course with a verifiable grade. Business Education majors learn the fundamentals of business, such as accounting, and marketing, macroeconomics, microeconomics, business finance and business

environment while also studying the fundamentals of education, such as the history and philosophy of education, as well as the psychology of education. They are prepared to teach business classes to those who join the competitive society. Business Education majors have an important role in teaching high school and post-secondary students the fundamentals of business that will, perhaps, lead to business careers of their own or at least some business expertise (The Princeton Review, ND).

Therefore, Business Education is education for business or training in business skills, which are required for use in business offices and clerical occupation and business policy analysis. It is a deliberate intent to teach students about economics and business concepts and skills that might be used in later life (Ahmadu and Idoko, 2013). Business Education is the preparation of an individual to gain employment or for self-employment. Onu (2012) define Business Education as the field of training in business practices and in specific skills such as accounting, information processing, keyboarding/typewriting and shorthand. Business Education represents a broad and diverse discipline that is included in all types of educational delivery systems-elementary, secondary and post-secondary. Business Education can begin at any level, it can be interrupted for varying periods of time, it can be continued throughout the life span of an individual (Amesi, 2010). Business Education includes education for an office occupation, distribution and marketing occupations, accounting, business teaching, secretarial studies, business administration and economic understanding (Amasi and Nnadi, 2015). To Okoli (2010), Business Education is an important part of the general education which emphasizes on skills and competencies acquisition for use in offices and business related occupations. Business Education is encompassing education for office occupations, business teaching, business administration and economic understanding. Abdulkadir (2011) noted that one remarkable important characteristic of Business Education programme is that, its products can function independently as self-employed and employers of labour.

Business Education programme is an important part of the general education which emphasizes on skills and competency acquisition (Okoli 2010). It is that programme of study which encompasses education for office occupations business teaching administration and economic understanding. One remarkable characteristic of business education program is that its products can function independently as self-employed and employers of labour (Aquah, 2014). As a result, there exists a broad spectrum of job prospects for products of business education even from the junior secondary level to the graduate level. Included in this spectrum are: teaching careers, entrepreneurship, office environment, vocational practices (Aquah, 2014).

Still, on the definition Business Education is that facet of educational training that helps the individual to acquire relevant skills needed for living. Business Education is the study of technologies related courses and the acquisition of practical and functional skills needed to function effectively either as employees or as employers of labour (Titiloye, 2012). It was further described by Titiloye and Muhammed (2016) as a programme that prepares the three domains of learning (mind, the brain, and the physical body) towards positive contribution to societal development.

The goal of business education is primarily to produce competent, skillful and dynamic business teachers, office administrators and businessmen and women that will effectively compete in the world of work. It has as its primary aim, the preparation of people for roles in enterprises such roles could be as employee, entrepreneur and employer or simply as self-employed (Ugwuogo, 2013).

The philosophy of the Business Education curriculums as stated in Aquah (2014) includes:

1. To lay a foundation and / or build on the foundation at National Certificate Examination (NCE) level in the pedagogy education system.
2. To equip the learner with saleable skills i.e. skills which will enable them
3. Acquire, sustain and grow on their jobs: create jobs, be self- employed, and be employers, of labour, become better and wiser consumers of goods and services.
4. To prepare the individuals for higher studies in Business Education

Objectives: The Bachelor of Science B.Sc. Ed. In Business Education is geared towards the preparation of individuals who are skilled in

1. Pedagogy in Business Education
2. Principles and practice in Accounting, Management: Marketing; and Information and communication Technology (ICT)
3. Curriculum design and evaluation in Business Education
4. Development of instructional materials for Business Education
5. Supervision and administration of the Business Education programme in secondary schools.

Thus at the end of the programme of study the learners are expected:

6. To acquire the basic knowledge and skills of business education
7. To relate the knowledge and skills acquired to national development

8. To develop basic skills in office occupations
9. To provide the needed background for teaching business subjects.
10. To prepare students for further training/studies in Business Education
To provide orientation and basic skill with which to start a life work for those who many not further educational training.

III. RESULTS AND DISCUSSION

A. Societal Perspective of Business Education Programme in Nigeria

A societal perspective is a point of view that includes a broad range of ideas, opinions, and positions from society. According to the oxford dictionary, society is a long-standing group of people sharing cultural aspects such as language, dress, norms of behavior, and artistic forms. The poor perception of Business Education programme or total ignorance on the advantages of this type of education from the general public is worrisome as some described it as education meant for the poor, drop outs, less privileged, not clever enough for academic work, does not provide jobs seen as 'prestigious' in the society, seen to provide only 'dead-end-jobs' that cannot lead to further self-development and does not offer substantial managerial skills for higher jobs. This position was emphasized by a survey of public technical and vocational education and training (TVET) teachers carried out by Ayub (2015) in Ghana as reported in Okae-Adjei (2017) which found that none of the respondents wanted their own children to study technical and vocational education and training programmes. This same attitude applies to Nigeria where the seemed general perception is affecting students' enrolment in VTE programmes.

1. Low Public Interest Factor

Despite the potentials of Business Education towards addressing the challenges of skill gaps and reduce unemployment among graduates in Nigeria, students, parents and the larger society show little interest in this type of education as compared to the high enrolment of university degrees, even when some universities offer this course, the enrolment still remains low as observation has shown that majority of the students studying Business Education did not make the course their first choice but failed to secure admission in their preferred choice course areas (Edokpolor and Egbiri, 2017).

In the opinion of Edokpolor and Owenvbiugie (2017), Business education is still generally perceived as a form of education for the ungifted and under-privileged child. This situation has made parents and elites to shun this type of education for they erroneously believed that it is meant for the less academically endowed.

2. Less Prestigious Factor

Business Education most times is considered inferior or less prestigious compared to academically oriented programmes offered by the universities. This public perception accounts for the low self-esteem of some Business Education graduates. Also, the non-commitment of students already on the programme to learn skills and also putting skills they acquire to practice after graduation had contributed to this factor (Esekheigbe, 2019). The perception of the public about Business Education is that it is aimed at preparing the youths for low status jobs and an education for less able students.

Business Education is being handled with levity in Nigeria and this results in loss of prestige and diminishing morale which has greatly affected the teaching and learning of business education (Oyewole and Ihionkhan, 2020; Edokpolor and Egbiri, 2017 and Oladunjoye, 2016).

B. Social Appraisal of Business Education

It is unfortunate fate of Business Education in Nigeria that its products are held in low esteem by both individual and society. There is no denying the fact that many parents do not prefer their children to study Business Education except when they are not able to secure admission into universities (Adebisi, 2016). Society perceives Business Education graduate as a mere teacher who has a degree in education (B.Ed.) just like other education courses hence, they have low regard for them though they contribute to national development. Society generally believes that the knowledge acquired in the programme is not worthy or enough to be a business teacher or secure a high prestige white collar job.

C. Dumping Ground for Dropouts

Business Education has become a dumping ground for graduates from different disciplines employed in the name of Business Educators as the employment of unqualified teachers to teach business courses is a great disservice to quality of business education graduates (Ugwuogo, 2013). Teaching has been hijacked by all comers, making it almost a dumping ground for every bird of passage holding on to teaching for just a while as they seek

jobs of their choice, or persons who failed to succeed in other vocations and perhaps those who wish to combine teaching with other businesses (Ekaette, 2019).

Also, Business Education graduate has been looked down upon and treated unfairly because of the general belief that there is nothing special and paramount in the course unlike courses like law, accounting, medicine and surgery, engineering and nursing.

Business Education is regarded by majority of the population in Nigeria as an education with less reputation or education that can only provide blue collar jobs. That this type of education is meant for school drop outs, under achievers, people with low intelligence, the physically challenged or for those candidates who could not secure admission into their choice course of study (Esekheigbe, 2019). Sulayman (2014) opined that people are of the notion that Business Education aims at preparing youths for low status jobs and it is a dumping ground for the less able students. Some parents/guardians do not want their children/wards to study Business Education as they believe that it is meant for drop outs, dullards and less brilliant individuals. Instead, they opt for courses like Law, Medicine, Pharmaceuticals, Engineering, Architecture and Political Science (Adebisi, 2016).

D. Poor Curriculum Content

The word business is a dynamic one in the 21st century due to the advancement in technology. Society, at large believes that Business Education graduates are not equipped with the necessary 21st-century skills and are not qualified to be business instructors rather than normal teachers whose job is to teach at the primary and secondary levels.

Business education is equally faced with the challenge of the use of outdated curriculum. The curricula of most business education are outdated, as such, needs overhauling. Aworanti (2015) opines that it is regrettable that most vocational education curricula which Business Education is a subset, are outdated having been in use for over fifteen years. Observing this situation closely, it is clear that current Business Education may not be able to meet the need of industries or employers of labour genuinely (Edokpolor and Owenvbiugie, 2017). According to Ajisafe, Bolarinwa and Edeh Tuke (2015), highly needed courses are not available in the curriculum. Typewriting, Administrative office management, word processing and Transcription are not included in the curricula of some institutions. Such inadequacies in the curriculum could lead to the production of half-baked graduates. A probable reason for these inadequacies may be that Business Education experts and relevant stakeholders are not often invited to participate during the planning and development of the curriculum. Business Education programme should include courses that would prepare the student for saleable skills, help them have an understanding of the economic system and how a business operates. It should also gear towards helping people to acquire knowledge, and attitude/value that would enable them function in the world they live. A good curriculum should also be geared towards helping the students to acquire knowledge, attitudes and values that would enable them function efficiently in the world of work. To this end, subjects that would meet the objectives or set goals must be included in the curriculum (Ajisafe, Bolarinwa and Edeh Tuke, 2015).

E. Lack of Adequate Qualified and Committed Teachers

There is a gross inadequacy of qualified and business teachers. As such the few available ones are always overloaded with teaching tasks which render them inefficient and non-committed to the goals of teaching. In some cases, untrained or unqualified teachers are mobilized to teach and business courses. Of course, the result is obvious of the kind of graduates produced out of the programme course. Human resources are the most important assets of any nation (Obi, 2015).

If there are many sophisticated equipment/facilities, funds and other materials available for teaching but if they are not effectively utilized by efficient and dedicated teachers the aim for which they are meant tend to be defeated. Inadequate number of trained teachers of Business Education is prevalent in most of our educational institution offering this noble course. Not only this, many business education courses such as Shorthand and Typewriting suffered persistent lack of teachers. Some teachers in the department are square pegs in round holes (A Moor, 2010).

In Nigeria, societal perception of Business Education graduates has greatly influenced many people about this programme and it has merely become a second option. Today, parents even students, only study the course for certificate and not for learning. The few who are sincere and become Business Education graduates are not given the honour they deserve.

V. CONCLUSION

Education remains the foundation of human resources development required for national development. Vocational and Technical Education, which Business Education is part of, has been identified as a means of

tackling poverty and unemployment. Business Education has the potential to engendering development if the obstacles facing it are tackled. The impact will in turn change the negative societal perspective. Hence, Business Education graduates will be appreciated for their impact.

A. Recommendations

The following recommendations were made:

1. Government should provide funds and equipment for the smooth running of Business Education programme as this will encourage parents, teachers, and students and make the programme attractive to the citizens.
2. Graduates of Business Education should desist from the habit of waiting for only white-collar jobs. An entrepreneurship orientation programme should be arranged for graduates of Business Education to redirect their minds while government and financial houses should be of assistance to business educators' graduates by financing their business take off.
3. Non-professional Business Education lecturers should not be allowed to teach any of the Business Education courses.
4. Government should make Business Education programme more lucrative. It is a known fact that inconsistency in government policies contribute to the poor perception the public holds towards Business Education programme in Nigeria.
5. Teaching and learning should be re-directed from theoretical to practical. This will make them stronger to perform wherever they find themselves.
6. There should be serious public enlightenment on the relevance and prospects of Business Education this may be carried out through career talks and counseling in primary and secondary schools.
7. There should be advocacy to promote Business Education from all stakeholders and encourage the public to stop looking at Business Education graduates with prejudice and disdain.
8. The Business Education curriculum needs to be reviewed, because of the dynamic nature of business and advancement in technology.

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Cryptocurrencies in Nigeria: Its Place in Entrepreneurship, Accounting, and Taxation

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ABSTRACT

Purpose: The objective of this paper is to theoretically examine the place of the use of cryptocurrencies in entrepreneurship, accounting and taxation in Nigeria.

Design/methodology/approach: The methodology used is library-based research through review of related extant literature which informed the position taken in this paper. From the critical review of literature, it can be inferred that despite the novelty and attraction these digital currencies promise, it is not without inherent limitations, but requires the needed legal and regulatory framework in order for it to enhance security of the value of money of the owners who may want to key into it usage.

Findings: It is therefore recommended that the relevant national and international money market/financial regulators and authorities should take proactive steps in coming up with the needed framework to help eliminate any doubt that may be associated with the use of cryptocurrencies.

Paper type: Research Paper.

Keyword: *Cryptocurrencies, Accounting, Entrepreneurship, Fiat, Taxation*

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I. INTRODUCTION

The increasing momentum in innovativeness of the digital world appears to have gradually transcends into the money market to the extent that is capable of rendering paper money (fiat/notes) to a near redundancy considering the recent popularity the cryptocurrencies have garnered in the global financial environment. This development may have been or is being highly encourage by advancement in Information and Communications Technology (ICT) coupled with the proliferated trend in globalisation which has resulted in digitalised global economy. In the same vein, the new-normal triggered by the recent outbreak of corona virus 2019 (covid-19), wherein different mitigating strategies were evolved including the need to limit contacts (social distancing) between persons could be another rationalisation for why cryptocurrencies are likely to make significant breakthrough as a legal tender for making transactions in the near future. It is however pertinent to note that transactions carried out with cryptocurrencies may have ripple effect on entrepreneurship development, accounting disclosures and imposition of tax on the taxable income derivable from the said cryptocurrency-enabled transactions.

However, the change in the ways transactions is being carried out associated with the emergence of digital financial technology (cryptocurrency) is in tandem with the doctrine of innovativeness which is the hub of entrepreneurship, and apparently further justification of the definition of entrepreneurship as the process of pooling together unique package of resources to exploit an opportunity. The ability for the entrepreneurs and other forms of business establishments to properly account for the value of these transactions in monetary terms, as well as meet their compulsory statutory obligations through taxation could pose a significant constraint to the entrepreneurs, professional accountants, and relevant tax authorities. This is the major crux of this paper.

Basu et al. (2018) sees cryptocurrency as a new concept of money and can be termed as digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of

funds, operating independently of a central bank. According to Basu et al. (2018) they are disruptive economic innovations that have the potential to revolutionize the current economic structure and change how banks and financial institutions are operating now, maintaining that it is a digital or virtual currency that uses cryptography for security.

However, the introduction of these different forms of digital currencies are probably not without shortcomings, and such may have attendant effects on the economies of different countries across the world as well impact on government fiscal and monetary administration. Furthermore, the inability to exert strict regulations over the use of digital currency as against what the situation is with fiat (paper) money is likely to raise concerns about growth of Small and Medium-scale Enterprises (SMEs) which is the dominant entities that propagates entrepreneurship in most nations of the world, largely due to the fact that there is yet sophisticated accounting framework needed to capture the reporting process of this paradigm shift in the way money will be exchange, thus will also raise bottleneck in the process of taxing the revenues accruing to the relevant businesses by different taxing jurisdiction. This assertion is in tandem with the views expressed by Bagus & de la Horra (2021) who submitted that were cryptocurrencies to become widespread media of exchange, governments capacity to undertake monetary, fiscal, and drug policy would be undermined.

The impression created in the above background is suggestive of the fact that government and financial regulators across the globe are yet to authoritatively establish a framework for regulating cryptocurrency, with its operationability apparently being control on the basis of local/international conventions or treaties. Mere reliance on treaties as basis for the use of cryptocurrency in aiding exchange of goods or services might be sufficient grounds for its acceptability by the contracting parties but raises ethical questions. Consequently, this conceptual paper is an attempt to understand the place of cryptocurrency in the Nigeria context particularly as it relates to entrepreneurship, accounting, and taxation.

A. Cryptocurrency

Cryptocurrencies are based on block chain technology, and the block chain or public ledger means that every user can see every transaction. The first Cryptocurrency to begin trading was Bitcoin back in 2009 Basu et al. (2018).

Basu et al. (2018) opined that there are hundreds of virtual currencies in the market, with the popular ones classified into four major categories: i). Bitcoin, which is the first widely accepted virtual currency, being a trendsetter, and pioneered the concept of cryptocurrency in the global economic market; ii). Ethereum which is second most popular currency launched back in 2015; iii). Litecoin which is ranked third in the crypto market in terms of acceptance and launched in the year 2011 and uses the same fundamental structure as bitcoin and thus usually referred to as 'silver to bitcoin's gold'; and iv). Ripple which works on consensus ledger which does not need mining process to be involved, reducing utilization of computing power and network latency.

II. METHODS

A. Cryptocurrencies and Entrepreneurship Development

The use of cryptocurrencies has some issues in the context of entrepreneurship. Nadeem (2017) found in his study that bitcoin has value because both the Pygmalion entrepreneurs and customers believe that it has value, and it is likely to be among mainstream global viable currencies. However, Nadeem (2017) highlighted those new digital technologies have transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes as well as the ways of dealing with such uncertainty, hence raising important questions at the intersection of digital technologies and entrepreneurship-on digital entrepreneurship.

Based on Laukkanen et al. (2016) argument that market orientation and brand orientation are usually modelled as distinct antecedents of business performance, social entrepreneur's betting prospects on the Bitcoin is likely to become a self-fulfilling prophecy, hence increasing the high degree of risk associated with the use of cryptocurrencies by the entrepreneur.

Meanwhile Nadeem (2017) asserted that the liquidity nature of new technologies, and collaborative business models are fostering a new form of entrepreneurship, and that the social entrepreneurs are challenging the logic of formal market structures and particularly traditional financial institution systems and hence the rise of cryptographic payment systems.

B. Accounting for Cryptocurrencies Transactions

According to Sundqvist & Hyytiä (2019) there are many challenges which need to be resolved when it comes to accounting for cryptocurrencies. There are issues present in all four themes, but the main challenges which were identified revolved around asset classification, valuation, disclosures, and risk factors. Sundqvist & Hyytiä (2019) submitted that one of the main challenges brought up in literature is what type of asset cryptocurrencies can be classified as. The possible asset classifications discussed by the literature are inventory, cash, cash equivalents, financial instruments, and intangible assets (AASB, 2016, p. 8). The guidance from IFRIC suggests that the possible applicable standards are IAS 2, inventory or IAS 38, intangible assets (IFRS, 2019). However, there are contrary 5 views of whether these asset classifications provide relevant and useful information to financial statement users or not.

Observe that national accounting authorities around the world have expressed the need for guidance to avoid a patchwork of inconsistent rules used globally. As of today, there are no available IFRS standards regulating the accounting requirements for cryptocurrencies (International Accounting Standards Board [IASB], 2018, p. 7). The main challenge for prospective regulators is where to impose constraints (Böhme et al., 2015:231). Countries such as China sees cryptocurrencies as illegal, despite the fact that it is one of the world's biggest sources of cryptocurrency mining (Reuters, 2018; Rooney, 2018).

III. RESULTS AND DISCUSSION

A. Taxability of Cryptocurrencies revenue

Marian (2013) opined those virtual currencies present regulators with significant challenges, and in line with fundamental issues raised by different authorities in the United States of America (USA), and acknowledged that it is reasonable to expect shift to occur in the foreseeable future due to the contemporary convergence of two unrelated, yet parallel, processes. These processes are the increasing popularity of cryptocurrencies, of which Bitcoin is the most widely recognized example. The first process has features which includes the recognition of Bitcoin as a form of private money in Germany in 2013, preceded by a ruling of a federal judge that for purposes of U.S. securities regulation, Bitcoin is indeed "money", while the second process has features such as cooperation by governments around the world with their foreign counterparts in their battle against offshore tax evasion

Accordingly, Marian (2013) noted that cryptocurrencies possess the traditional characteristics of tax havens: earnings are not subject to taxation and taxpayers' anonymity is maintained, and that it also possesses one added value which makes it operations independent of existence financial institutions, thus capable of defeating governments' recent successes in addressing offshore tax evasion. He noted that with the increasing momentum of cryptocurrencies, tax-evaders who hitherto adopt the use of offshore bank accounts in tax-haven jurisdictions could opt out of traditional tax havens in favour of cryptocurrencies, hence admitting that there are inherent weaknesses in governments attempt to aptly resolve the issues of tax evasion associated with the use of cryptocurrencies.

To further buttress how cryptocurrencies could serve as catalysts for tax evaders, Marian (2013) chronicles the different implicating developments in the USA such as an indictment on May 23, 2013 by the U.S. federal government brought against the operators of Liberty Reserve, a popular virtual currency, charging the operators with money laundering and operating an unlicensed money-transmitting business; a public report by the Government Accountability Office ("GAO") which explore the potential tax-compliance risks associated with virtual currencies and economies; legislators have also taken particular interest in one type of virtual currency-Bitcoin; and the U.S. Senate Committee on Homeland Security on August 13, 2013, announced plans to start an inquiry aimed at establishing a regulatory framework for Bitcoin.

Bianchini & Kwon (2020) noted that the Italian Revenue Agency was the first authority to issue a specific directive in 2016, exempting buyers of Bitcoin from VAT and subjecting crypto-exchanges to normal corporate taxation (IRES e IRAP). With Resolution 72/E of 9 September 2016 (Agenzia delle Entrate, 2016:58), the revenue agency answered to the question posed by a company willing to constitute one of the first Italian cryptocurrency exchanges, Conio18. The Revenue Agency, referring to a decision of the European Court of Justice (C-264/14, 22 October 2015) recognised that the acquisition of Bitcoin in exchange for "fiat" currency was to be considered a currency exchange and thus not subjected to Value Added Tax for the individual buyer.

B. Issues and Challenges on the use of cryptocurrencies

The review of literature carried out in the preceding sections is clear indication that the use of cryptocurrencies is riddled with fundamental issues and challenges in the present circumstances. The issues and challenges could be that: i). Not centrally governed by national or international central bank; ii). Who takes responsibility in the events of fraud? iii). The SMEs in Nigeria and most sub-Saharan Africa countries are usually

dominated by illiterates and may not be able to sufficiently operate the interphase or platform of the blockchain technology, thus may impede the much sought-after SMEs-induced industrialisation and the desired development status; iv). The views in literature is suggestive of the fact that there is yet an internationally accepted framework/regulations to regulates the use of cryptocurrencies; a situation that may raise integrity issues from the point of view of willing investors; v). Problem with the creation of accounting standards to aid financial disclosures on transactions carried out with cryptocurrencies; vi). Differences in existing currencies (fiat/note) among different countries of the world may inhibit the complete move into cryptocurrencies as a legal tender for financing transactions largely due to the fact that most countries might be unwilling to relinquish their traditional currencies and migrate into the use of cryptocurrencies; and vii). How to properly delineate taxing rights and jurisdictions, as well as what transactions should be subjected to tax or otherwise.

IV. CONCLUSION

This paper is a conceptual review on the place of cryptocurrencies in Nigeria in terms of the issues and challenges its usage is likely to precipitate in entrepreneurship, accounting and taxation. Technological innovations have caused series of changes in the ways organisations, individual, and firms carry out their exchange of goods or services and the ways and manners the monetary involvements are transacted, wherein cryptocurrencies appear to be gathering momentum and gaining international recognition, despite the fact that there is still so much to be done in terms of its regulations and legal protection. However, with the review carried out in this paper, it can be inferred that despite the novelty and attraction these digital currencies promise, it is not without inherent limitations, but requires the needed legal and regulatory framework in order for it to enhance security of the value of money of the owners who may want to key into its usage. It is therefore recommended that the relevant national and international money market/financial regulators and authorities should take proactive steps in coming up with the needed framework to help eliminate any doubt that may be associated with the use of cryptocurrencies.

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Inundation Prediction Model Based on Land Use in Krukut Watershed

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ABSTRACT

Purpose: Flooding is a problem in urban areas, particularly in the Krukut watershed. The causative factors are changes in land use, increased land conversion from dry land to watertight built-up land, and reduced water catchment areas. Various efforts to control inundation have been made, but the location of inundation has not been significantly reduced. As a result, a model is required to predict the occurrence of inundation so that it can be anticipated. This study will discuss a mathematical model for predicting inundation in the Krukut Watershed by considering rainfall, land use, and the drainage system.

Design/methodology/approach: Researchers gathered inundation data from trusted social media from 2010 to 2020, rainfall data from 2003 to 2018 from the Universitas Indonesia Campus station, and land use data from Citra Landsat in 2019. SPSS was used to analyze the data.

Findings: The analysis results show a solid positive correlation with the variable Building Open Area impermeable to inundation. According to the research findings, the inundation area is 0.17 km². Compared to the EPA SWMM modeling results, the result is 0.21 km² with a return period of 25 years, with an overall accuracy of 90,91% and a kappa accuracy of 67%. It means that the applied model produces an acceptable level of truth.

Paper type: Research paper

Keywords: *Building Open Space, EPA SWMM, Inundation, Land Use, SPSS*

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I. INTRODUCTION

A Watershed is a land area serving as an ecosystem unit for rivers and their tributaries. Its purpose is to naturally accommodate, store, and drain water that falls from the sky into lakes or seas. The land boundary is a topographic separator, and the sea boundary extends to irrigation areas still affected by land activities (Water Resources Law No.7/2004).

The Krukut watershed is located on the east side of the Ciliwung watershed, bordered on the west by the Grogol watershed and the Pesanggrahan watershed. It is connected to the West Flood Canal and has an area of 73.53 km², a river length of 32.2 km, a river bed elevation of +81.80 asl, a downstream elevation of +2.85 asl, and an estimated width of 3 to 10 meters. The sequence is divided into three sections based on its topography: upstream in Ratu Jaya in the municipality of Depok, middle in the South Jakarta Administrative City, and downstream in the West Flood Canal (BKB) in the Central Jakarta Administrative City.

Inundation disaster is an issue in urban areas, particularly in the Krukut watershed in DKI Jakarta. Extreme rains, increased land use conversion into open spaces of watertight buildings, narrowing of river banks, and reduced rainwater catchment areas all contributed to this incident. This incident has profoundly impacted the last ten years, from 2010 to 2020. The incidence increases along the Krukut River at 29 points out of 10 sub-districts, with an average inundation height of around 25 cm.

Efforts to address floods from structural and non-structural perspectives have been implemented by widening the cross-section of rivers and reservoirs. It aims to increase flow capacity while decreasing inundation frequency (Anita, 2013). However, several efforts to reduce the risk of flooding are challenging to implement, particularly

in urban areas, because they will clash with politics and require a large budget for relocating settlements. As a result, other efforts are required to enable it to be carried out in cities, including managing rainwater runoff at its source.

As more urban land is developed into watertight built-up land, flooding occurs. The water that cannot be accommodated will raise the runoff coefficient and lower storage volume during the rainy season. It is all a result of the insufficient drainage capacity of a catchment area and the challenge of acquiring land within the context of normalizing and enlarging the river cross-section (Hassan et al., 2022).

Considering the dynamics of the growth of hydrological studies, particularly flooding, and inundation in metropolitan areas, the study is currently leading to spatial-based studies. Some spatial research is inextricably linked to the role of Geographic Information Systems (GIS) as a supporting tool. Furthermore, its function is to provide a type of modeling of a hydrological occurrence, such as flooding and inundation in metropolitan settings (Rajabifard et al., 2003).

According to Asdak (2002), land use changes will impact the overall ecological system, including hydrology in the watershed area. The influence of these changes on a wide scale alters the behavior of river water. River water output increases dramatically during the rainy season, while it is pretty low during the dry season.

Climate, soil (topography, soil, geology, geomorphology), and land use contribute to the discharge of a river in a watershed, according to Seyhan (1990). According to Saputro et al. (2018) and Mardhatillah & Yulianti (2020), land use, with varying land use types, influences surface runoff. According to Yasa et al. (2020), surface runoff is influenced by infiltration, which is affected by soil texture, vegetation type, land use, soil temperature, and rain intensity. According to Spatial Planning Law No. 26 of 2007, a minimum green space area of a city is 30% of its total area.

According to the Center for Research and Development of Settlements, Agency for Research and Development of the Ministry of Public Works, the goal is environment-based urban drainage, TRAP (Accommodate, Absorb, Flow, Maintain) (Ecodrainage).

Recommended minimum return period (years) for planned floods for flood control projects, according to the Center for Water Resources Research and Development's design criteria for flood control buildings in 2002, rivers for urban areas with a population of more than 2 million people use a Planned Return Period of 25 years.

During the rainy season, a rise in land conversion from catchment regions to built-up areas or impermeable construction open spaces in a watershed in urban areas may cause an increase in inundation events, particularly in the Krukut watershed, which has nearly inundated events each year.

As a result, the Prediction Model for the Area of Inundation estimates the occurrence of inundation in a watershed based on land use and cover. The predictor variables are Water Open Area, Building Open Area, and Vegetation Open Area, also known as independent variables. The region of inundation is the subject of this modeling, also known as the dependent variable.

This study aims to develop a predictive model for inundation and identify characteristics that influence inundation occurrence based on land use. At the same time, the benefit of this research is that it provides data for predicting flooding areas in the Krukut watershed.

This prediction model is projected to serve as the foundation for calculating flooding events in the Krukut watershed, allowing these events to be predicted in the future.

II. METHODS

This study was carried out in the Krukut Watershed using land cover data for 2019 available from the United States Geological Survey (USGS) website (<http://earthexplorer.usgs.gov/>). Land cover data at the research site is based on recognized areas using the ArcGIS 10.6.1 software's area of interest tools, which are backed by field data, Google Earth maps, and high-resolution satellite imagery.

Visual interpretation and knowledge analysis of the characteristics of the distribution of land cover in the Krukut watershed reveal five classes of land cover: Water Open Area (represented in blue), Building Open Area (described in yellow), Grass Open Area (represented in light green), Ground Open Area (designated in golden brown), and Vegetation Open Area (represented in dark green). Secondary data, mainly hydrological and hydraulic analysis data, were gathered indirectly by researchers via intermediary media and documented.

The Campus of Universitas Indonesia rainfall station provided 16 years of rainfall data (2003–2018) for the researchers to analyze. The dependent variable in this study is the inundation area, referred to as the dependent variable (Y), with area units gathered over the last ten years (2010-2020) at the research site. 1) is the independent variable in this study or as an independent variable with an area unit. 2.) Building Open Area (X1), 3.) Water Open Area (X1) (X2). 3. Grass Open Area, (X3), 4. Ground Open Area (X4), 5. Vegetation Open Area (X5) is the area in km² units.

III. RESULTS AND DISCUSSION

Based on the inundation events from 2010 to 2020 from various trusted social media, the researchers created an inundation map as described in Figure 1.

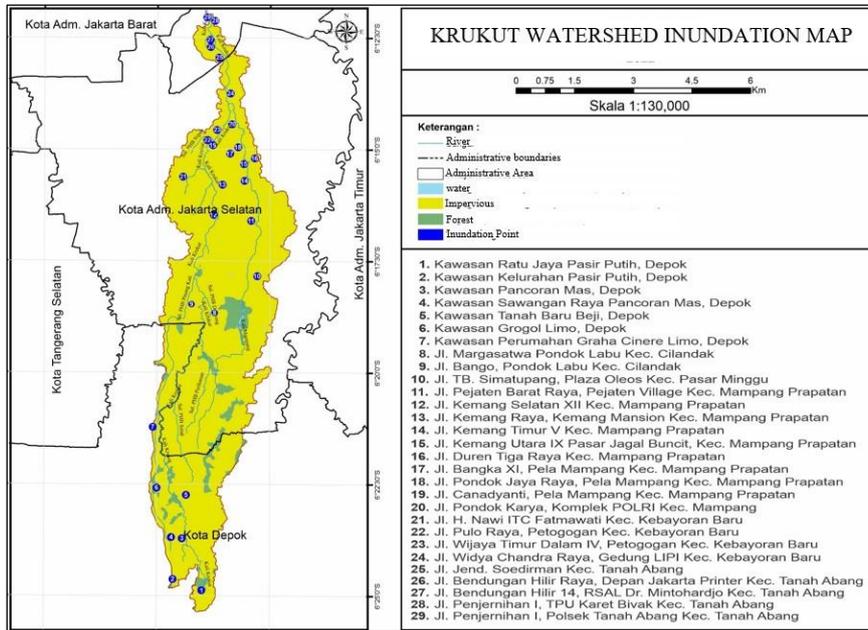


Figure 1. Krukut Watershed Inundation Map

The Thiessen Polygon method was used to calculate the amount of rainfall in the Krukut Catchment Area based on data collected over 16 years (2003–2018). This method uses the region the station in question represents as a weighting factor when determining the average rainfall. This method is thought to be superior to the average algebraic method. It helps figure out the average rainfall of a watershed for regions with few stations, and the rain is not equally distributed, even though it cannot yet provide the exact weight (Ningsih, 2012). Testing rain data within the context of hydrological analysis requires that the data be stationary (unchanging), consistent, and homogeneous.

The researcher used a frequency distribution fit test to determine the most appropriate distribution pattern (Statistical Parameter test, MAPE test, RMS test, Sminrov Kolmogorov test, Chi-Square test). The Log Pearson Type III approach is best for distributing the available data, according to the findings of the difficulties that have been run. It has the lowest error degree when every test satisfies the standards listed in table 1 below.

Table 1. Rainfall Period Plan for Krukut Watershed, University of Indonesia Campus Station

Return Period	Normal	Log-Normal	Pearson III	Log Pearson III	Gumbel
100	171.17	179.73	179.70	189.02	189.44
50	165.03	170.89	171.10	177.18	177.18
25	158.20	161.57	161.94	165.25	164.82
10	147.64	148.13	148.57	149.03	148.16
5	137.72	136.54	136.90	135.94	134.98
2	118.77	116.85	116.83	115.52	115.07

The duration of rainfall determines the intensity of rain over 24 hours. The results of these computations are then used to create an IDF (Intensity Duration Frequency) curve. Using various curve graphs based on rain data from the Rainfall Station, the intensity of rainfall over 24 hours is determined.

Only the maximum daily rainfall (mm/24 hours) observed in a single year is available to calculate this flood plan. Hence, the researcher conducted the analysis using the Mononobe formula. As part of the architecture for flood calculation, the rainfall hydrograph for flood calculation stations is distributed over six hours to determine critical rainfall. The following table depicts the distribution of precipitation based on the Mononobe Method (within 6 hours).

Table 2. Table of rain distribution in Krukut watershed Mononobe method (in 6 hours)

	<i>Tr=2</i>	<i>Tr=5</i>	<i>Tr=10</i>	<i>Tr=25</i>	<i>Tr=50</i>	<i>Tr=100</i>
<i>Mononobe</i>	115.52	135.94	149.03	165.25	177.18	189.02
0.067	7.79	9.17	10.05	11.15	11.95	12.75
0.100	11.59	13.64	14.95	16.58	17.78	18.97
0.550	63.57	74.81	82.01	90.94	97.51	104.02
0.143	16.52	19.44	21.32	23.64	25.34	27.04
0.080	9.23	10.86	11.90	13.20	14.15	15.10
0.059	6.81	8.02	8.79	9.74	10.45	11.15

The Krukut Watershed's land usage in 2019 is divided into 12 sub-watersheds that are organized from upstream to downstream, including the Water Catchment Area: Mampang Depok, Salak, Perikanan, Danyong, Pinang Kali, Elnusa, Palm, Asem, Nipah, Mampang, Benhil, and Sungai Krukut are the following: 4. According to tables 3 and 4 below, the percentages of land cover classifications for open water area (1.67%), building open space (92.54%), and vegetation open space (5.79%) are as follows:

Table 3. Land Use in the Krukut Watershed in 2019

<i>Classification</i>	<i>Area (km²)</i>	<i>Percentage (%)</i>
<i>Water open area.</i>	1.45	1.67
<i>Building open area</i>	68.05	92.54
<i>Grass open area.</i>	0	0
<i>Ground open area.</i>	0	0
<i>Vegetation open area.</i>	4.03	5.79
<i>Total</i>	73.53	100

Table 4. Land use classification of the Krukut inlet catchment area in 2019

No	Sub Watershed	Water Open Area (km2)	Building Open Area (km2)	Vegetation Open Area (km2)
1	WCA Mampang Depok	0.0169	0.5065	0.2206
2	WCA Salak	0.0877	2.5553	0
3	WCA Perikanan	0.0892	2.5614	0.1219
4	WCA Danyong	0.0016	0.5135	0.0006
5	WCA Pinang Kali	0.1675	5.9758	0.3408
6	WCA Elnusa	0.0007	0.4588	0
7	WCA Palm	0.0056	1.6238	0
8	WCA Asem	0.0039	2.1263	0.0039
9	WCA Nipah	0,0053	1.6188	0
10	WCA S.Mampang	0.5778	29.4002	2.3828
11	WCA Benhil	0.0078	0.6983	0
12	WCA S.Krukut	0.4891	20.0093	0.9591

The analytical technique of the 25-year plan is used to calculate the probability of flooding the area. The researchers produced calculation results that revealed that the termination was overwhelming with an assumption of an average high inundation of 25 cm after considering the existing drainage capacity. The spanning area in km² units was calculated by the researchers using the following calculations in Table 5 below:

Table 5. Probability of inundation area of Krukut watershed return period of 25 years

No	Sub Watershed	Existing Drained Capacity (m ³ /sec)	QTR ₂₅ (m ³ /sec)	YTR ₂₅ (m ³ /sec)	Conversion of the assumption 25 cm (Km ²)	YTR ₂₅ (Km ²)
1	2	3	4	5= (4-3)	6	7 = (5*6)
1	WCA Mampang Depok	14.62	23.62	9.01	0.0000695	0.0006
2	WCA Salak	12.07	111.52	99.45	0.0000695	0.0069
3	WCA Perikanan	22.20	112.63	90.43	0.0000695	0.0063

4	WCA Danyong	6.55	22.41	15.86	0.0000695	0.0011
5	WCA Pinang Kali	16.37	263.15	246.78	0.0000695	0.0172
6	WCA Elnusa	9.62	20.02	10.41	0.0000695	0.0007
7	WCA Palm	8.83	70.86	62.04	0.0000695	0.0043
8	WCA Asem	8.05	92.82	84.77	0.0000695	0.0059
9	WCANipah	12.07	70.65	58.58	0.0000695	0.0041
10	WCA S.Mampang	134.68	1,299.52	1,164.84	0.0000695	0.0810
11	WCA Benhil	14.12	30.47	16.35	0.0000695	0.0011
12	WCA S.Krukut	238.03	879.87	641.84	0.0000695	0.0446

The 2019 land coverage data and the chance of overlapping are utilized for data analysis with statistical approaches such as the Correlation Regression Test. The data were analyzed and interpreted using the SPSS software.

Table 6. Model Development

No	Sub Watershed	Water Open Area	Building Open Area	Grass Open Area	Ground Open Area	Vegetation Open Area	Inundation
		(km ²)	(km ²)				
		X1	X2	X3	X4	X5	YTR25
1	WCA Mampang Depok	0.016916	0.506475	0.000000	0.000000	0.220570	0.000626
2	WCA Salak	0.087691	2.555297	0.000000	0.000000	0.000000	0.006912
3	WCA Perikanan	0.089229	2.561434	0.000000	0.000000	0.121911	0.006285
4	WCA Danyong	0.001577	0.513475	0.000000	0.000000	0.000555	0.001102
5	WCA Pinang Kali	0.167464	5.975758	0.000000	0.000000	0.340835	0.017151
6	WCA Elnusa	0.000725	0.458753	0.000000	0.000000	0.000000	0.000723
7	WCA Palm	0.005621	1.623760	0.000000	0.000000	0.000000	0.004312
8	WCA Asem	0.003882	2.126307	0.000000	0.000000	0.003882	0.005892

9	WCA Nipah	0.005294	1.618779	0.000000	0.000000	0.000000	0.004071
10	WCA Sungai Mampang	0.577785	29.400151	0.000000	0.000000	2.382791	0.080956
11	WCA Bendungan Hilir	0.007760	0.698285	0.000000	0.000000	0.000000	0.001136
12	WCA Sungai Krukut	0.489098	20.009349	0.000000	0.000000	0.959134	0.044608

Table 7. Research Description

	N	Minimum	Maximum	Mean	Std. Deviation
Inundation (YTR25)	12	.000626	.080956	.01448117	.024275001
WOA (X1)	12	.000725	.577785	.12108683	.200278873
BOA (X2)	12	.458753	29.400151	5.67065192	9.237591343
Grass OA (X3)	12	.000000	.000000	.00000000	.000000000
Ground OA (X4)	12	.000000	.000000	.00000000	.000000000
VOA (X5)	12	.000000	2.382791	.33580650	.702213138
Valid N (listwise)	12				

Table 8. Correlation between variables

Relationship between Variables		Pearson Correlation	Relationship Level
Water Open Area		Inundation	0.966 Very Strong
Building Open Area		Inundation	0.994 Very Strong
Vegetation Open Area		Inundation	0.982 Very Strong
Building Open Area		Water Open Area	0.984 Very Strong
Vegetation Open Area		Water Open Area	0.924 Very Strong
Building Open Area		Vegetation Open Area	0.965 Very Strong

As the table above shows, all independent factors are significantly associated with inundation.

Table 9. Research Hypothesis Testing Results

<i>Hypothesis</i>	<i>Analysis</i>	<i>Test</i>			<i>Conclusion</i>
		<i>T- Statistics</i>	<i>Sig.</i>	<i>Description</i>	
<i>H1</i>	<i>Water Open Area</i>	<i>< 2</i>	<i>>0,05</i>	<i>Not Significant</i>	<i>Rejected</i>
<i>H2</i>	<i>Building Open Area</i>	<i>>2</i>	<i><0,05</i>	<i>Significant</i>	<i>Accepted</i>
<i>H3</i>	<i>Grass Open Area</i>	<i>< 2</i>	<i>>0,05</i>	<i>Not Significant</i>	<i>Rejected</i>
<i>H4</i>	<i>Ground Open Area</i>	<i>< 2</i>	<i>>0,05</i>	<i>Not Significant</i>	<i>Rejected</i>
<i>H5</i>	<i>Vegetation Open Area</i>	<i>< 2</i>	<i>>0,05</i>	<i>Not Significant</i>	<i>Rejected</i>

Hence, the variable influencing inundation is Building Open Area (X2), with a p-value of 0.05 and T Statistics > 2. Then, every variable with a p-value greater than 0.05 is removed from the model.

The correlation between the independent variables Water Open Area, Building Open Area, and Vegetation Open Area based on the relationship level table Pearson Product Moment has a strong positive relationship (> 0.9). The relationship between independent variables and inundation is also very strongly positive. However, after testing the classical assumptions, it can be seen that only the Building Open Area has a significant effect on the t statistic (> 2) and the p-value (> 0.05). The other variables had no impact, so a stage 2 regression was carried out with the results described in Table 10 below:

Table 10. Correlation Coefficient / Pearson Product Momen

		<i>Inundation (YTR₂₅)</i>	<i>Building Open Area (X₂)</i>
<i>Inundation (YTR₂₅)</i>	<i>Pearson Correlation</i>	<i>1</i>	<i>1.000**</i>
	<i>Sig. (2-tailed)</i>		<i>0.000</i>
	<i>N</i>	<i>11</i>	<i>11</i>
<i>Building Open Area (X₂)</i>	<i>Pearson Correlation</i>	<i>1.000**</i>	<i>1</i>
	<i>Sig. (2-tailed)</i>	<i>0.000</i>	
	<i>N</i>	<i>11</i>	<i>11</i>

***.* Correlation is significant at the 0.01 level (2-tailed).

The correlation becomes stronger if the magnitude of the Pearson product-moment correlation variable Building Open Area approaches 1 or -1. The table above demonstrates that the association between Building Open Areas and Inundation is positive, with a Pearson 1 correlation r value of more than zero and a p-value less than 0.000 0.05.

The increasing value of R Square and adjusted R Square, which approaches one, indicates the strength of the independent variable in explaining the dependent variable, which in this case is inundation. The R Square

score of 0.988, when combined with the Adjusted R Square value of 0.988, suggests that the independent variable can strongly explain the dependent variable.

Table 11. Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0,994 ^a	0,988	0,987	0,002803996

a. Predictors: (Constant), R.T.B (X₂)

b. Dependent Variable: Genangan (YTR₂₅)

Because the regression has a Sig F value of 0.05, the ANOVA table indicates it is legitimate. It can also display a comparison of FCount and FTable of 814.435. Researchers obtain a result of 4.96 by putting FTable in the numerator with df1 = 1 (number of independent variables) and df2 (number of samples - number of independent variables - 1) = 10. As a result, FCount > FTable.

Tabel 12. Anova

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	0,006	1	0,006	814,435	,000 ^b
	Residual	0,000	10	0,000		
	Total	0,006	11			

a. Dependent Variable: Genangan (YTR₂₅)

b. Predictors: (Constant), R.T.B (X₂)

The normality test determines whether data or variables are normally distributed. The data spread along the diagonal line, and the histogram forms a bell looking upwards, indicating that the standardized residuals are normally distributed.

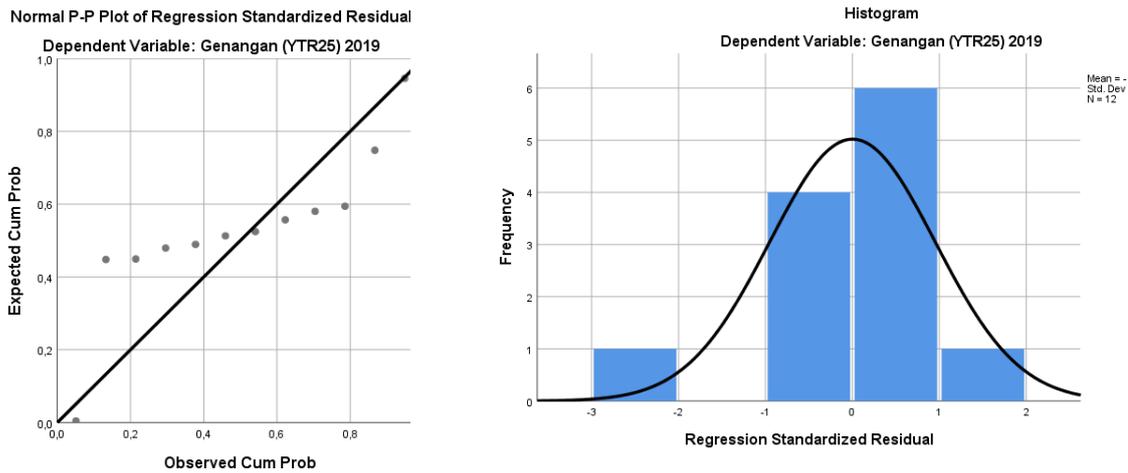


Figure 2. Normality and Histogram Test

The T-test was used to determine how much the independent variables of the Building's Open Area influence the dependent variable of inundation separately, with a confidence level of 95% or alpha = 0.05. If T Count > T Table and the T Table value is (alpha; n-k) = 0.05 and the df value is 6, then the T Table is 1.943. The computed T value is more than 1.943. According to Ghozali (2011: 101), the value of Sig. 0.05 influences the dependent variable in part (Y).

Table 13. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-0,00033	0,001		-0,343	0,739		
R.T.B (X ₂)	0,00261	0,000	0,994	28,538	0,000	1,000	1,000

a. Dependent Variable: Genangan (YTR₂₅)

The regression equation may be seen in the equation table below after passing all of the classical assumption tests, the T-test, and the F-test, indicating that they meet the requirements as a model.

Table 14. Prediction Model Equation

Parameter	R ²	Prediction Model Equation				
Inundation TR ₂₅	0.987	=	-	+	0.0026	Building Open Area
			0.0003			

A. Discussions

Rain, increased land conversion from water catchment regions to Building Open Areas, and a reduction in water catchment areas in a river basin can all affect an increase in inundation. The proportion of the building's open space area is 92.54% at the research site, whereas the percentage of the water catchment area is 7.46%. According to Law No. 26 of 2007 on spatial planning, the water absorption area should be 30%. As a result, the location of this research is still not optimal for carrying out existing laws, and inundation is unavoidable.

In the Krukut river basin, land conversion from permeable to impervious land is one element contributing to an increase in the frequency of inundation. This fact can be explained by the fact that there is a very high positive association between inundation and impervious events, implying that actions to control inundation at the study site are required.

The resulting equation model can estimate the flooding area = -0.0003 + 0.0026 Building Open Space. The researchers anticipate that an inundation event with an area of 0.17 km² will occur in the 25-year return period plan with an RTB area of 68.04 km².

B. Validation Analysis

Researchers obtain the accuracy degree of the quantitative model output using the accuracy evaluation test stage. The model findings are in the form of areas and location points suspected of having the potential for flooding, which are compared to the results of field checks conducted in each catchment area with the assistance of the SWMM EPA Program. The mathematical evaluation uses a contingency or error matrix (confused/error matrix) and Kappa analysis. Figures 3, 4, and Table 12 show the findings of the EPA SWMM simulation.

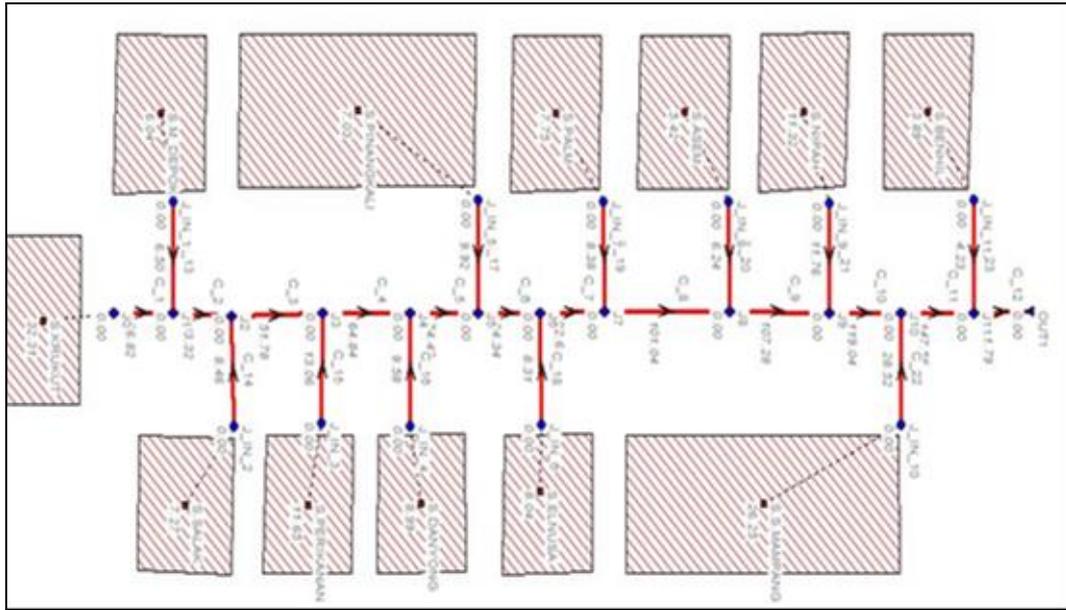


Figure 3. Krukut Watershed Situation Map

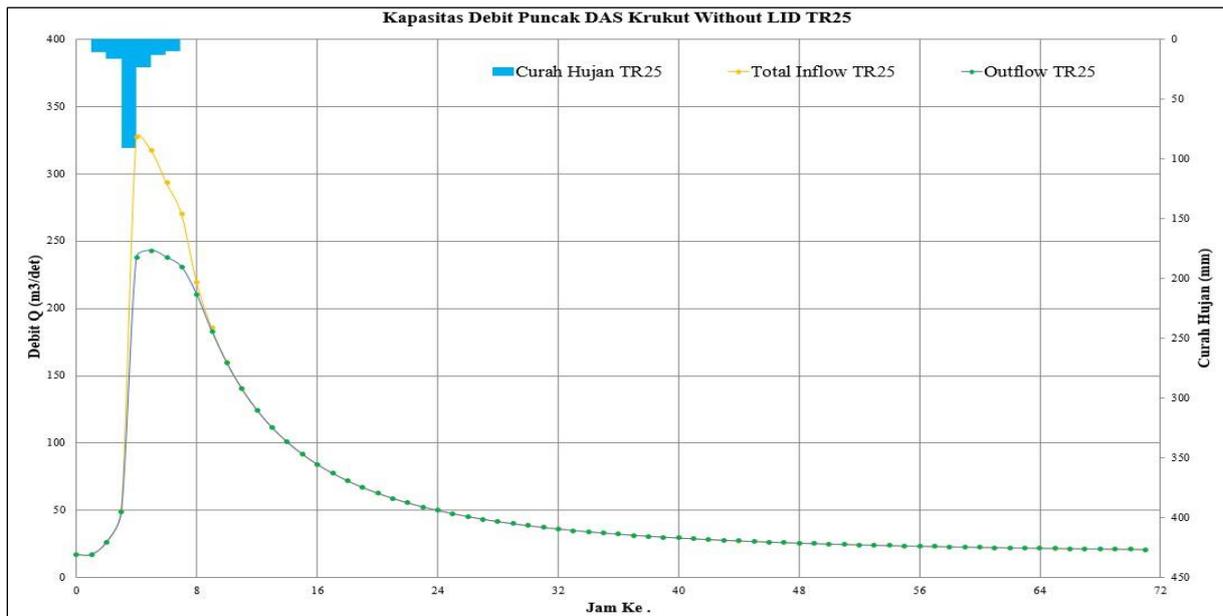


Figure 4. Krukut Watershed Peak Discharge Capacity

Table 15. Simulation Results of Inundation Events at QTR 25

Parameter	Results of Running EPA SWMM
Intensity (mm/hour)	165.25
Flooding loss (m ³)	840,894.00
Flooding loss (m ³ /sec)	104.51

<i>Infiltration loss (mm)</i>	<i>4.021</i>
<i>Node Flooding</i>	<i>J0,J3,J4,J-In-2, J-In-3, J-In-4, J-In-5, J-In-7, J-In-8, J-In-9.</i>
<i>Runoff Peack (m3/sec)</i>	<i>310.27</i>
<i>Inundation Prediction (Ha)</i>	<i>21.02</i>

Table 13 compares model data findings to the results of field inspections, error matrices, and model accuracy evaluation results.

Table 16. Comparison of model and field data

<i>No</i>	<i>Sub-System</i>	<i>Potential Inundation Category</i>	
		<i>Model Data</i>	<i>Field Data</i>
<i>1</i>	<i>WCA Mampang Depok</i>	<i>Potential</i>	<i>No Potential</i>
<i>2</i>	<i>WCA Salak</i>	<i>Potential</i>	<i>Potential</i>
<i>3</i>	<i>WCA Perikanan</i>	<i>Potential</i>	<i>Potential</i>
<i>4</i>	<i>WCA Danyong</i>	<i>Potential</i>	<i>Potential</i>
<i>5</i>	<i>WCA Pinang Kali</i>	<i>Potential</i>	<i>Potential</i>
<i>6</i>	<i>WCA Elnusa</i>	<i>Potential</i>	<i>No Potential</i>
<i>7</i>	<i>WCA Palm/Pelita</i>	<i>Potential</i>	<i>Potential</i>
<i>8</i>	<i>WCA Asem</i>	<i>Potential</i>	<i>Potential</i>
<i>9</i>	<i>WCA Nipah/Ciragil</i>	<i>Potential</i>	<i>Potential</i>
<i>10</i>	<i>WCA Sungai Mampang</i>	<i>Potential</i>	<i>No Potential</i>
<i>11</i>	<i>WCA Bendungan Hilir</i>	<i>Potential</i>	<i>No Potential</i>
<i>12</i>	<i>WCA Sungai Krukut</i>	<i>Potential</i>	<i>Potential</i>

Table 17. Error matrix of model results against field data

		Field Data		$\Sigma 1$
		B	T	
Model Data	B	12	0	12
	T	2	8	10
$\Sigma 2$		14	8	22

Note: B = Potential Inundation Category, T= No Potential Category, $\Sigma 1$ = Number of Row, $\Sigma 2$ = Number of Column.

Table 18. Assessment of Modeling Result Accuracy Evaluation

No	Evaluation	Potency (%)	No Potency (%)
1	UA	54,55	63,64
2	PA	45,45	36,36
3	OA		90,91
4	K		0,67

UA= User's accuracy; PA = Producer's accuracy; OA= Overall accuracy; K= Kappa Coefficients

The overall accuracy was 90,91%, while the kappa accuracy was 0.67, or 67%. As a result, the outcome of this study modeling can produce an appropriate level of truth.

IV. CONCLUSIONS

The researchers came to numerous conclusions as a consequence of their examination and discussion:

1. The occurrence of inundation has a solid positive link with converting land into open space for buildings. Inundation incidents will occur during the rainy season.
2. According to the research on the data prediction model for the occurrence of inundation in the Krukut watershed, the element that has the most significant influence on the event of inundation is the 92.54% rise in land conversion into open space for structures. As a result, researchers provide projections for the inundation area = $-0.0003 + 0.0026$ Building Open Area. At the 25-year return period, inundation is 0.17 km².
1. The EPA SWMM modeling findings over 25 years reveal a peak discharge of 310.20 m³/s and an inundation of 104.51 m³/s, covering an area of 0.21 km².
2. This study's model was evaluated and found to have an overall accuracy of 90,91% and a kappa accuracy rating of 67%. It signifies that the model used generates a reasonable amount of truth.

Based on the findings of this study's inundation identification, the following recommendations can be made:

1. Change in built-up land is an important aspect to consider in the context of urban growth. It mainly concerns since the higher the built-up area, the more the equilibrium of the local drainage system will be thrown off, especially when it rains.
2. More emphasis should be paid to technical approaches of inundation management in city governance, such as utilizing open spaces as catchment areas or incorporating the LID idea.

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Agrotourism Tourism Village Development Model Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency

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ABSTRACT

Purpose: Development Model of Agrotourism Tourism Village, Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency. This further research aims to test and analyze the Development Model of Agrotourism Tourism Village, Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency The sample in the study was 15 correspondents related to agrotourism tourism villages.

Design/methodology/approach: The sampling method used in this study is to take it to the concerned corespondent. The data collection method was carried out by distributing interviews to correspondents related to agrotourism tourism villages, namely respondents in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency. The data analysis technique is SWOT strategy analysis.

Findings: From this advanced research activity, it resulted in the contribution of the development of agrotourism tourism villages to the improvement of the regional economy in Morowudi Ngebret Village, Cerme District, Gresik Regency through the development of agrotourism tourism villages that can increase profitability and business development well and can improve village economic development in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency.

Paper type: Research Paper.

Keyword: Tourism Village Development, Agrotourism, Morowudi

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I. INTRODUCTION

Morowudi is located close to the district center of Cerme (± 3 km to the south). This village is quite crowded because it is on the main road of Cerme. The village is bordered by Iker-Iker, Boboh, Putar Lor, Sukoanyar, and Guranganyar. The naming of this village is related to the era before Indonesia's independence.



Figure 1. Ngebret Hamlet, Morowudi Gresik Village

Labor problems are still a major problem in Indonesia. This can be seen from the still and continuing increase in unemployment, wage and labor rights problems, and various other employment problems. The lack of employment provided by the government and the high rate of human growth are also among the contributing factors. In Morowudi Village, Cerme District, Gresik Regency, there is a small industry that produces snacks. The small snack industry itself was established in 1997. The existence of this small snack industry has a positive impact on society. This small snack industry in Morowudi Village still uses a lot of human power compared to using machine power. So that this is able to absorb labor, the average labor used in industry ranges from 9 – 15 people. (Vga & Dkk, 2018) The problem that occurs in Gebret Hamlet is that the development of agrotourism tourism villages is still not stable in increasing regional autonomy because the support of the local government still does not fully support the development of the tourism village even though if it is temporarily practiced the development of the tourism village in Gebret Hamlet, Morowudi Village has very good opportunities and temporary observations that the problem is local resources that must be given training in developing their respective businesses so that together they can increase regional income in the village. Development is a process or way of making something advanced, good, perfect and useful. (Dewi et al., 2019) revealed, what is meant by development is the process, way, making, developing. Tourism development has the character of multisectoral activities, in the implementation of tourism development must be planned in an integrated manner with considerations of economic, social, cultural, physical and political aspects. (Andini, 2013) Tourism is an activity from which tourists go to a tourist destination outside of daily life and the environment to make a temporary stopover from residence, which is driven by several needs without intending to make a living and but based on the need to get pleasure, and accompanied to enjoy various entertainment. (Suranny, 2020) Understanding Tourism Village Tourism Village as an option to empower local communities to their potential. Understanding tourism village is a form of integration between attractions, accommodation and supporting facilities presented in a structure of community life that blends with applicable procedures and traditions. (Encang Saepudin, Agung Budino, 2022) Tourism Village Potential In the Big Dictionary Indonesian Third Edition, potential is defined as an ability that has the possibility to be developed (strength; ability; power). (Kirana & Artisa, 2020) Tourism Village Approach There are two approaches in developing tourism villages; market approach and physical approach. Market approach and physical approach through various development strategy models such as: Market Approach for Tourism Village Development. The indirect interaction of the development model is approached in a way that the tourist village benefits without direct interaction with tourists. According to Law of the Republic of Indonesia Number 10 of 2009 concerning Tourism, what is meant by tourism business is a business that provides goods and / or services to meet the needs of tourists and the implementation of tourism. While tourist attraction is everything that has uniqueness, beauty, and value in the form of a diversity of natural wealth, culture, and man-made results that are the target or destination of tourist visits. (Muchlis, 2017) Understanding Agrotourism Tourism Basically, agrotourism is a primary sector (agricultural sector in the tertiary sector (tourism sector) which aims to help increase farmers' income. Farmers and the agricultural sector will benefit from agrotourism activities. Agro tourism is also able to maintain the sustainability of the agricultural sector and prevent the agricultural sector from the process of annexing.

Research gab (Kirana & Artisa, 2020) The results showed that in the development of tourism villages, Batu City Government involved the private sector, academics, media and encouraged community participation through empowerment. Then in the implementation of collaborative governance, effective communication is needed to facilitate the actors to collaborate so that the actors will optimize their role in the development of tourism villages. (Suranny, 2020) The results showed that the tourism potential that could be developed in the village of Conto consisted of natural tourism potential, agro-tourism and cultural potential. Development plans for the tourism village of the sample include: attraction development through the creation of tour packages that are packaged in an attractive and structured manner; accessibility development through the provision of adequate infrastructure facilities; amenities development through increasing the carrying capacity of tourism supporting facilities, and developing tourism activities both from the community and from the management of the Conto Tourism Village to realize sustainable tourism development.

A. Problem Statement

1. What are the agrotourism potentials that can be developed for tourism in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency as an agrotourism attraction business?
2. What are the opportunities for tourist attractions that can be developed in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency?
3. How is the development of a model of tourist attractions in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency?
4. How is the development of the existing infrastructure model in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency?

B. Research Objectives

This research generally aims to develop research models and theories in the tourism village of Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency as one of the tourist attraction businesses in the form of a relatively new agro tourism village in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency. Furthermore, a research model that will be found can contribute to the development of the tourism village.

Research Objectives With these goals, several targets must be formulated that must be met, namely:

1. Identify agro-tourism potential that can be developed for tourism in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency as an agrotourism attraction business
2. Identify opportunities for tourist attractions that can be developed in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency.
3. Development of a model of tourist attractions in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency
4. Development of existing infrastructure models in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency

C. Research Road Map

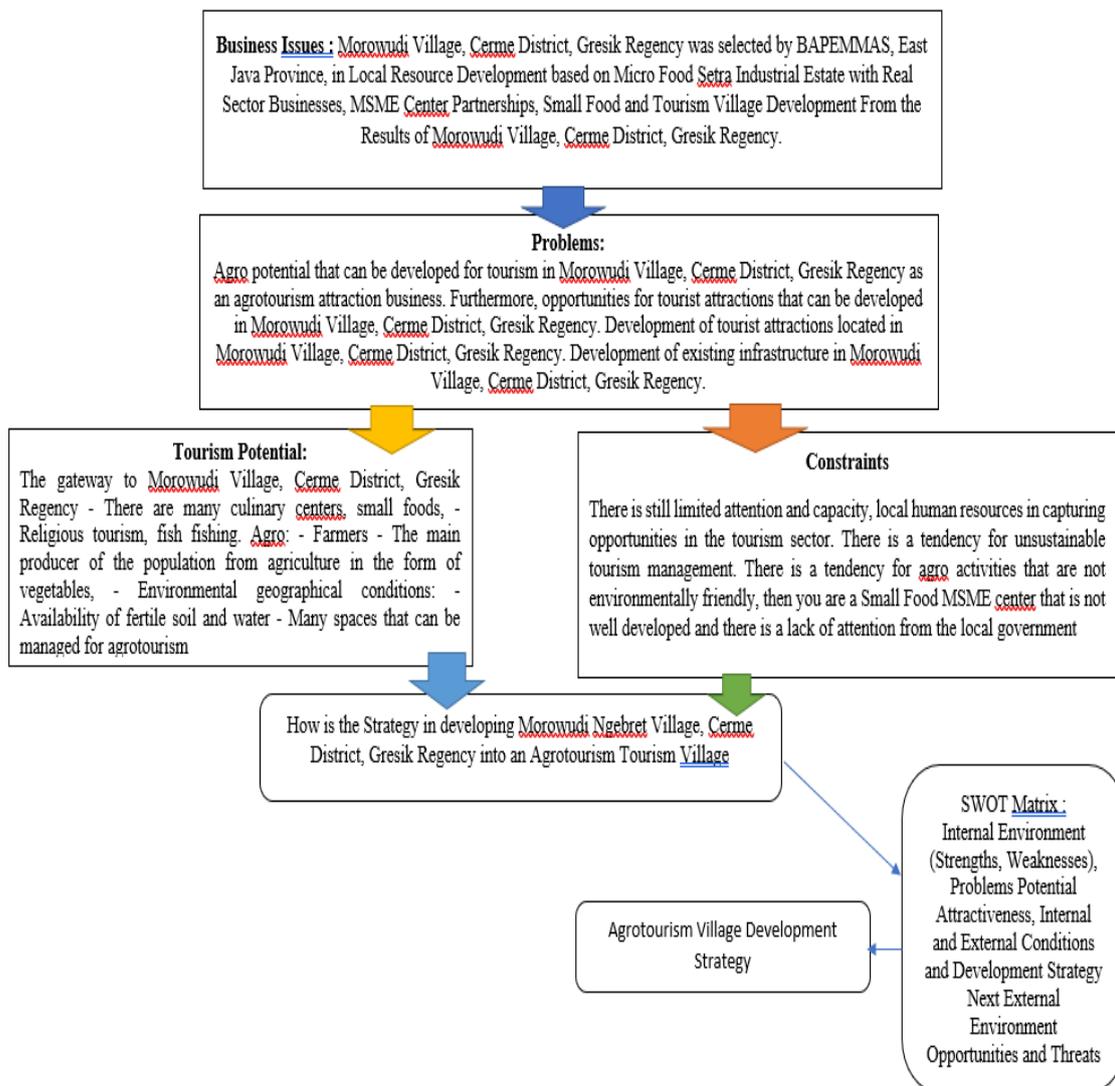


Figure 2. Road Map

II. METHODS

This research is a qualitative descriptive research. Approach Qualitative descriptive is considered in accordance with the purpose of the study to describe and review SWOT analysis in the development of Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency. Primary data mining was carried out through in-depth interviews, limited FGDs and direct observation and documentation. While secondary data sources are data obtained indirectly from the object, but through other sources orally and in writing. The informants selected in this study are parties who are considered to know and understand the problems studied, including: Management of Ngebret Tourism Village, Community; and related agencies The qualitative data that has been collected is then analyzed using a qualitative data analysis approach. The data that has been collected is sorted according to the topic of discussion to be described.

A. Research Data Collection Methods

Data The data collection method is carried out in two ways, namely primary surveys (data obtained directly from the field / resource persons) and secondary surveys (data obtained from related documents. (Sugiyono, 2019).

1. Primary Survey

Primary data collection is data collection carried out to obtain data that is not available in the agency through direct collection from the field. This primary data collection is carried out in the following ways: Observation (Observation) observation or direct observation. (Sugiyono, 2018) The results of observations or observations in this study are recorded descriptively, which accurately observes and records the phenomena that arise and knows the relationship between aspects of the phenomenon in the form of geographical and demographic conditions, as well as potential tourism potential by taking into account real conditions or phenomena in the field.

2. Secondary Survey

Secondary data is obtained from literature books and several related agencies and the validity of the data can be accounted for. (Arikunto, 2016) Secondary data collection is carried out through surveys to agencies to obtain data issued by these agencies and review documents. In addition, the secondary survey is also through a literature study which is a survey of data and literature related to the geographical conditions of Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency, population conditions of Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency, the amount of agricultural and livestock production in Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency This literature is obtained from the internet, handbooks, and other references.

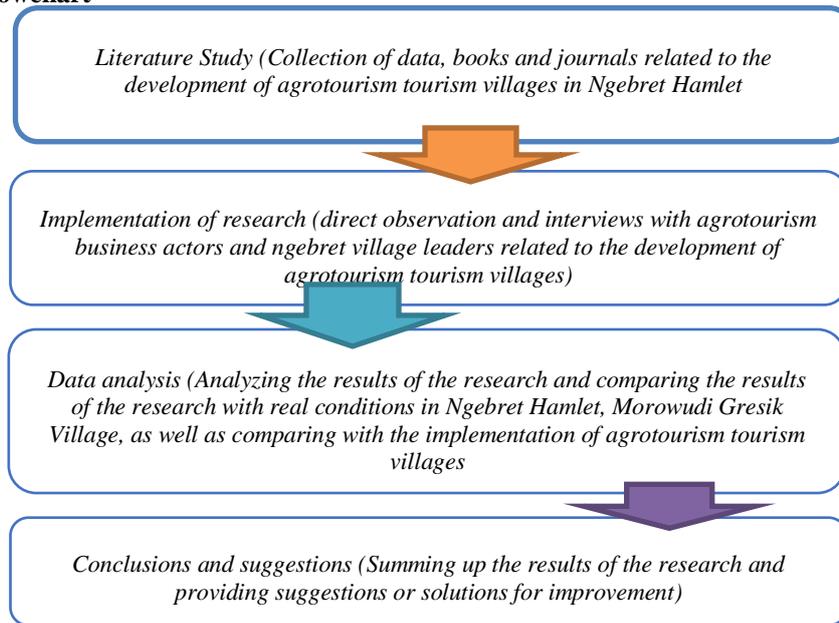
B. Data Analysis Methods

The analysis used in the development study of Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency using qualitative descriptive analysis techniques and data analysis using the SWOT method.

1. Descriptive Analysis

This research is a descriptive research so that in data analysis techniques using descriptive statistical analysis. The presentation of data in this descriptive statistical analysis uses descriptions, images and maps.

C. Research Flowchart



III. RESULTS AND DISCUSSION

Morowudi Village is one of the villages located in the sub-district Cerme, Gresik Regency. Morowudi Village Area, Cerme District Gresik Regency with a distance of approximately 3 Km from the Office Cerme District, with a radius of approximately 13 Km from the capital Gresik Regency, Morowudi Village consists of 6 Hamlets including: Hamlet Moro, Morowudi Kulon Hamlet, Morowudi Wetan Hamlet, Hamlet Tandengan, Ngebret Hamlet, Ngepung sari Hamlet. Morowudi Village itself there are 5 Neighborhood Pillars (RW) and 14 Neighborhood Pillars (RT). Development of the tourism sector is one of the efforts in improving the economy of good society at both local and global levels. Tourism in Indonesia is an industry that is developing rapidly. According to the data Indonesian Ministry of Tourism, number of The arrival of international tourists has been increased by 1,354,396 in the month October 2019 visit or experience an increase of 4.86% compared to same period October 2018 which amounted to 1,291,605 visits. Based on the pocketbook of the Ministry Tourism in 2016, sector contribution tourism to Domestic Product National gross (GDP) in 2014 has reached 9% or Rp.946.09 trillion. The distinctiveness of Ngebret Tourism Village is the presentation of natural and cultural attractions Its interesting traditions. The beautiful natural potential of rural areas and salak plantations that exist on almost every resident's land is the main attraction in addition to traditional rural culture which is an additional attraction. To support the existence of Ngebret Tourism Village, a vision and mission have been formulated. As for the vision of the Village Ngebret Tourism is "Creating a form of Ngebret Tourism Village that is clean, safe, comfortable, peaceful, dynamic as well as quality art and religious culture to make the Village of Traditional Community Education Tourism ". While the mission to be achieved is: 1) Improve welfare a society with shared motivation and commitment builds a rational mindset; 2) Preserving and developing the art and culture traditions of traditional communities; 3) Improve quality and developing Human Resources (HR) and Natural Resources (SDA); 4) Prioritizing the quality of Tourism Villages over quantity; 5) Increase public awareness in building a clean, safe and comfortable Tourism Village.

A. Tourism potential

1. Based on the results of the study

That Ngebret Hamlet, Morowudi Village, Cerme District, Gresik Regency has the potential for a tourist village that can be developed into a tourist attraction. The potentials of Ngebret village, Morowudi Village, Cerme District, Gresik Regency are: Snack Food MSMEs throughout the village have a business in the field of snacks that are sold for the development of tourism villages in the hamlet of Ngebret, in addition to agriculture that provides in terms of greening growth to educate students to learn about agrotourism edu owned by the village.

MSMEs handicraft batik ikad dipup this is the icon of Hendrosalam hamletAs a batik craftsman who dyes the original bahanya from nature including the unused Manggar Lontar is used for dyeing batik ikad dip, and some plants that are there to be used. As for products that It has been made by this Batik Ikad Dipup MSME, among

others; Batik fabrics, Shaal, handkerchiefs, bags with various models, men's clothes and women's clothes, ordinary hijab and hijab syar'I, sarong, bedspread, chair cushion case guests, tablecloths, tissue holders and others. This batik product can be by the tourist visitors. MSMEs legen These MSMEs make legen so

Sari Legen because Legen if left unchecked That alone can be a toak, therefore under the guidance of UWP Postgraduate Lecturers, it is directed and taught to be used as legen juice after being able to make le gen juice in one week to taste good and not turn into toak, then the legen relief juice is mixed with dragon fruit called sarilega, namely dragon fruit legen and legen candy and sauce Legen. And much more.

B. Development strategy of Ngebret Hamlet Agrotourism Tourism Village, Morowudi Gresik Village

1. Opportunity

Morowudi Village has only one entrance that facilitates supervision of outsiders or guests who enter, thus it is hoped that this will minimize the possibility of crime occurring. The place that is still beautiful (with a stretch of Lontar tumuhan) and original allows this village to have strong potential to become a tourism village. The informal news that has been received by village administration personnel from Bappekab (District Planning and Development Agency) Gresik is that in the long run, Ngebret Hamlet, Morowudi Village, deserves to be favored as a Tourism Village. Ngebret Hamlet, Morowudi Gresik Village : The number of palm plants and corn that are designed to be the main attraction for tourists, the number of outside people who have their own interest in palm trees, corn so that Hendrosari village Can be a selfie that attracts visitors, the sky bike game in the tourist village and rice fields train is the highest visitor enthusiast, therefore this tour accelerates the realization the vehicle. The existence of distinctive dyeing batik made from natural ingredients. Through the training obtained by MSMEs, the enthusiasm of the community is more enthusiastic to process the main results, namely; Legen and Siwalan. Many tourist objects and natural conditions have the potential to be developed into tourist destinations if processed better. Provide support if there is progress in efforts to develop Ngebret Hamlet, Morowudi Gresik Village into an agrotourism tourism village with superior programs and products. The involvement of entrepreneurs in the small snack industry has a very important role for the economic development of a region. However, the development will not run well if it is not supported by human resources (HR). Because Human Resources are a determining factor in the production process of a business. Thus, the success of a business is influenced by the number of workers employed. The workforce employed in the small snack industry is not only residents of Ngebret Hamlet, Morowudi Village, but other residents around the village. This small snack industry in Ngebret Hamlet, Morowudi Village Many have an important role for the community around the village Morowudi. This is inseparable from the role of food entrepreneurs Such lightness. The role of small snack industry entrepreneurs in Improving employee welfare is in the form of the availability of jobs, increasing employee income, and providing education in entrepreneurship. The existence of a small snack industry in Ngebret Village HamletMorowudi is considered by the local community to have provided the field new jobs especially for housewives because most the employee who works in this snack business is a mother household. Although the workforce is mostly housewives, this snack business also provides job opportunities for men both young and old. It is undeniable, with the role of small snack industry entrepreneurs can provide job opportunities for residents of Ngebret Hamlet, Morowudi Village and surrounding villages, which are outside the agricultural and factory sectors. In addition, the workforce in the small snack industry is the majoritylast educated junior high and high school. And in the small industry of food light in Ngebret Hamlet Morowudi Village, the majority of employees as permanent workers. In one week, employees work for 6 days. Begin Monday to Saturday and closed every Sunday for a total of 8 hours work every day. They work in a small snack industry because want to increase family income and for housewives can Increase your own income and not only depend on your husband or help him in his family's needs for daily need.

2. Strength

Producers of plantations and agriculture which are the main commodities with a garden area of 2 (ha) have manySmall industries are deterring so that contribute to reducing Rural unemployment has 2,408 productive working-age population edu agrotourism Ngebret as one of the tourist attractions and various MSMEs snacks, agricultural education and plantations for students who are starting to be known to the community broad.

3. Threats

The existence of people's thinking the negative is that village areas tend to be prone to crime, lack of community understanding about, the concept of tourism villages.

4. Weakness

The community does not yet have a flow Commodity Sales Starting from Farmers to the collection of fruit crops and staples as well as self-processed and uncoordinated fertilizers through Village Unit cooperatives. In the sales process, farmers directly sell crops to middlemen, retailers or directly to consumers which sometimes results

in prices that hurt farmers. There is no vision and mission of edu agrotourism in Ngebret Hamlet, Morowudi Gresik Village. There are still many access roads with holes (jalan access is not good). From the identification of the Strength factor, Weakness, Opportunity, and Threat. Strategies that can be done based on the SWOT Analysis matrix be:

C. Model of Strategy development SO (Strength-Opportunities):

1. Tourism Village settlement program

Ngebret Morowudi Village in Gresik Regency. Development and improvement of Tourism Village facilities to support the growth and development of the Area as a Creative Tourism Village. The infrastructure aspect is a necessity to serve tourists. The facilities that already exist at the study location but still need to be improved are merchant places in tourist areas need to be improved to suit their designation both for food and beverage traders, there are several facilities that do not yet exist at the location, namely; hotel, lodging (HomeStay), Health Services, shops souvenirs, galleries, and road access needs to be fixed. Construction and settlement of roads (accessibility). Accessibility is also an influential aspect for the growth and development of the region to provide convenience and smooth activities. Study location based on its accessibility aspect has low access in a sense is still hard to reach. It can Judging from the existence and advice Existing transportation is: Quality highways and access, limitations traffic signs and road markings and The type of transport is still very limited.

D. Development Model of the strategy ST (Strength - Treats):

Economic development strategy Creative based on local wisdom Sustainable. Development concept continuous, namely; Development Process The potential of creative industries that are not Putting Human Resources Aside owned for development in the future. Regional Development Fixed Creative Tourism Village Settlement. Pay attention to important aspects sustainable economic, physical environment and culture as a resource that is important in tourism development. Environmental quality. Milieu is a very vital factor for the development of tourism. Environmental damage caused Because tourism takes time its a very long time to be able to returned to normal. There are several programs Implementation that can be done to prevent damage environment, namely: clean culture milieu. Building a culture of community that environmentally friendly via Action supervision, coaching and good environmental management from elements of government and society. Things that elements need to do the government is; Socialize Law No. 32 of 2009 About protection and management Environment to the community and industries including prohibition and Sanctions for anyone who is clear carry out environmental destruction. From Community Empowerment Element Environmental Management. Strict rules from the government for management milieu. Holding various Community Counseling in an attempt to build and raise awareness society will be important eco-friendly culture. Counseling needs to be done by routine and ongoing as well as does not take place through media print and electronic mass. Build a recycling system Organic and Non-Organic Waste in order to reduce environmental pollution, Reforestation and maintenance. In general maintenance It is expected to be done by sustainable and effective. Provide supporting advice to maintain cleanliness environment like a trash can organik and non-organic. Work filial piety/mutual aid can carried out by the community or the stakeholders are A form of responsibility society on nature. It is can be used as one an educational event in the village existing creative tourism. Reforestation What is meant is provide rejuvenation and Replanting on land or palm trees that have Experiencing damage needs the presence of rejuvenation of such plants. Improving the quality of social life Culture Society social life and the culture of the settlement community Creative tourism village in ngebret hamlet morowudi village must be able to Enhanced to make it happen Improving the quality of Legen drinks and Siwalan as the main producer people in the tourist area. Socio-cultural life of the people. Things to do between other:

Making local culture a Residential village, tourist villages creative. Culture is a thing The most important thing for tourism in Settlement of Creative Tourism Village of agrotourism because it is in the district area Gresik. There is a wide variety Culture with uniqueness and characteristics typical of each of them It is expected to be able to become a village Creative Tourism for Tourism in the territory. Economic improvement community. Benefits that obtained from village development Creative tourism has an opportunity Work Drags Business Opportunities For the eventual tourism service business MMPU Increases Revenue community. Share development Tourism Changing economy at the level of local community economy get better. For service businesses tours that are ultimately capable to increase revenue community. Benefits that felt by the community for Tourism Development Culture is the traditions and customs that reflects attitudes and behavior Very friendly community practice in the realization of improvements Quality of Drink as the main producer of society in the tourist area. Life socio-cultural society.

E. Development Model of WO Strategy (Weaknesses – Opportunities)

Promoting creative tourism villages in Gresik Regency can implemented by the Empowerment Office the people of Gresik Village. In order to increase promotion Tourism Sector Uses: Tourism promotion with using Social media such as Instagram,Whatsapp,Facebook, YouTube.

F. Development Model of Strategy WT (Weaknesses - Threats)

Increased Human Resources. According to tourism experts states that "tourism is hightouch, high-tech and high involvement industry where is the people who make the difference". Source preparation Tourism human resources must be is the main concern. Resource upgrade steps

Humans are done in terms of quantity and good quality. The quantity of human resources must be Prepared to anticipate changes in the number of tourists. Besides The element of resource quality Human beings must be able to accommodating diverse trends existing characteristics of tourists. Provide training on how Interaction with Tourist Visitors and improve source quality human power as a whole. Inviting the whole community to can participate in efforts Developing Lontar Sewu Tourism both in construction and others. Based on the Analysis that has been Revealed, then this matter will be very help if there is a presence Related apps with efforts to increase tourists Use the services of a tour guide. Wesuggest ToGo app innovations (Online Tour Guide) to help government in order to improve tourism in Gresik City. Not only to improve tourism in Gresik City, this application can also boost the economy the people of Gresik City because of the application who offers this tour guide service can involve the surrounding community Attractions to become a tour guide. ToGo is an application that offer services similar to some Other applications that have been running in

Indonesian. Examples of applications that offering services is Go-Jek the famous for shuttle service and HomeCare24 that offers services health or nurses who can Booked online, come home and perform consumer care in house.

IV. CONCLUSION

1. The potential of Hendrosari Village be:

Creative and Innovative Tourism Capitalize on creative ideas can be occupied by anyone who able to think creatively and innovatively Creative and Innovative Tourism as Industries that emphasize onHuman creativity by developing and processing raw materials along withdevelopment of technology, information, and lifestyle. Lifestyle that occurs in society over time continues undergoes changes in line with Promoted trend development via social media and Youtube has increasing implications community needs. In practice, Creative Tourism and

Innovative has two tendenciesi.e. society as consumers who act pragmatically consume creative products, while the producer society act creatively producing. Nevertheless, society expected to prefer as Creators Who Can Produce Products can be sold not only in local scope, but can alsoCompete at the national level even internernational. Future expectations Creative and Innovative Tourism productscan boost the economy populist. SWOT Analysis and Strategy SO, ST, WO, WT can be arranged Model and strategy development Creative and innovative tourism village based on community participation and Local wisdom to improve welfare of the village community Ngebret Gresik. SO, His Strategy Accessibility and infrastructure development of its model; Setup settlement of tourist villages. ST The strategy Creative industry Continuous, model development that is; Improve product quality Wisdom-Based Goods and Services Local as a sector support existing tourism Increase quality of socio-cultural life local people. Increase the economy of the local community. WO Creative promotion strategies in the field of Tourism, Model Development promotion by DISPARBUD. WT HR development strategy, the development of the Model; Increased Human resources must be the main concern is both quantity and quality. Provide training How to interact together uphold tourism and improve Quality of Human Resources Total.

A. Recommendations

Based on the discussion above, then the compiler of the model and strategy Community on Creative Tourism Based Local wisdom to improve Community Welfare of Ngebret Hamlet, Morowudi Village Gresik.

1. So that this tourist village provides decent place for the MSME traders in the area the tour. Good selling food and drink.
2. Provide training andassistance to MSMEs who selling food by taking care of PIRT and for those who sell drinks can take care of BPOM as well maintaining food quality and signature drinks that have been There is, as well as being a favorite of the people.
3. Add food variants and beverages based on who became characteristic souvenirs from the Village Ngebret
4. Provide a place for MSMEs Batik ikad dip in order to sell in the area of tourist attractions (due to the presence of Renovation to date has not beenGetting a place to sell in the tourist area).

5. The entrance ticket can be a ticket that round-shaped. More practical than on the form of a regular ticket. Concern Cadet corals need to be improved.

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Development of BUMDesa to Increase the Economic Resilience of The Community in Au Wula Village

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ABSTRACT

Purpose: This study aims to find out and analyze the application of management, collaboration with other parties, and local economic development of BUMDesa to increase the economic resilience of the community in Au Wula village.

Methodology: The research design is a research-based development. The development design is based on the model of increasing community economic resilience through BUMDesa management practices and the PIID-PEL program approach. The stages of the research consisted of pre-field, implementation, data analysis, data presentation, drawing conclusions, and checking the validity of the data.

Findings: The results showed that the increase in the economic resilience of the Au Wula village community was the result of the development and implementation of: (1) General management elements at BUMDesa include planning, organizing, directing, coordinating and controlling; (2) Collaborative management with 60 farmers, adding manpower, synergizing transportation, opening a vegetable market, and scholarship programs from elementary schools to master's programs; (3) Development of the local economy through the establishment of ecotourism centers, MSME centers, and the involvement of youth groups.

Implications: Development and application of general management, collaborative management, and local economic development at BUMDesa can be used to grow and increase economic resilience in villages.

Practical implications: Implementation of management governance, collaboration, and local economic development in the village.

Originality/value: The application of governance includes management, collaboration, and local economic development will grow and increase village economic resilience.

Paper type: Research paper

Keyword: *Economic Resilience, Management, Collaboration, BUMDesa.*

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I. INTRODUCTION

According to Law Number 6 of 2014, the village is a legal community unit that has regional boundaries that are authorized to regulate and manage government affairs, the interests of the local community, based on community initiatives, origin rights and or traditional rights that are recognized and respected in the state government system. Unitary Republic of Indonesia (NKRI). Yabbar & Hamzah, (2015) explain village authorities include (1) managing households and residents to create order and certainty; (2) managing public goods including public services for the welfare of villagers; and (3) being responsible for decisions in managing and managing the village. Village economic development aims to create a village economic environment that provides space for the community to enjoy a healthy, creative and innovative life (Maryunani, 2018). Rural development is faced with the potential of natural and human resources which are the main support and the availability of an adequate market.

In fulfilling the needs of life and community welfare, BUMDesa as a government and social organization is in direct contact with the governance of production, consumption, marketing of goods and services (Theresia, 2014). In line with developments and changes in the structure of competition for local products with foreign

products, the function of new products that are able to replace the function of local products, and changes in the bargaining power of suppliers have become important factors that must receive attention in business management (Bamford & Bruton, 2011; Hasnatika & Nurnida, 2018; Sugiyarti, 2015). BUMDesa, guided by higher regulations, are expected to be able to carry out village management to deal with all existing changes and be able to have a good impact on society. Iskandar, (2023) says that BUMDesa until 2020 optimally have not been able to build partnerships with other business entities, have difficulty accessing capital, or credit schemes from financial institutions. This is because most BUMDesa do not have clear legal institutional status. The enactment of Law Number 11 of 2020 concerning Job Creation and technically giving birth to Government Regulation Number 11 of 2021 concerning implementing rules for BUMDesa has placed BUMDesa legal ownership as a government institution with a legal entity. With this status, BUMDesa will quickly move to build a business that is economically and socially profitable.

Building community economic resilience on a local or regional scale requires the ability to anticipate risks, evaluate the impact of these risks on key economic assets, and build responsive capacities (Hubeis, 2012). Zaelani & Rachmah, (2021) identify general attributes of regional resilience, including resistance, recovery, re-orientation, and renewal. Structuring village economic institutions through BUMDesa is a must in structuring village economic structures. BUMDesa is expected to be able to support community production activities, build collaboration between parties, and become a liaison between the community and offtakers to create a market mechanism that benefits all parties (Nasution, 2015). Based on this position and expectation, BUMDes will play a major role in driving the community's economy as a distributor of basic needs and establishing partners for the development of information and technology so that it can provide guarantees for increasing the economic resilience of rural communities (Anwar, 2019).

BUMDesa Au Wula in West Detusoko village, Detusoko sub-district, Ende NTT is a village economic institution that is responsible for managing and advancing the economic resilience of the Au Wula village community. The results of interviews with BUMDesa Au Wula revealed several problems including: (1) The implementation of organizational management was not optimal so that community business development, collaboration with various parties, and financial management were not optimal; (2) There are errors in the planning and selection of business units based on an analysis of the feasibility level and choice of business units; (3) There is no clear pattern of collaboration within BUMDesa which is based on an analysis of collaboration with other institutions; and (4) Lack of BUMDesa attention in developing local potential and market needs based on the level of analysis of production feasibility and market needs.

Based on this analysis, the development of BUMDesa Au Wula must be carried out to produce better performance. Development is carried out through changes to the work system and governance of BUMDesa which lead to a digitalization system, especially in technical management of financial management and marketing of BUMDesa superior products (Sidik, 2020). To carry out this development requires a management approach based on village potential, social conditions of the community, and linkages with technology. In this study, researchers focused on research on village management and governance development analysis including BUMDesa management, collaboration between villages and sub-districts, collaboration with community groups in developing local business units, superior product marketing scenarios, collaboration with offtakers and local government support. Through this research focus it is hoped that it can provide a specific description of increasing the economic resilience of the Au Wula village community through the development of BUMDesa.

II. METHODS

This research is designed to develop a BUMDesa management and governance system to increase the economic resilience of the community. Based on the research goals and objectives, the research method used is an effective development model and there is compatibility between the approach and the product to be produced. The development model used, namely ADDIE, includes analysis, design, development, implementation, and evaluation (Sugiyono, 2016). The procedure for developing the Au Wula BUMDesa management and governance system is described as follows.

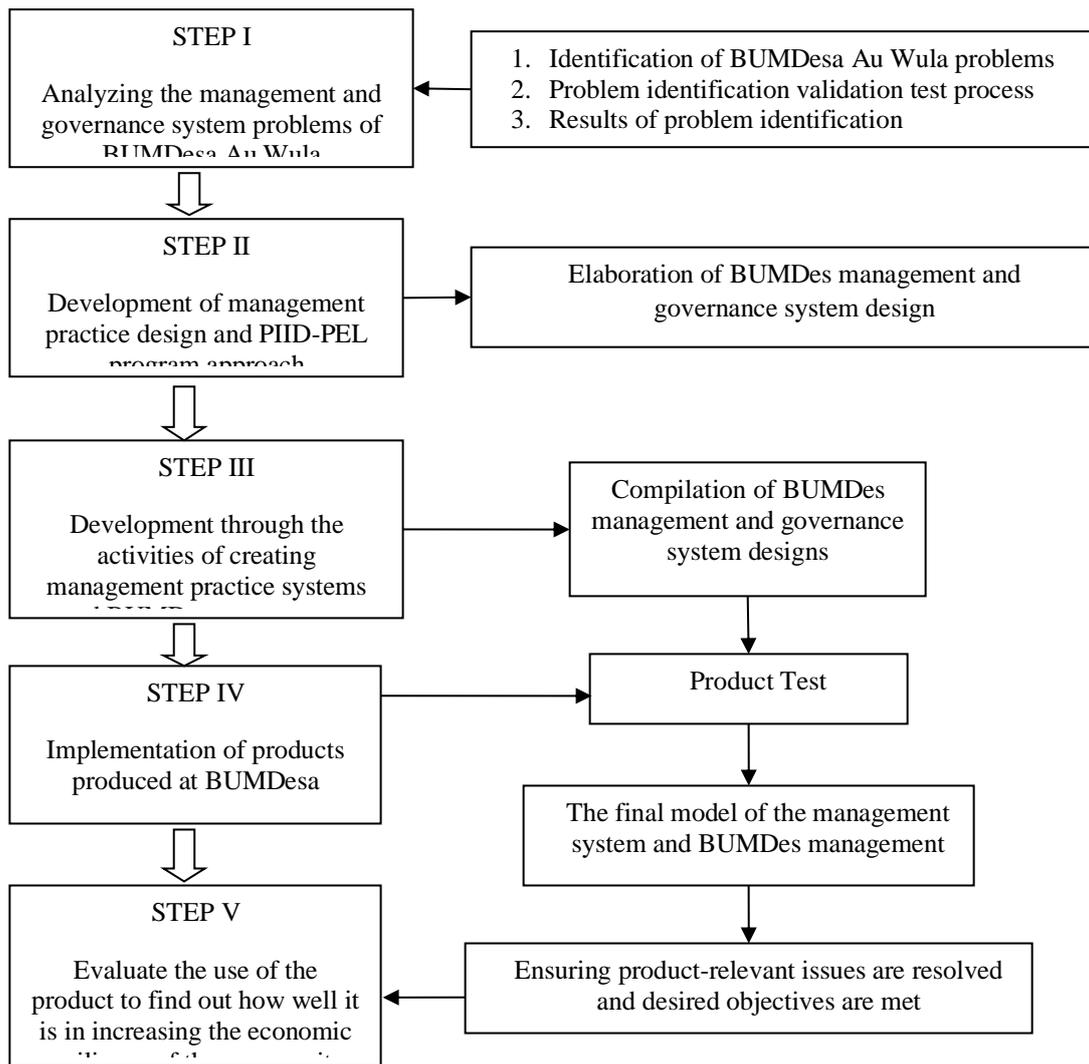


Figure 1. ADDIE Model Research and Development Procedures (Sugiyono, 2016)

Research and development procedures include:

Step 1. The identification of BUMDesa Au Wula's problems includes the implementation of organizational management that is not optimal, there are errors in planning and selecting business units, there is no clear pattern of collaboration within BUMDesa, and BUMDesa's lack of attention in developing local potential and market needs.

Step 2. Development of BUMDesa management and governance systems through the PIID-PEL (Pilot of Village Innovation Incubation–Local Economic Development) program approach. Development of a management system through BUMDesa management practices focused on implementing management strategies. For governance it is focused on organizational control planning and operational planning which is implemented through the PIID-PEL program approach. The PIID-PEL BUMDesa Au Wula program includes supply chain management, business to business, institutional arrangements, market driven policies, increased productivity and added value.

Step 3. The preparation of a management system design includes consolidating micro-enterprise development, strengthening local institutions, building cooperative networks and developing human resources, and standard operating procedures for BUMDesa. The preparation of the governance design is focused on control planning and operational planning activities. Control planning includes village meetings and the BUMDesa organizational structure. Operational planning activities include product differentiation, collaboration, market and digitization.

Step 4. The resulting BUMDesa management and governance system is applied to related parties, namely the Head of West Detusoko Village, Au Wula BUMDesa General Director, Detusoko Barat Village BPD Management, Au Wula BUMDesa Treasurer, and Au Wula Village BUMDesa Business Partner Group.

Step 5. Conduct an evaluation related to the implementation of the BUMDesa Au Wula management and governance system to increase the community's economic resilience.

III. RESULTS AND DISCUSSION

The results of problem identification, design, development, implementation, and evaluation of the Au Wula BUMDesa management and governance system are as follows.

1) Identification and Needs Analysis

- a. Identification of problems that occur in BUMDesa Au Wula include organizational management that is not optimal, the quality of available human resources is still low, errors occur in planning and selecting business units, there is no pattern of collaboration or cooperation with various related parties, and lack of attention to potential development local and market needs.
- b. The problem identification validation test process is carried out through: (1) Data analysis and development of BUMDesa Au Wula; (2) Analysis of the availability of regulations, development of reports on the use of funds, organizational structure and completeness; (3) Analysis of human resources and skill level of managers; (4) Analysis of the level of business feasibility and choice of business units; (5) Analysis of collaboration with other institutions; and (6) Analysis of the level of feasibility of production and market needs.
- c. The results of problem identification indicate that there is a need related to a management and governance system that is in accordance with BUMDesa needs. The results of problem identification are described as follows.

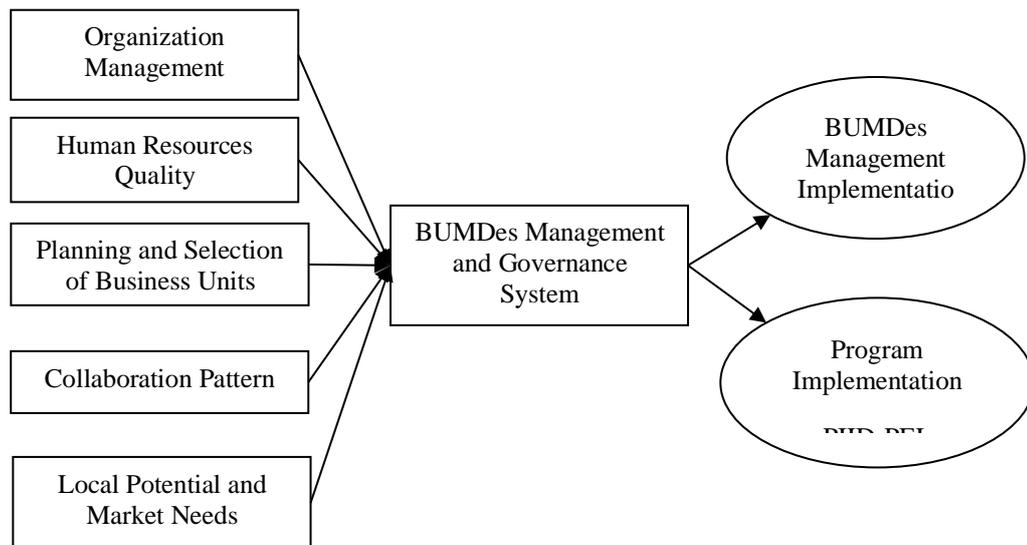


Figure 2. Problem Identification Results

- d. Analysis of the research object through the implementation of the management and implementation of the PIID-PEL program is expected to be able to apply BUMDesa management to the fullest, improve the quality of human resources at BUMDesa, the ability to establish cooperation and collaboration with related parties, and be able to develop the local economy through natural resources and available local potential.

2) Results of Design Development

- a. The BUMDesa Au Wula management system includes planning, organizing, actuating, leading, commanding, coordinating and controlling.
- b. The governance of BUMDesa Au Wula includes: (1) Product differentiation system and village attractions; (2) Village government support for developing a participatory development system based on local wisdom and culture that is adaptive and sustainable; (3) Mobilization of local resources; (4)

Management of tourist villages; (5) Building collaboration with the parties; (6) Create a collaboration scheme with higher education institutions; (6) Developing a local economy based on local potential and local wisdom.

The Au Wula BUMDesa management and governance model is described as follows.

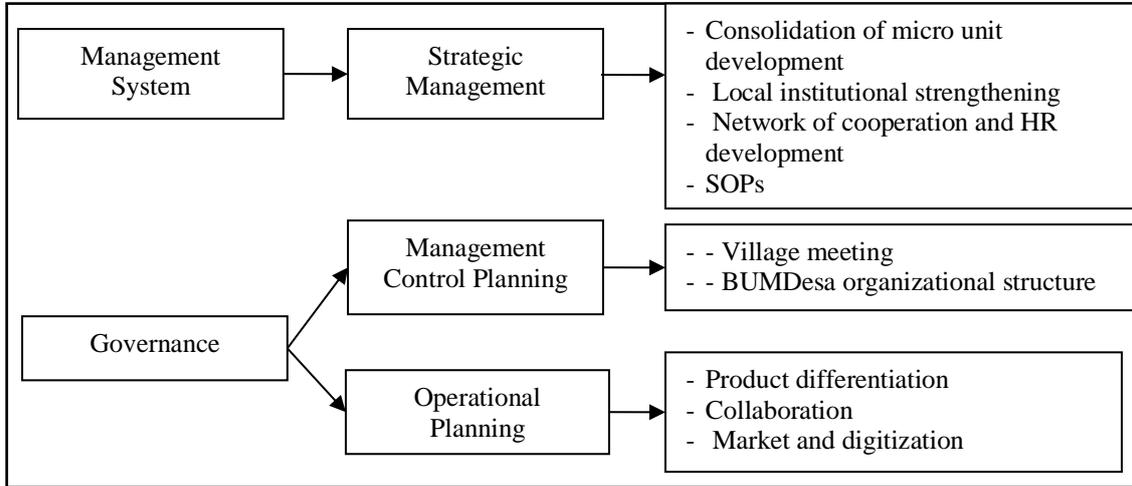


Figure 3. Au Wula BUMDesa Management and Governance System Model

3) Results of the Au Wula BUMDesa Management and Governance System

The BUMDesa management and governance system is explained as follows.

- a. Village strategic planning which is reflected through the vision and mission which is an integral part of the technical strategy of BUMDesa Au Wula.
- b. BUMDesa management that operationalizes all village strategic plans.
- c. Village government support through village regulations and budget allocation for venture capital investment.
- d. Provision of access and village supporting infrastructure.

4) Implementation of the BUMDesa Au Wula Management and Governance System

The implementation of the BUMDesa Au Wula management and governance system for related parties who are the object of research, namely the Head of West Detusoko Village, General Director of BUMDesa Au Wula, BPD Management of West Detusoko Village, Treasurer of BUMDesa Au Wula, and BUM Business Partner Group of Au Wula Village is described as follows.

Table 1. Au Wula BUMDesa Management and Governance System Implementation Activities

<i>Stages</i>	<i>Activity</i>	<i>Implementation</i>
<i>Strategic Management</i>	<i>Work system</i>	<i>The BUMDesa Au Wula organizational work system proceeds instinctively by relying on the strong determination of the general director</i>
	<i>Strengthening local institutions</i>	<i>Funding support from village funds in an equity participation scheme determined through village deliberation forums</i>
	<i>Strategic planning process</i>	<i>Preparation of technical and strategic work plans starting from the formulation of goals and strategic plans for the development of potential business units</i>
	<i>Strategic planning decisions</i>	<i>Micro business development</i>

Institutional strengthening and cooperation network with village community business organizations (business groups)

As a micro business empowerment agent

Management system

Implementing village potential-based planning management patterns with the main slogan "Building from Village and Villages"

Strategic planning

A business strategy based on the consolidation of local villagers' businesses, the development of an adaptive local culture and participatory-based totality from all components of society.

Management Control Planning

Planning scheme to control work management that is transparent and accountable with participatory principles

Village institutions (village meetings)

BUMDesa AD/ART

Implementing organization

Human resources (recruitment, structure, duties and responsibilities of implementing BUMDesa)

Business development based on local potential

Oversight unit

Operational Planning

Development of product differentiation

Innovation and differentiation of MSME products as community-based village superior products

Collaborative technical scheme

Organizing community business groups

Collaboration with local and central government agencies

Collaboration with political institutions

Collaboration with universities

Collaboration with the business world

Digitization scheme

Development of product digitization and tourism villages

5) Evaluation of the Implementation of the BUMDes Management and Governance System

The application of management and governance systems to increase community economic resilience can be described as follows.

1. BUMDesa Au Wula management which consists of planning, organizing, directing, organizing, and controlling. The results of implementation in terms of strategic management are described through the following general structure of BUMDesa.

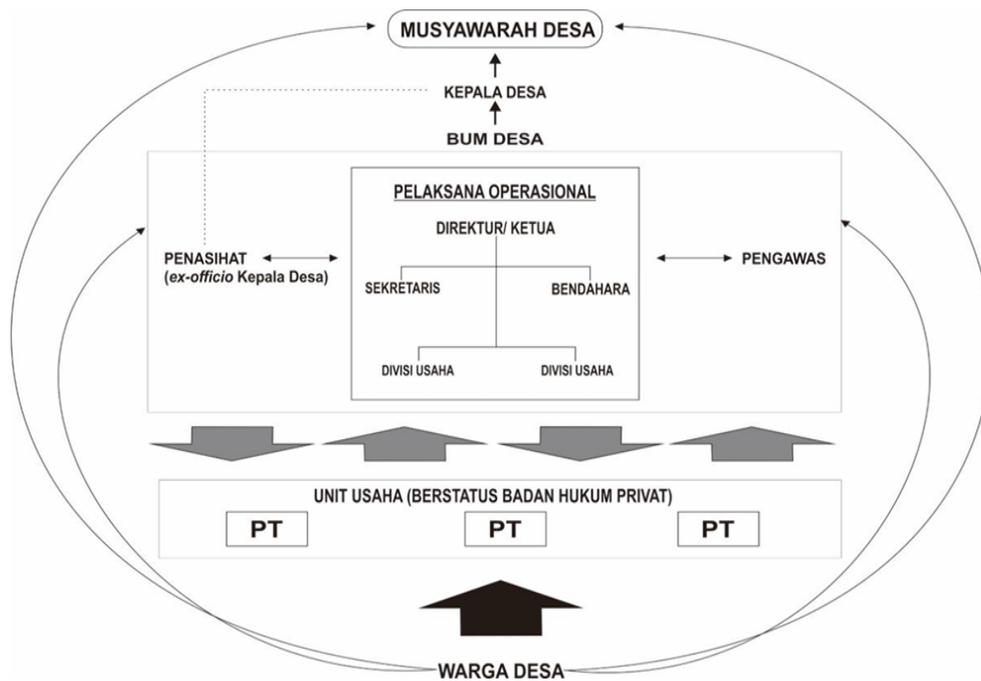


Figure 4. General Structure of BUMDesa Au Wula

2. The results of implementing strategic planning, management control planning, and operational planning carried out by BUMDesa Au Wula resulted in:
 - a. Development of Tourism Villages: development of cultural attractions, management of cultural centers, tourism awareness groups (Pokdarwis), and local cultural performances. The form of tourism village development is described through agro-tourism activities and cultural attractions as follows.



Figure 5. Cultural Attraction & Agro Tourism BUMDesa Au Wula

- b. The village and product digitization scheme is complemented by a village tourism map which can be accessed through the following <https://dapurkita.bumdesmart.id/> and <https://decotour.bumdeswisata.id/>.



Figure 6. Village Digitization & BUMDesa Au Wula Product

- c. Management and development of BUMDesa business villages that focus on two main areas, namely trade and tourism. The trading sector includes trading in coffee, local rice, and horticulture. The tourism sector includes homestays, agro-tourism, educational tours and cultural performances. Trade and educational tourism as a form of the results of the management and business development of BUMDesa Au Wula are described as follows.



Figure 7. Trade and Educational Tourism BUMDesa Au Wula

- d. Development of supporting infrastructure and operational instruments including: (1) Product marketing management and product digitalization and village tourism potential; (2) Au Wala BUMDesa collaboration management with Bank NTT in the form of tax payment cooperation, e-wallet transactions, sales of electricity pulses, TV, and tour packages; (3) Collaboration with the Ministry of Tourism and the Ministry of Villages in the form of developing a new platform targeting the entire island of Flores and Indonesia via <https://decotour.bumdeswisata.id/>.
- e. An overview of the impact of BUMDesa Au Wala digitalization management includes:
 - 1) Collaborating with 60 farmers from 8 villages/ 3 districts

- 2) Adding manpower and synergizing with 15 motorcycle taxis and 4 pick-up vehicles
- 3) Opened a vegetable market 2 times a week for the Ende, Mumer and Sabu Raijua areas.
- 4) Increase in the number of vegetable customers by 500 people in the past year.
- 5) Able to provide scholarships to 15 elementary school students, 30 high school students in the Bali Wise program, 6 college students in Kupang, and 1 master program in the USA.
- f. Campus and village collaboration through an entrepreneurship training scheme provided by universities for young groups (kawulomuda). In addition, a capacity strengthening scheme was also developed through workshops and exposure to village-based entrepreneurship. The form of campus and village collaboration is described as follows.

Pelatihan Ala Kampung



Figure 8. Collaboration between Campus and Village in BUMDesa Au Wula

3. Local Economic Development

The basic essence of BUMDesa Au Wula in the local economic development scheme is in line with PIID-PEL, namely through network building. BUMDesa Au Wula cooperates through an open relationship between producers (individuals or groups of vegetable farmers, Pokdarwis, Homestays, Karang Taruna Groups and business partners both locally and between regions and regions). The BUMDesa organization has formed an Integrated Ecotourism center based on local potential through Detusoko Agro tour, Lepalio Cafe and Farmer Filed activities with a digital market transformation scheme. Coffee tourism attractions, agro trails: rice fields, cultural center attractions, various culinary sensations at Lepalio Cafe, explore various Detusoko souvenir products. All of these activities are real portraits of local economic development that have high value both from an aesthetic and historical standpoint. As a whole it is connected in one Au Wula BUMDesa management which is packaged in a digital-based collaborative scheme.

Based on the results and discussion, it can be concluded that the implementation of the management and governance system at BUMDesa Au Wula is able to very well increase the economic resilience of the community. The application of BUMDesa management and the implementation of the PIID-PEL program which is structured based on the BUMDesa management and governance system based on the needs of organizational management, quality of human resources, planning and selection of business units, patterns of collaboration, as well as local potential and market needs is able to lead Au Wula village to become a Champion 3 Village Festivals assisted by Bank NTT 50 Best Tourism Villages in the Developing Village Category.

IV. CONCLUSION

Based on the results and discussion, the conclusions from the research are as follows.

1. Implementation of management and governance systems in BUMDesa management and implementation of the PIID-PEL program in Au Wula village.
2. The management and governance model consists of strategic management, management control planning, and operational planning.
3. The results of implementing the management and governance model are in the form of tourism village development, village and product digitization schemes, business village management and development,

development of supporting infrastructure, an overview of the impact of digitalization management, and campus and village collaboration through entrepreneurship training schemes.

4. A local economic development scheme that is implemented in line with the PIID-PEL program.
5. The development of BUMDesa can very well increase the economic resilience of the community in Au Wula village.

Dissemination of research results include:

1. BUMDesa that have local potential in the form of products or tourism potential can apply the results of this research to develop the economic resilience of local village communities.
2. The application of BUMDesa management and governance systems through digitalization programs, collaboration with related parties, government support, development of infrastructure is an important component that must be carried out to advance the economy of rural communities.
3. The leadership system and work experience of a BUMDesa leader make a major contribution to changes in management and governance, so that to advance BUMDesa a leader who is competent in his field is needed.

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Organizational Culture in Cultural Organizations in East Java

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ABSTRACT

Purpose: To study and analyze cultural values, interaction, communication, and factors that influence the formation of a strong organizational culture in dance studios in East Java. The objectives of this study also include providing a better understanding of the cultural dynamics of dance studios, contributing to the development of policies and management strategies for cultural organizations, as well as providing input and recommendations to the government, communities, and cultural actors in East Java.

Design: This research uses a qualitative approach by involving data collection through interviews, observations, and documentation studies. The collected data is analyzed in depth with a qualitative approach, through data coding, pattern identification, key findings, and emerging themes. The validity and reliability of the study are guaranteed through data triangulation, peer examination, and discussion with cultural experts or related experts.

Findings: The results of this study reveal various cultural values embraced by dance studios in East Java, such as gotong royong, local wisdom, the spirit of collaboration, and respect for traditions and customs. These values become a strong foundation for carrying out cultural activities and provide a strong identity for dance studios in East Java. The study also observed that interactions between dance studio members in East Java were characterized by mutual respect, support, and cooperation. Effective and open communication is an important factor in maintaining harmony and smooth cooperation in the dance studio. The success of dance studios in East Java in carrying out cultural tasks and functions depends heavily on the ability of members to interact, communicate, and work together synergistically. In addition, this study identifies several factors that influence the formation of a strong organizational culture, such as inspiring leadership, organizational commitment to culture, recognition of individual contributions, and culture-oriented human resource development practices. These factors play a role in creating an organizational environment that nurtures and encourages a positive and strong culture.

Practical implications: This research is expected to provide a deep understanding of organizational culture in dance studios in East Java, as well as contribute to the development of policies and management practices of cultural organizations in the region. The research results will be presented in a structured research report and disseminated to the government, society, cultural actors, and other related parties.

Paper type: Research paper

Keywords: *Organizational culture, Interaction, Communication, Factors of organizational culture formation, East Java.*

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I. INTRODUCTION

This study aims to study and analyze organizational culture in dance studios in East Java. East Java is one of the provinces in Indonesia that is rich in diverse cultural heritage. In this context, dance studios in East Java have an important role in maintaining, preserving, and developing culture in the region.

Organizational culture is a crucial aspect of the success of an organization, including dance studios. Organizational culture reflects the values, norms, and customs espoused by members of the organization, as well

as how they interact, communicate, and work together (Schein, 2014). In the context of dance studios, a strong and positive organizational culture has a major contribution to the implementation of cultural tasks and functions.

Professionally, ASN is also expected to have several competency standards, one of which is competence in the field of Social Culture, as regulated in Government Regulation Number 11 of 2017 concerning ASN Management. This Socio-Cultural Competence includes knowledge, skills, and behavioral attitudes related to the experience of interacting with a plural society in terms of religion, ethnicity, culture, behavior, national insight, ethics, values, morals, emotions, and principles. This competency must be possessed by every officeholder to achieve work results according to their roles, functions, and positions (Dwiyanto et al., 2023).

From the explanation above, socio-cultural competence has an important meaning because it relates to the experience of interacting with plural societies that have diverse cultural backgrounds. Differences are a gift from Almighty God that must be thanked together, and through those differences, we need to know each other, understand, and have the ability to work together collaboratively (Guzman et al., 2016).

As civil servants, our main task is to implement government policies, public servants, and unifiers of the nation. It is undeniable that the diversity of Indonesian society with various local cultures is vulnerable to Ethnic, Religious, Racial, and Intergroup (SARA) problems that can trigger divisions (ADB, 2021). However, diversity also provides gifts in the form of a wealth of local wisdom and values that teach goodness in society, nation, and state.

To achieve the objectives of this study, comprehensive research methods were used, such as data collection through interviews, observations, and documentation studies. The collected data will be analyzed in depth with a qualitative approach, thus providing a clear picture of the organizational culture in dance studios in East Java.

Through this research, it is expected to identify the cultural values adopted by dance studios in East Java, as well as how interaction and communication between members of the organization. In addition, the factors that influence the formation of a strong organizational culture will also be examined. The results of this study are expected to provide a better understanding of the dynamics of organizational culture in dance studios in East Java, as well as contribute to the development of policies and strategies for managing cultural organizations in the future.

In addition, this research is also expected to provide input and recommendations to the government, community, and cultural actors in East Java to maintain, preserve, and develop culture in the province. With a better understanding of organizational culture in dance studios, it is hoped that cultural organizations in East Java can become more effective and efficient in carrying out their cultural duties and functions, as well as make a greater contribution to cultural development in the region.

Thus, this research is expected to contribute new knowledge in the field of organizational culture and culture in East Java, as well as provide a strong basis for the development of policies and strategies for managing cultural organizations in the future.

Problem Statement:

1. How is the organizational culture in dance studios in East Java reflected in the values, norms, and customs espoused by the members of the organization?
2. How is the interaction, communication, and cooperation between members of the organization in the dance studio in East Java?
3. What are the factors that influence the formation of a strong organizational culture in dance studios in East Java?

Research Objectives:

1. Study and analyze the cultural values adopted by dance studios in East Java.
2. Understand the interaction, communication, and cooperation between members of the organization in dance studios in East Java.
3. Identify the factors that influence the formation of a strong organizational culture in dance studios in East Java.
4. Provide a better understanding of the dynamics of organizational culture in dance studios in East Java.
5. Contribute to the development of policies and strategies for dance studio management in East Java.
6. Provide input and recommendations to the government, community, and cultural actors in East Java to maintain, preserve, and develop culture in the province.
7. Increase the effectiveness and efficiency of dance studios in East Java in carrying out cultural duties and functions.
8. Contributing new knowledge in the field of organizational culture and culture in East Java.
9. Building a strong foundation for the development of dance studio management policies and strategies in the future.

II. METHODS

This research will use a qualitative approach to gain a deep understanding of organizational culture in dance studios in East Java (Aini et al., 2023). The design of this study will involve data collection through interviews, observation, and documentation studies.

Data Collection:

1. Interview: Researchers will conduct interviews with dance studio members in East Java to understand the values, norms, habits, interactions, communication, cooperation, and factors that influence organizational culture in dance studios. The interview will be conducted using a pre-compiled interview guide (Ryan et al., 2019).
2. Observation: Researchers will make direct observations of activities and interactions between dance studio members in East Java. Observations will be made to gain a deeper understanding of the existing organizational culture (dance studio) (Zevalkink, 2021).
3. Documentation Study: Researchers will collect and analyze documents related to dance studios in East Java, such as guidelines, policies, reports, and other publications. These documents will provide insight into the values, norms, and customs espoused by the dance studio (Bowen, 2019; Shine, 2013)

Data Analysis: The collected data will be analyzed in depth with a qualitative approach. The analysis will involve coding data, identifying patterns, key findings, and emerging themes from interviews, observations, and document studies (Sutton & Austin, 2015). The analysis will be carried out carefully to understand the organizational culture in dance studios in East Java comprehensively.

Validity and Reliability: To ensure the validity and reliability of the study, researchers will use data triangulation by combining the results of interviews, observations, and document studies. In addition, researchers will involve peer examination and discussion with cultural experts or experts in the field (Zohrabi, 2013).

Interpretation and Findings: After data analysis, the researcher will interpret the findings that emerge from the study. The findings will be used to answer the problem formulation and achieve research objectives. Interpretation will be carried out by taking into account the cultural context of East Java and related literature in the field of organizational culture (dance studio) (Azungah, 2018).

Research Report: The results of the research will be presented in the form of a structured research report. The report will include an introduction, research methodology, key findings, interpretations, and recommendations. This research report will be the final result that will be disseminated to the government, society, cultural actors, and other related parties (Pickering, 2018).

III. RESULTS AND DISCUSSION

A. Cultural Values in Cultural Organizations in East Java

This research reveals that cultural organizations in East Java adhere to various cultural values that characterize them. Some cultural values that are highly emphasized in cultural organizations in East Java are *gotong royong*, local wisdom, the spirit of collaboration, and respect for traditions and customs.

Gotong royong: The value of mutual aid emphasizes the importance of cooperation and mutual assistance between members of the organization. In cultural organizations in East Java, *gotong royong* is reflected in joint activities, such as holding cultural events, exhibitions, or art performances, which involve active participation and contribution from all members of the organization.

Local Wisdom: Cultural organizations in East Java have strong local wisdom. These local values are reflected in respect for the customs, beliefs, and traditions inherent in East Javanese culture. Cultural organizations in East Java strive to maintain and pass on this local wisdom through their activities and programs.

Spirit of Collaboration: The spirit of collaboration is very important in cultural organizations in East Java. Collaboration between members of the organization, artists, culturalists, and local communities allows the creation of innovative and quality cultural works. Cultural organizations in East Java strive to develop strong and mutually beneficial cooperation to advance culture in the region.

Respect for Traditions and Customs: The value of respect for traditions and customs is highly upheld in cultural organizations in East Java. They recognize the importance of preserving the cultural heritage that has existed for a long time and respecting the values passed down by their ancestors. This is reflected in the efforts of cultural organizations in East Java to maintain traditions, hold traditional events, and provide education about cultural heritage to the community.

These values become a strong foundation in carrying out cultural activities and provide a strong identity for cultural organizations in East Java. By promoting these values, cultural organizations in East Java can build a

solid community, strengthen relationships with the community, and make a significant contribution to the preservation and development of culture in the region.

B. Interaction, Communication, and Cooperation in Cultural Organizations in East Java:

This study observed that interactions between members of cultural organizations in East Java are characterized by mutual respect, support, and cooperation. In a cultural organizational environment, there is a harmonious relationship between members, where they respect each other's differences and recognize each individual's contribution. There is a sense of mutual support between members of the organization, which is reflected in joint efforts to achieve the same goals.

Effective and open communication is also an important factor in maintaining harmony and smooth cooperation in cultural organizations in East Java. Members of cultural organizations in East Java can communicate clearly and openly, thus facilitating the exchange of important information, better understanding, and avoiding miscommunication that could disrupt collaboration. Good communication also allows members of the organization to convey ideas, inputs, and feedback freely, which helps in better decision-making and strengthens the bond between members.

The success of cultural organizations in East Java in carrying out cultural tasks and functions depends largely on the ability of members to interact, communicate, and work together synergistically. Through positive interaction, effective communication, and close cooperation, cultural organizations in East Java can achieve their goals more efficiently and effectively.

Good interaction between members of the organization allows the exchange of valuable knowledge, experience, and skills. They can learn from each other and support each other in enriching their understanding of East Javanese culture, art, and traditions. In the context of cooperation, members of cultural organizations in East Java complement each other and work together to produce quality and innovative cultural works.

To maintain positive interaction, communication, and cooperation, cultural organizations in East Java can also adopt effective conflict management mechanisms. When disagreements or conflicts occur, members of the organization need to be able to manage those conflicts constructively, by promoting open dialogue, understanding, and fair resolution. This will strengthen the bond between the members of the organization and maintain the continuity of harmonious relationships.

With positive interaction, effective communication, and synergistic cooperation, cultural organizations in East Java can achieve success in carrying out their cultural tasks and functions. This will strengthen their position as key stakeholders in the preservation, development, and management of culture in East Java.

C. Factors Influencing the Formation of a Strong Organizational Culture:

This study identifies several factors that influence the formation of a strong organizational culture in cultural organizations in East Java. These factors include inspiring leadership, organizational commitment to culture, recognition of individual contributions, and culture-oriented human resource development practices.

Inspiring leadership plays an important role in shaping a strong organizational culture. Visionary and dedicated leadership inspires members to have a passion and commitment to culture. Leaders who can communicate the vision and cultural values, as well as being exemplary examples in running the organizational culture, will help strengthen cultural identity and motivate organizational members to actively participate.

Organizational commitment to culture is also an important factor in the formation of a strong organizational culture. When an organization has a strong commitment to cultural preservation and development, cultural values become at the core of every organization's activities and decisions. Organizations that integrate culture into their strategies, policies, and work processes will strengthen the presence of culture in every aspect of the organization.

Recognition of individual contributions also plays an important role in shaping a strong organizational culture. Cultural organizations in East Java recognize and appreciate individual contributions to maintaining, preserving, and developing culture. Appreciation for individual hard work, creativity, and dedication will encourage the active participation of organizational members and strengthen their bond with the organizational culture.

Culturally oriented human resource development practices are also an important factor in forming a strong organizational culture. Cultural organizations in East Java carry out human resource development activities with a focus on increasing understanding and skills in the field of culture. Training, education, and deep work experience in culture become an integral part of organizational efforts to strengthen organizational culture.

These factors play a role in creating an organizational environment that nurtures and encourages a positive and strong culture. With inspiring leadership, organizational commitment to culture, recognition of individual contributions, and culturally oriented human resource development practices, cultural organizations in East Java can create an environment that fosters upheld cultural values.

In a supportive organizational environment, organizational members feel emotionally connected to the organizational culture. They have an awareness and sense of belonging to the culture, which shapes their identity

and influences their behavior in carrying out cultural duties and functions. A strong organizational culture creates a clear framework, adhered to norms, and mutually supportive relationships among organizational members.

Given these factors influencing the formation of a strong organizational culture, cultural organizations in East Java can be more effective in carrying out their cultural duties and functions, as well as make a greater contribution to the preservation, development, and management of culture in the region.

D. Dynamics of Organizational Culture in Cultural Organizations in East Java:

This research provides a better understanding of the dynamics of organizational culture in cultural organizations in East Java. This dynamic involves changing, adapting, and evolving organizational culture as the time's change, community values, and cultural challenges are faced.

In the context of cultural organizations in East Java, organizational culture is not static but continues to change. Factors such as technological developments, social changes, and environmental dynamics can influence the development and transformation of organizational culture. This research identifies that cultural organizations in East Java can adapt to changing times and community values so that organizational culture remains relevant and can continue to evolve.

In addition, this study also highlights the cultural challenges faced by cultural organizations in East Java. Globalization, modernization, and demographic changes can present new challenges for the sustainability of traditional cultures. However, cultural organizations in East Java face it with efforts to adapt and evolve organizational culture. They can integrate new elements into their organizational culture without sacrificing the core values they uphold. An understanding of these dynamics is important for managing and developing cultural organizations to remain relevant and contribute positively to cultural development in East Java.

Understanding the dynamics of organizational culture in cultural organizations in East Java has important implications for the management and development of cultural organizations. In the face of changing times and cultural challenges, cultural organizations need to have awareness of these changes. They must be able to identify and understand trends and cultural changes that are occurring, as well as anticipate their impact on the culture of their organization.

With a deep understanding of organizational cultural dynamics, cultural organizations in East Java can take appropriate steps in managing cultural change. They can innovate, adapt, and revitalize organizational culture to remain relevant and attractive to today's society. In addition, understanding the dynamics of organizational culture also helps cultural organizations to play an active role in developing culture in East Java, by presenting programs that are to the needs and aspirations of the community.

Thus, a good understanding of the dynamics of organizational culture in cultural organizations in East Java is essential to ensure the sustainability and positive contribution of cultural organizations in cultural development in East Java.

E. Research Contribution in Policy Development and Management Strategy of Cultural Organizations in East Java:

The results of this study make an important contribution to the development of policies and strategies for managing cultural organizations in East Java. By analyzing cultural values, interactions, communication, and organizational culture formation factors, the study provides a better understanding of the dynamics of organizational culture in the region. The recommendations and findings of this research can be a guideline for the government, community, and cultural actors in maintaining, preserving, and developing culture in the province.

The use of the results of this research can improve the effectiveness and efficiency of cultural organizations in East Java in carrying out cultural duties and functions. By understanding strong cultural values, harmonious interaction, and effective communication, cultural organizations can improve performance and positively impact sustainable cultural growth. The results of this research can also be a reference in formulating policies and strategies for managing cultural organizations so that cultural organizations can play a more effective role in advancing culture in East Java.

F. Contribution of New Knowledge in the Field of Organizational Culture and Culture in East Java

This research contributes new knowledge in the field of organizational culture and culture in East Java. The findings and analysis of this research can complement and enrich academic insights and become a reference for future research on similar topics.

This research brings new knowledge contributions by exploring and analyzing various aspects of organizational culture in cultural organizations in East Java. The results of this study provide a deeper understanding of how cultural values are implemented and maintained within cultural organizations. These findings can enrich academic literature related to the field of organizational culture and provide a special perspective on cultural organizations in East Java.

In addition, this research also produces new insights into interaction, communication, and cooperation in cultural organizations in East Java. It can contribute to broadening the understanding of the internal dynamics of cultural organizations and their relationship to the successful implementation of cultural tasks and functions. These findings can be a reference material for future researchers interested in exploring aspects of interaction and communication in the context of cultural organizations in East Java. The resulting knowledge can also contribute to a more comprehensive understanding of organizational culture and cultural sustainability in East Java.

Through this research, the understanding of organizational culture and cultural sustainability in East Java can be expanded. The findings and analysis of this study open the door to a more comprehensive understanding of how cultural organizations in East Java can play a role in maintaining, preserving, and developing culture in the province.

With a deeper understanding of organizational culture, government, society, and cultural actors in East Java can take more effective and strategic steps in managing cultural organizations. The knowledge generated can also be a foothold for the development of policies and management strategies for cultural organizations in the future so that more attention can be paid to aspects of sustainability, innovation, and community involvement in the preservation and development of culture in East Java. Thus, the contribution of new knowledge resulting from this research has the potential to improve understanding, planning, and development of organizational culture and cultural sustainability in East Java.

G. Foundation for Policy Development and Future Management Strategy of Cultural Organizations

This research builds a strong foundation for the development of policies and strategies for managing cultural organizations in the future. The results of this study provide a deeper perspective and understanding of the key factors in creating and maintaining a strong organizational culture in the context of cultural organizations in East Java.

Through this research, key factors influencing the formation of a strong organizational culture have been identified and analyzed. Factors such as inspiring leadership, organizational commitment to culture, recognition of individual contributions, and culturally oriented human resource development practices are important elements in forming a strong organizational culture. These findings provide a deeper understanding of the factors that need to be considered and strengthened in developing an organizational culture in the future.

The use of this foundation can assist in the formulation of effective policies and strategies for the management of cultural organizations in the future so that the goals of preservation, development, and utilization of culture can be achieved optimally.

The foundation built by this research makes an important contribution to the formulation of policies and management strategies for cultural organizations in the future. The findings and understanding gained can be used as a basis for designing policies that consider important factors in shaping a strong organizational culture. This includes integrating inspiring leadership, organizational commitment to culture, recognition of individual contributions, and culturally oriented human resource development.

With a strong foundation, policies, and strategies for managing cultural organizations in East Java can be designed more precisely and effectively. This will help in achieving the goals of preservation, development, and optimal utilization of culture, so that culture in East Java can be maintained, preserved, and developed properly in the future.

Thus, this study makes a valuable contribution to formulating policies and strategies for managing cultural organizations in the future by considering the identified key factors and a deep understanding of organizational culture in the context of cultural organizations in East Java.

IV. CONCLUSION

A. Conclusion

Based on this research, it can be concluded that organizational culture in cultural organizations in East Java is reflected in the values, norms, and habits embraced by organizational members. Values such as *gotong royong*, local wisdom, the spirit of collaboration, and respect for traditions and customs are strongly emphasized in such cultural organizations. Interaction, communication, and cooperation between members of the organization are also important factors in the formation of a strong organizational culture. Factors influencing the formation of organizational culture include local cultural values, local wisdom, a spirit of collaboration, and respect for traditions and customs.

B. Suggestion

Based on the results of this study, several suggestions can be given:

- 1) The importance of maintaining and preserving local culture: Cultural organizations in East Java need to continuously strengthen local cultural values, local wisdom, and traditions in their activities and programs. Government and community support is also very important in maintaining the preservation of local culture in East Java.
- 2) Increased interaction and collaboration between organization members: Cultural organizations in East Java can improve interaction, communication, and cooperation between organization members as well as with artists, culturalists, and local communities. The stronger collaboration will help create innovative and quality cultural works.
- 3) Development of policies and strategies for managing cultural organizations: The results of this research can be a foundation for the government and cultural actors in East Java to develop policies and strategies for managing cultural organizations more effectively and efficiently. Special attention needs to be paid to the development of the socio-cultural competence of civil servants involved in managing cultural organizations.
- 4) Increased public understanding and appreciation of culture: This research also shows the importance of increasing people's understanding and appreciation of local culture. Education and programs that actively involve the community can help strengthen awareness and concern for the culture in East Java.
- 5) Further research: This study provides an initial understanding of organizational culture in cultural organizations in East Java. However, there is still room for further research, especially in analyzing the impact of organizational culture on the performance and effectiveness of cultural organizations in East Java.

With the implementation of these suggestions, it is hoped that cultural organizations in East Java can strengthen their organizational culture, contribute better to cultural development, and maintain rich cultural diversity in the region.

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The Effect of Knowledge, Commitment, Discipline and Workload on Service Performance with Stress and Burnout as Mediation and Achievement Motivation as Moderation of Medical Practitioners in Grobogan and Kudus Regencies, Central Java

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ABSTRACT

Purpose: Improving and developing the quality of services carried out by the human resources in the hospital is the key to achieving the goals desired by the hospital as a health service provider. The purpose of this study was to determine the effect of knowledge, commitment, discipline and workload on service performance with stress and burnout as mediation and achievement motivation as moderation of medical practitioners in Grobogan and Kudus Regencies, Central Java.

Design/methodology/approach: This research was quantitative research used 133 respondents from type B Hospital medical staff in Grobogan and Kudus Regencies, Central Java. Data analysis using SMART PLS.

Findings: Based on the results of the analysis, it shows that for medical staff at Hospitals in Kudus and Grobogan Regencies, Central Java, knowledge has no significant effect on stress levels or performance, but has a significant effect on burnout. Commitment has no significant effect on stress or performance but has a significant effect on Burnout. Discipline has no significant effect on stress or burnout but has a significant effect on service performance. Workload has no significant effect on stress or burnout, but has a significant effect on service performance. Burnout has no significant effect on service performance. Achievement motivation is not able to significantly moderate the effect of stress on service performance and is unable to significantly moderate the effect of burnout on service performance in medical personnel in Hospitals in Kudus and Grobogan Regencies. The suggestions that need to be considered for future researchers can be applied to research objects that are not services, and future researchers are expected to use the same research model but use a different theoretical perspective.

Paper type: Research Paper.

Keyword: Performance, Knowledge, Commitment, Discipline, Workload, Stress, Burnout, Motivation.

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I. INTRODUCTION

The workload often occurs as a result of the patient's condition always changing, working hours needed usually exceeds one's ability, however, desire to provide excellent service is very high states that the workload is the amount of work to be completed by a group or someone at the specified time limit. If an employee can complete and adapt to several duties that have been given then it will not become a workload. However, if an employee is not successful, the duties become a workload. The excessive workload can lead to decreased quality of an individual's performance (Shirzadfar & Lotfi, 2017). According to (Andrianto, 2021), the workload is something that is felt beyond the ability of the worker to do his job.

A study of (Farzana et al., 2012), (Sulistiyawati et al., 2019), (Digdowiseiso & Seftia, 2021) revealed that workload and work stress have a positive effect on burnout. Burnout has a significant effect on employee performance (Anuar et al., 2020; Efriana et al., 2021; Judd & Brendan, 2020; Pratamawari et al., 2020),

This study aims to determine the effect of knowledge, commitment, discipline and workload on service performance with stress and burnout as mediation and achievement motivation as moderation in medical practitioners in Grobogan and Kudus Regencies, Central Java.

II. METHODS

This type of research is a quantitative research using primary data in the form of a survey. The population in this study was health workers at Dr. R. Soedjati Soemodiardjo Hospital Purwodadi which numbered 81 respondents, and Mardi Rahayu Hospital Kudus which numbered 52 respondents. The research variables consisted of independent variables included of knowledge, commitment, discipline and workload, service performance as the dependent variables, stress and burnout as mediation variables and achievement motivation as moderation.

Data analysis using SMART PLS. Based on the results of the analysis, it shows that for medical staff at Hospitals in Kudus and Grobogan Regencies, Central Java, knowledge has no significant effect on stress levels or performance, but has a significant effect on burnout. Commitment has no significant effect on stress or performance but has a significant effect on Burnout. Discipline has no significant effect on stress or burnout but has a significant effect on service performance. Workload has no significant effect on stress or burnout, but has a significant effect on service performance. Burnout has no significant effect on service performance. Achievement motivation is not able to significantly moderate the effect of stress on service performance and is unable to significantly moderate the effect of burnout on service performance in medical personnel in Hospitals in Kudus and Grobogan Regencies.

III. RESULTS AND DISCUSSION

A. Characteristics of the Respondents

The description of hospitals medical personnels in Kudus and Grobogan Regencies is presented in Table 1.

Table 1. Characteristics of the Respondents

<i>Categories</i>	<i>Total</i>	<i>Percentage</i>
<i>Gender</i>		
<i>Man</i>	<i>40</i>	<i>30%</i>
<i>Woman</i>	<i>93</i>	<i>70%</i>
<i>Age</i>		
<i><30</i>	<i>31</i>	<i>23%</i>
<i>30-35</i>	<i>35</i>	<i>26%</i>
<i>35-40</i>	<i>24</i>	<i>18%</i>
<i>>40</i>	<i>43</i>	<i>32%</i>
<i>Work experiences</i>		

<2 years	37	28%
2-5 years	16	12%
>5 years	80	60%
<i>Hospital</i>		
<i>Mardi Rahayu</i>	52	39%
<i>Dr. R. Soedjati</i>	81	61%

The majority of respondents were female (70%). The most period of work was more than 5 years (60%), and the most of respondents were more than 40 years old (32%).

B. Description of Respondent's Answer

Responses of health workers of knowledge variable (X1), commitment (X2), discipline (x3), workload (x4), work stress (Z1), burnout (Z2), achievement motivation (M) and employee performance (Y) are presented in Table 2. The results of the validity and reliability test show that the items of variables were valid and the research instrument was reliable.

Another way that can be used to assess discriminant validity is to compare the AVE squared for each construct with the correlation value between the constructs in the model. An acceptable AVE value must be greater than 0.5 (Ghozali et al., 2015). The following is the AVE value for each variable in the table 2 below:

Table 2. Average Variance Extracted (AVE) Test Result

<i>Variabel</i>	<i>Mean</i>	<i>SD</i>	<i>Average Variance Extracted (AVE)</i>	<i>Result</i>
<i>Knowledge</i>	3.848	0.6111	0.693	<i>Valid</i>
<i>Commitment</i>	4.051	0.634	0.625	<i>Valid</i>
<i>Discipline</i>	4.321	0.523	0.742	<i>Valid</i>
<i>Workload</i>	4.224	0.533	0.634	<i>Valid</i>
<i>Work Stress</i>	2.505	0.883	0.686	<i>Valid</i>
<i>Burnout</i>	2.341	0.860	0.758	<i>Valid</i>
<i>Work Performance</i>	4.246	0.561	0.634	<i>Valid</i>
<i>Motivation</i>	4.150	0.607	0.575	<i>Valid</i>

According to Ghozali et al., (2015) composite reliability testing aims to test the reliability of the instrument in a research model. If all latent variable values have a composite reliability value of > 0.7 and Cronbach's alpha > 0.7, this means that the construct has good reliability or the questionnaire used as a tool in this study is reliable or consistent.

The mean score of medical practitioners' knowledge was 3.848, and it is included in the high category. This category indicates that health workers suffered workload at a high level, and they got many problems such as mental distraction, health instability, overnight shift lack of resting, job overloaded, and other additional tasks that are too much handled by one person.

The mean score of medical practitioners' commitment was 4.051, and it is included in the high category. This category indicates that health workers suffered workload at a high level, and they got many problems such as mental distraction, health instability, overnight shift lack of resting, job overloaded, and other additional tasks that are too much handled by one person.

The mean score of medical practitioners' discipline was 4.321, and it is included in the high category. This category indicates that health workers suffered workload at a high level, and they got many problems such as mental distraction, health instability, overnight shift lack of resting, job overloaded, and other additional tasks that are too much handled by one person.

The mean score of medical practitioners' motivation was 4.321, and it is included in the high category. This category indicates that health workers suffered workload at a high level, and they got many problems such as mental distraction, health instability, overnight shift lack of resting, job overloaded, and other additional tasks that are too much handled by one person.

The mean score of workload medical practitioners was 4,224, and it is included in the high category. This category indicates that health workers suffered workload at a high level, and they got many problems such as mental distraction, health instability, overnight shift lack of resting, job overloaded, and other additional tasks that are too much handled by one person.

The job stress of the hospital medical practitioners had an average value of 2,505, included in the low category. This score means that the medical practitioners were successful manage their stress. Eventhough their job demands or pressures are high, they can cope with the work demands placed on them. They also understand which work priorities should come first and which should be postponed. They still could build cooperation with other units. This condition is supported by the management of the hospital in creating positive behavior in the workplace. If workers feel a threat or pressure at work or related to a job, they will discuss it with co-workers in a friendly manner.

Burnout among hospital medical practitioners was in the low category, which is represented by the mean value of 2.341. The results of this study also show that health workers are at the level of mild burnout. This is because the medical practitioners have insufficient rest time.

The average score of health workers` performance is 4,246, and it is categorized as high. This category implies that the medical practitioners at the hospital had been able to manage work stress well. Although they still bear a high workload, they successfully control potential conflicts occurs with other individuals. As a result, they can perform their main task, authority, and responsibility optimally.

Table 3. R2 Value

	<i>R Square</i>	<i>R Square Adjusted</i>
<i>Stress</i>	<i>0.106</i>	<i>0.078</i>
<i>Burnout</i>	<i>0.143</i>	<i>0.117</i>
<i>Performance</i>	<i>0.837</i>	<i>0.826</i>

Based on table 3 it can be seen that the R2 value for Stress is 0.106 which means that it is included in the weak category. So it can be concluded that Knowledge, Commitment, Discipline and Workload have a small impact on Stress.

Based on table 3 it can be seen that the R2 value for Burnout is 0.143 which means that it is included in the weak category. So it can be concluded that Knowledge, Commitment, Discipline and Workload have a small impact on Burnout.

Based on table 3, it can be seen that the R2 value for service performance is 0.837, which means that it is included in the large category. So it can be concluded that Knowledge, Commitment, Discipline, Workload, Achievement Motivation, Stress and Burnout have a big impact on service performance.

Table 4. Effect Size (F²)

	<i>Stres</i>	<i>Burnout</i>	<i>Service performance</i>
<i>Knowledge</i>	0.021	0.037	0.012
<i>Commitment</i>	0.023	0.039	0.001
<i>Discipline</i>	0.004	0.013	0.104
<i>Workload</i>	0.011	0.007	0.108
<i>Stress</i>	-	-	0.036
<i>Burnout</i>	-	-	0.025

Based on Table 4 it can be concluded that for the Stress variable each of the Knowledge, Commitment, Discipline and Workload variables has effect size values of 0.021, 0.023, 0.004 and 0.011, all four of which have a small effect on Stress. For the Burnout variable, each of the Knowledge, Commitment, Discipline and workload variables has effect size values of 0.037, 0.039, 0.013 and 0.007, all three of which have a small effect on Burnout.

For service performance variables, each variable Knowledge, Commitment, Discipline, Workload, Stress and Burnout has an effect size value of 0.012, 0.001, 0.104, 0.108, 0.036 and 0.025, all six of which have little effect on service performance.

C. Hypothesis Test

Table 5. Hypothesis Test

		<i>OS</i>	<i>Mean</i>	<i>SD</i>	<i>T Stat</i>	<i>P</i>
<i>H1</i>	<i>Knowledge -> Stress</i>	0.217	0.221	0.160	1.359	0.175
<i>H2</i>	<i>Knowledge -> Burnout</i>	0.279	0.278	0.142	1.972	0.049
<i>H3</i>	<i>Knowledge -> Work Performance</i>	-0.074	-0.074	0.058	1.262	0.208
<i>H4</i>	<i>Commitment -> Stress</i>	-0.242	-0.260	0.147	1.649	0.100
<i>H5</i>	<i>Commitment -> Burnout</i>	-0.309	-0.319	0.146	2.119	0.035
<i>H6</i>	<i>Commitment -> Work Performance</i>	0.026	0.024	0.089	0.294	0.769
<i>H7</i>	<i>Discipline -> Stress</i>	-0.097	-0.089	0.136	0.713	0.476
<i>H8</i>	<i>Discipline -> Burnout</i>	-0.162	-0.149	0.152	1.061	0.289
<i>H9</i>	<i>Discipline -> Work Performance</i>	0.209	0.215	0.068	3.050	0.002
<i>H10</i>	<i>Workload -> Stress</i>	-0.171	-0.170	0.116	1.468	0.143

H11	Workload -> Burnout	-0.131	-0.133	0.131	1.002	0.317
H12	Workload -> Work Performance	0.292	0.296	0.101	2.883	0.004
H13	Stress -> Work Performance	-0.169	-0.172	0.095	1.785	0.075
H14	Burnout -> Work Performance	0.136	0.141	0.088	1.552	0.121
H15	Moderating Effect 1 -> Work Performance	0.066	0.050	0.089	0.747	0.456
H16	Moderating Effect 2 -> Work Performance	-0.052	-0.035	0.098	0.534	0.594

Based on table 5.15 it can be concluded that the results of testing the direct influence hypothesis are as follows:

- 1) Knowledge H1 Hypothesis Against Stress. Knowledge has a t-statistic value of 1.359 < 1.96, a p-value of 0.175 > 0.05 and the original sample is 0.217, so H1 is rejected, meaning that knowledge has no significant effect on stress.
- 2) Knowledge H2 Hypothesis on Burnout. Knowledge has a t-statistic value of 1.972 > 1.96, a p-value of 0.049 < 0.05 and the original sample is 0.279, so H2 is accepted, meaning that knowledge has a significant effect on burnout.
- 3) Hypothesis 3 Knowledge of service performance. Knowledge has a t-statistic value of 1.262 < 1.96, a p-value of 0.208 > 0.05 and the original sample is -0.074, so H3 is rejected, meaning that knowledge has no significant effect on service performance.
- 4) Commitment to Stress Hypothesis H4. Commitment has a t-statistic value of 1.649 < 1.96, a p-value of 0.100 > 0.05 and the original sample is -0.242, so H4 is rejected, meaning that commitment has no significant effect on stress.
- 5) Hypothesis H5 Commitment to Burnout. Commitment has a t-statistic value of 2.119 > 1.96, a p-value of 0.035 < 0.05 and the original sample is -0.309, so H5 is accepted, meaning that commitment has a significant effect on burnout.
- 6) Hypothesis 6 Commitment to service performance. Commitment has a t-statistic value of 0.294 < 1.96, p-value of 0.769 > 0.05 and the original sample is 0.026, so H6 is rejected, meaning that commitment has no significant effect on service performance.
- 7) Discipline Against Stress Hypothesis H7. Discipline has a t-statistic value of 0.713 < 1.96, p-value 0.476 > 0.05 and the original sample is -0.097, so H7 is rejected, meaning that discipline has no significant effect on stress.
- 8) Discipline Against Burnout Hypothesis H8. Discipline has a t-statistic value of 1.061 < 1.96, p-value 0.289 > 0.05 and the original sample is -0.162, so H8 is rejected, meaning that Discipline has no significant effect on Burnout.
- 9) Hypothesis 9 Discipline on service performance. Discipline has a t-statistic value of 3,050 > 1.96, a p-value of 0.002 > 0.05 and the original sample is 0.209, so H9 is accepted, meaning that discipline has a significant effect on service performance.
- 10) Hypothesis H10 Workload Against Stress. Workload has a t-statistic value of 1,468 < 1.96, a p-value of 0,143 > 0.05 and the original sample is -0.171, so H10 is rejected, meaning that workload has no significant effect on stress.
- 11) Hypothesis H11 Workload on Burnout. Workload has a t-statistic value of 1.002 < 1.96, a p-value of 0.317 > 0.05 and the original sample is -0.131, so H11 is rejected, meaning that workload has no significant effect on burnout. The result interprets contrary the previous studies of (Nurhidayatul et al., 2017) and (Judd & Brendan, 2020) found that workload positively influenced burnout.
- 12) Hypothesis 12 Workload on service performance. Workload has a t-statistic value of 2,883 > 1.96, a p-value of 0.004 > 0.05 and the original sample is 0.292, so H12 is accepted, meaning that workload has a significant effect on service performance. This study is consistent with the findings of (Manabe et al., 2012). (Lina, 2018) concluded that disproportionate workload has an impact on the decline of employee performance.
- 13) Hypothesis 13 Stress on service performance. Stress has a t-statistic value of 1.785 < 1.96, a p-value of 0.075 > 0.05 and the original sample is -0.169, so H13 is rejected, meaning that stress has no significant effect on service performance. Likewise, the analysis result of job stress and employee performance showed a negative

and significant relationship. It can be concluded that the higher the work stress level, the lower performance of health workers. Some studies confirmed this result where they found that job stress negatively affected employee performance (Dhini & Praptiestrini, 2021; Farzana et al., 2012; Gunawan et al., 2017; Manabe et al., 2012; Yi-Ching Chen et al., 2012).

- 14) Hypothesis 14 Burnout on service performance. Burnout has a t-statistic value of $1.552 < 1.96$, a p-value of $0.121 > 0.05$ and the original sample is 0.136, so H14 is rejected, meaning that Burnout has no significant effect on service performance. Burnout is negatively related to employee performance. It can be declared that high burnout can reduce the quality of individual work. Otherwise if workers burnout decreases, the health workers' performance gets improved. This result is consistent with studies, who found that burnout negatively and significantly influenced performance (Efriana et al., 2021; Harapan et al., 2018; Pratamawari et al., 2020).
- 15) Hypothesis 15 Achievement motivation moderates the effect of stress on service performance. Achievement motivation moderates the effect of stress on service performance with a t-statistic value of $0.747 < 1.96$, p-value $0.456 > 0.05$ and the original sample is 0.066, so H15 is rejected, meaning that achievement motivation is not able to significantly moderate the effect of stress on service performance.
- 16) Hypothesis 16 Achievement motivation moderates the influence of Burnout on service performance. Achievement motivation moderates the effect of burnout on service performance. It has a t-statistic value of $0.534 < 1.96$, p-value $0.594 > 0.05$ and the original sample is -0.052, so H16 is rejected, meaning that achievement motivation is not able to significantly moderate the effect of burnout on performance. service.

The reason the stress and burnout are designated as intervening variables is that workstress had a positive and significant effect on burnout. The study provided by Farzana et al. (2012), discovered that job stress positively affected burnout in health workers.

Burnout has a t-statistic value of $1.552 < 1.96$, a p-value of $0.121 > 0.05$ and the original sample is 0.136, so H14 is rejected, meaning that Burnout has no significant effect on service performance.

The indirect relationship shows that burnout mediates the relationship between workload and employee performance. The result of the path analysis indicates that there is a negative and significant effect between workload on employee performance mediated by burnout (Table 4). This result doesn't confirm the study who stated that the indirect effect of workload on performance through the mediation of burnout was negative and significant (Ardiyani et al., 2020; Digidowiseiso & Seftia, 2021).

IV. CONCLUSION

Knowledge has no significant effect on stress levels or performance, but has a significant effect on burnout. Commitment has no significant effect on stress or performance but has a significant effect on Burnout. Discipline has no significant effect on stress or burnout but has a significant effect on service performance. Workload has no significant effect on stress or burnout, but has a significant effect on service performance. Burnout has no significant effect on service performance. Achievement motivation is not able to significantly moderate the effect of stress on service performance and is unable to significantly moderate the effect of burnout on service performance in medical personnel in Hospitals in Kudus and Grobogan Regencies. The suggestions that need to be considered for future researchers can be applied to research objects that are not services, and future researchers are expected to use the same research model but use a different theoretical perspective.

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Implementation of Driver Briefing Policy in Improving Driver Safety at Multinational Company Workshop in Batam, Indonesia

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ABSTRACT

Purpose: Work safety is a big responsibility for every company, especially the safety of motorists who operate within the Multinational Company Workshop Area. This study examines the extent of employees' understanding of driving safety regulations through driver briefing policies in the Multinational Company Workshop area.

Design/methodology/approach: Data were obtained from the results of the questionnaire survey of motorists at Multinational Company Workshop using the questionnaire survey method to find answers. Data retrieval technique using the Purposive Sampling method is collected through online surveys given directly to respondents. After that, the data collection results in Analysis use the web spider method to find the comparison before and after the policy is improved. The population in this study were employees of Multinational Company Workshop in Batam with 70 respondents.

Findings: Based on a survey conducted by many employees, many still need to become more familiar with the driving regulations within the Multinational Company Workshop Area. However, some employees already understand and understand the content of the safety briefing themselves.

Research limitations/implications: The implementation of research in this paper is tried as much as possible by the intentions and objectives of the research and does not damage the company's image. Data collection in this study was based only on the questionnaire results, so there might have been fewer objective elements in the filling process, such as concurrent mutual filling in the questionnaire.

Practical implications: This driver briefing policy applies to creating a healthy and safe work environment to reduce the probability of work accidents or diseases due to negligence resulting in demotivation and deficiency.

Originality/value: This paper is an original work

Paper type: Research paper

Keyword: Driver Briefing, Safety Driving, Work Safety.

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I. INTRODUCTION

The workplace has many sources of danger, especially in companies with hazardous working conditions. For a long time, occupational safety issues have been relegated to the background by companies for the sake of productivity (Seroka et al., 2021). The World Health Organization (WHO) published statistics on industrial death accidents from 1970 to the present have a form close to Gaussian (World Health Organization, n.d.). Although the number of accidents per year tends to decline, the death rate in the workplace is still relatively large. According to the International Labor Organization (ILO), about 1.9 million people have work-related illnesses, and 2.3 million die yearly from work accidents (International Labour Organization, n.d.). Every year, there are accidents involving vehicles used at work, some of which result in people being killed. People are knocked down, hit, or destroyed against fixed parts by vehicles (heavy goods vehicles, lift trucks, and tractors), factories and trailers. People also fall from vehicles either up or down, working at high altitudes, or loading or unloading (International

Labour Organization (ILO), n.d.). Non-compliant vehicles can also be dangerous. The number of traffic accidents caused by heavy trucks is 20,572 cars and motorcycles, of which 11,989 people were killed and 17,166 injured (Traffic Management Bureau, 2017). Aggressive driving behaviour has been identified as an essential factor in traffic accidents (Ma et al., 2018).

The level of knowledge, skills, and motivation of the worker also determines the performance of individuals in the workplace. Improving employee safety knowledge also means that a company must commit with sufficient resources to a systematic and comprehensive safety and health training program for all employees and workers (Nkrumah et al., 2021). Such as road traffic accidents have become one of the most critical problems for human life and can be significantly reduced (Surya et al., 2020). The main reasons for traffic accidents and their severity are caused by several factors ranging from driver behaviour, road characteristics, and vehicle types to weather conditions. Every year, traffic accident-related deaths require 1.25 million people, most teenagers aged 15-29 years, and 90% of misfortunes occur in developing countries (Setyowati et al., 2019). We can analyze road traffic accidents from different points of view, such as the characteristics of space and time. Such analysis can provide insight into the rules of occurrence of accidents and the prevention of countermeasures (Xiong et al., 2021).

An accident is an accidental or unforeseen event that results in death, injury or property damage (Rifai et al., 2022). Southeast Asia signs the second-highest accident rate in the world, with 20.7 per 100,000 inhabitants. This figure includes traffic accidents that occur in Indonesia. There are several parameters in road accidents, such as infrastructure, driver behaviour, environment, driver performance, driver fatigue, Overspeed, vehicles, and safety devices (Suprihatiningsih et al., 2020). In Indonesia, traffic accidents have become one of the leading causes of death and injury. In 2018, approximately 25,859 people were killed, and hundreds of thousands were injured in traffic accidents in Indonesia. It happens globally, where more than 1.17 million people die in road accidents worldwide, and more than 10 million are paralyzed or injured yearly. Based on Traffic Corp data from the National Police of the Republic of Indonesia, the national trend of traffic accidents has increased yearly (Irfan et al., 2018). The rapid growth of vehicles and industries will give rise to a striking difference in proportion between vehicles and road capacity. The average annual vehicle growth from 1996 to 2006 was 20% which may take a higher probability of increasing road deaths (Pranoto et al., n.d.).

Batam City is a city that is heading towards the form of a Metropolitan City to develop into an Industrial City. Especially Batam, one of the cities that became a Free Trade Area (Andika et al., n.d.). As an industrial city, Batam is also a transportation route connecting countries with rapid population growth and private vehicle ownership ("Development of Indonesian Free Trade and Port Zone: Analysis of Historical in Batam Island," 2020). Along with the increase in the population of 1,283,196 people, with a population growth rate in 2017 of 3.78% (BPJS Batam City, 2018), the need for transportation also increases, so the number of accidents increases. This makes traffic accidents a contributor to the high mortality rate in Indonesia. As an industrial city, companies that stand have heavy and light transportation as a means of delivering goods and means of transportation while working.

Multinational Company Workshop is an industrial engineering company operating globally since 2004 in Canada. In APAC (Asia-Pacific), Batam became the company's central business unit. Multinational Company Workshop specializes in innovative non-destructive testing services and is one of Batam's largest privately owned oil and gas companies. The company has offices in Australia and Thailand, with global offices in Houston and Aberdeen. The company distinguishes itself from its competitors through its pioneering ultrasonic technology products. Through R & D (Research & Development), the oil and gas sector have a very high workplace accidents and injuries rate. The lack of safety culture has been identified as the main reason for such negligence and accidents (Ahmed Naji et al., 2020). In improving occupational health and safety, a company needs to make efforts to protect and ensure the occupational health and safety of everyone who works, one of which is the effort to implement driver briefings to motorists entering the Multinational Company Workshop fabrication area by the HSES Department. The implementation of driver briefings to drivers is to implement and socialize new and unknown activities, rules, and policies for drivers entering the Multinational Company Workshop fabrication area and know and provide education so that drivers can comply with the terms and conditions of driving outside and inside the company. This case study aims to find out how familiar the drivers are with the driver briefing policy that has been applied to every Multinational Company Workshop fabrication area motorist.

A. Literature Review

1. Safety Driving Awareness

Safety driving is the basis of further driving training that pays more attention to safety for the driver and passengers. In general, safe driving is a way of driving a vehicle by following predetermined safety standards designed to increase driver awareness of all possibilities while driving. An important factor in safe driving, the driver must be able to assess the difficulty of driving on the road at any time. This requires them to see the right place at the right time, detect critical changes in traffic conditions and identify imminent hazards (Kuiken & Twisk, n.d.). Safety driving briefings are essential before and after the vehicle enters an area. Based on Law No.22

of 2009 concerning Road Traffic and Transportation and PP No. 43 of 1993 concerning Road Infrastructure and Traffic (Umniyatun et al., 2021). Before driving, some things must be done preparing a driver's license and checking the vehicle, such as brakes, tires, lights, and mirrors. When driving, things that must be considered are maintaining concentration, steering techniques, paying attention to vehicle lanes, braking, changing lanes when turning, road markings, vehicle speed, and understanding traffic rules. After driving, it is also necessary to check the vehicle, including the engine and body of the vehicle (Insyafia Amalia Khusnul, 2021).

According to (Directorate of Transportation, 2018), the driver's health condition is also of particular concern in implementing safe driving behaviour. The condition of drivers not fit for driving duties can be a risk factor for traffic accidents. In addition to the importance of implementing safe driving behaviours, vehicle feasibility also needs to be checked through road feasibility tests. Users of individual Vehicles, freight transportation, and Vehicle of people are required to have complete documentation regarding the vehicle as valid proof of the roadworthiness of a transport vehicle issued by certain agencies, namely the Department of Transportation.

Safety driving training is a training program that is very helpful in reducing the potential risk of four-wheeled vehicle accidents, especially in road transportation such as Buses and Trucks (ISDC, 2020). Safety driving training can influence a person to improve driving behaviour on the road. It must refresh training on safe driving every two years. Thus, it can conclude that every driver is required to attend safety driving training carried out by the company regularly, and the training is expected to affect driver awareness in implementing safe driving behaviours to reduce and prevent bad risks that can arise due to the application of lousy safety driving (Desi Rusmiati, 2021).

2. Driver Behavior

Driving behaviour studies psychology, transportation, and urban planning researchers have studied human driving behaviour. Classifies drivers into four different levels of aggressiveness with accelerometer data. Categorize drivers into three levels of aggressiveness according to driver background information: age, experience, gender, and environmental factors such as weather and traffic. In addition, social psychologists have also studied the correlation between driver background information and driving behaviour. In addition, it shows that careless drivers, including drunk and disturbed drivers, are also dangerous. Although these works have found a mapping between driving behaviour and many other factors, most of these factors are unknown to autonomous vehicles during navigation.

Driving behaviour consists of factors of error and violation of procedures. Driver error occurs due to drivers' unable to achieve consequences, divided into three main categories: slips, errors, and irregularities. Meanwhile, an offence is a deliberate deviation closely related to behaviour that intentionally disregards safe driving practices. It is more complex than misconduct because it involves operating procedures, codes, rule norms, interactions with passengers, and non-driving related devices (Chu et al., 2019). Driver behaviour can be an essential factor in controlling road accidents. Several factors influence driver behaviour, such as vehicles, environmental factors, demographic characteristics, and road-related features. In the case of truck and bus drivers caused by the interference of the driver included in the duties of the driver performing the act exclude driving tasks such as interaction with passengers, non-driving related devices such as ticket machines, radio and radio headsets, location, traffic signs, driver age, gender, and experience (Suprihatiningsih et al., 2020).

3. Work Accidents

Occupational safety and health are activities that ensure the creation of safe working conditions and avoid physical and mental disturbances in the workplace to reduce and avoid the risk of work accidents (Mora et al., 2020). Work accidents in a company will cause losses to workers and the company. For workers, accidents can result in suffering, such as minor or severe injuries or even death. Therefore, the workforce must obtain protection from various problems in the workplace that can cause occupational diseases and work accidents. Law number 1 of 1970 explains that every worker has the right to get protection for safety in doing work for the welfare and increasing national productivity and guaranteed safety.

A recent study showed that implementing occupational safety and health programs within the company is a profitable investment. Indonesia is one of the countries that has not achieved the Zero Accident Target to reduce the prevalence of accidents in the workplace (Nai'em et al., 2021). Work accidents remain a significant problem in the workplace, with more than 1.8 million deaths from work accidents occurring annually in Asia and the Pacific. Two-thirds of the world's work-related deaths occur in Asia. The latest ILO data estimates that more than 1.8 million work-related deaths occur yearly in the U.S. and the Pacific region. About 2/3 of global work-related deaths occur in Asia. (ILO, 2018). In 2013, the ILO reported that one worker in the world died every 15 seconds from a work accident, and 160 workers suffered from work-related illnesses (Eltayeb et al., 2020).

In Indonesia, according to the Ministry of Manpower, 2017, there were 101,367 cases of work accidents in 2016. The work accident cases resulted in 768 workers experiencing disabilities, 3,329 in medical care, 10,354 recoveries, and 101 deaths. In addition, there were 5,234 traffic accidents by people going to and from get off work. A total of 194 people were disabled, 2,497 were in medical care, 2,452 recovered, and 181 died.

Furthermore, work accidents outside of work have as many as 1,755 cases. Eighty-seven people with disabilities, 648 in medical care, 972 recovered, and 48 died (Megasari, 2022).

II. METHODS

Data is one of the main strengths in compiling scientific research and modelling (Rifai et al., 2015). This research uses a type of quantitative research that is descriptive-analytic with a cross-sectional study design. Primary data collection is through questionnaire surveys and interviews, while secondary data refers to data collected by other researchers. The population and samples in this study were employee, vendor and subcontractor drivers who used four-wheeled vehicles and heavy vehicles that carried out work activities, delivery, and pick-up of goods at the warehouse or yard of Multinational Company Workshop Indonesia.

Data is one of the main strengths in compiling scientific research and modelling (Rifai et al., 2015). This study used surveys in the form of questionnaires or questionnaires as instruments for data collection. This study used surveys in the form of questionnaires or questionnaires as instruments for data collection. This questionnaire survey will be distributed to all drivers of heavy and light vehicles owned by Multinational Company Workshop and subcontractors entering the Multinational Company Workshop area. The instruments in this study have been carried out with validity and reliability tests, with the results of all questions declared valid and reliable. Riders or respondents are asked to fill out a three-part questionnaire of comparison questions of understanding before and after driver briefings are tightened and improved. As an indicator or attribute in making questionnaire questions, there are ten questions before and after the rules are set using web spiders.

III. RESULTS AND DISCUSSION

Based on the results of the data review taken from Multinational Company Workshop has been shown to decrease employee performance due to several factors. Preliminary observations of researchers show that the enthusiasm of employees through the company's performance management has yet to be successful. In addition, some still need to use their working time well, attend without information, work less carefully, and are reluctant to cooperate with other employees.

Table 1 - Data on work accident figures

<i>No</i>	<i>Year</i>	<i>Weight</i>	<i>Medium</i>	<i>Light</i>	<i>Number of work accidents</i>
<i>1</i>	<i>2017</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>2</i>
<i>2</i>	<i>2018</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>4</i>
<i>3</i>	<i>2019</i>	<i>0</i>	<i>3</i>	<i>4</i>	<i>7</i>
<i>4</i>	<i>2020</i>	<i>0</i>	<i>5</i>	<i>4</i>	<i>9</i>
<i>5</i>	<i>2021</i>	<i>0</i>	<i>5</i>	<i>5</i>	<i>10</i>

(Source: Multinational Company Workshop, 2021)

Based on table 1 above shows the reality that occurs in Multinational Company Workshop, where the number of work accidents has increased over the past five years. This is related to the Occupational Safety & Health (K3) rules implemented by the company, namely knowledge about occupational safety and health, health conditions, occupational health and safety, completeness of work equipment, and availability of protective equipment. This evidence is the focus of attention for Multinational Company Workshop is a private company engaged in the fabrication of construction installation of oil and gas pipelines from the bottom to sea level domiciled in Batam City.

A. Descriptive Statistics

In this study, descriptive statistics described the characteristics of respondents based on age, gender, department and description of data on each research variable (question item/instrument) displayed in the picture. This research was conducted by distributing a google form questionnaire (questionnaire) to respondents. The population in this study was field employees at Multinational Company Workshop, with 70 employees, was selected as a sample.

The descriptive analysis provides an overview of the situation and circumstances by classifying the total number of respondents' scores. The assessment criteria for each statement item are then compiled from the respondents' answer scores obtained. Based on the results of a study conducted on 70 respondents regarding the distribution of questionnaires in the form of google forms. The results of the respondent's answers on each statement item will be searched for the average value (mean), and an assessment will be carried out based on the scale range using the following formula:

$$\text{Scale Range} = \frac{\text{Highest value} - \text{Lowest value}}{\text{Many Classes}}$$

$$\text{Scale range} = \frac{5-1}{5} = 0.8$$

After the average (mean) score is calculated, then to classify the tendency of respondents' answers into a scale in this study can be determined as follows:

Table 2 - Scale Categories Description of Research Variables

<i>Intervals</i>	<i>Category</i>
<i>1,00 – 1,80</i>	<i>Very Incomprehensible</i>
<i>1,81 – 2,61</i>	<i>Do Not Understand</i>
<i>2,62 – 3,42</i>	<i>Neutral</i>
<i>3,43 – 4,23</i>	<i>Understand</i>
<i>4,24 – 5,00</i>	<i>Completely Understand</i>

B. Parameters

The research data were obtained using an online survey in the form of a questionnaire through a google form which was distributed to several departments whose members used vehicles as work operations within the Multinational Company Workshop Area. The parameters used are as follows:

Table 3 - Parameters used

<i>Parameters descriptive</i>
<i>Must have an appropriate driver's license for the vehicle used</i>
<i>Use seat belts while the vehicle is in operation. The same is necessary for passengers.</i>
<i>If you are under the influence of alcohol or illegal drugs, driving is a serious offence.</i>
<i>The driver must stay in the vehicle while the engine is running.</i>
<i>Drivers must use appropriate PPE when leaving the vehicle cabin in the designated area of PPE.</i>

*Parameters descriptive**Adhere to the facility's maximum speed limit of 20kph at all times. Obey all traffic signs at the facility.**Using mobile phones/handheld radios/Bluetooth hands-free devices while driving is strictly forbidden. The vehicle must stop before using the mobile phone.**Smoking while driving is prohibited.**Reduce your speed before entering intersections, blind spots and corners. Horns when approaching alleys and crossroads.**Do not drive through project erection/assembly areas where construction activities are underway.**Do not park near blasting, painting, lifting, or near the machine's work area. Do not park near muster points, utility stations, and areas marked with 'No Parking'. Do not block the main road and the entrance to the building.**No personnel can remain in the vehicle cabin during loading and unloading**Use a spotter when the trailer/truck is manoeuvring or reversing, and always follow the instructions.***C. Characteristics of Research Respondents**

The data analysis results showing respondents' characteristics based on age are presented in table 1 below. It can be seen that respondents aged 26-30 years as many as 16 respondents (23%), 31 – 35 years as many as 16 respondents (23%), 36 - 40 years as many as 17 respondents (24%), and 41 - 45 years as many as 21 respondents (30%). To find out more clearly, the results of data analysis based on age can be seen in table 4 below:

Table 4 - Characteristics of Respondents Based on Age

<i>No.</i>	<i>Ages</i>	<i>Data</i>	<i>Percentage</i>
<i>1</i>	<i>26 – 30 Years</i>	<i>16</i>	<i>23%</i>
<i>2</i>	<i>31 – 35 Years</i>	<i>16</i>	<i>23%</i>
<i>3</i>	<i>36 – 40 Years</i>	<i>21</i>	<i>30%</i>
<i>4</i>	<i>41 – 45 Years</i>	<i>17</i>	<i>24%</i>
	<i>Total</i>	<i>70</i>	<i>100%</i>

Based on the explanation from table 4 above, most respondents are aged 36-40 years. This shows that with this age range, employees at Multinational Company Workshop is classified as productive. Working contractually gives employees much work experience from more than one company and extensive knowledge and insight into driving. The results of data analysis showing the characteristics of respondents based on gender are presented in table 5 below. There are 70 male respondents (74%) and 18 women (26%). To find out more clearly, the results of data analysis based on gender can be seen in table 5 below:

Table 5 - Characteristics of Respondents Based on Gender

<i>No.</i>	<i>Gender</i>	<i>Data</i>	<i>Percentage</i>
1	Male	52	74%
2	Female	18	26%
	Total	70	100%

Based on the explanation from the table above, the most significant number of respondents are men. This is because men more than women do the riders in the work area. After all, many workers in Multinational Company Workshop are men. Meanwhile, women work more in the room or office. The results of data analysis showing the characteristics of respondents based on the Department are presented in table 6 below. It can see that employee respondent with the Department determined as follows QHSES as many as 11 respondents (16%), Welding as many as six respondents (9%), Str Fitter / Piping as many as 14 respondents (20%), Engineering as many as eight respondents (12%), Warehouse as many as eight respondents (11%), PMT as many as seven respondents (10%), Subcontractors as many as eight respondents (11%), Vendors as many as eight respondents (11%).

Table 6 - Characteristics of Respondents Based on Department

<i>No.</i>	<i>Department</i>	<i>Data</i>	<i>Percentage</i>
1	QHSES	11	16%
2	Welding	6	9%
3	Str Fitter/Piping	14	20%
4	Engineering	8	12%
5	Warehouse	8	11%
6	PMT	7	10%
7	Subcontractor	8	11%
8	Vendor	8	11%
	Total	70	100%

Based on the explanation from the table above, it can be known that the number of driver departments is the highest in Multinational Company Workshop is Str Fitter and Piping. This is because most of the field workers who use vehicles are Str fitters and Piping for heavy and light vehicle operations in the field

D. Research Results of Respondent’s Understanding Survey of Driver Briefings

Measurement of data variables in this study was carried out at Multinational Company Workshop is a place for research to take place with 13 items of statements. Then the results of obtaining data on the answers of 70 respondents in the form of the number of data distributions and gaps in each statement so that the results can be seen in table 7 below:

Table 7 - Results of The Safety Briefing Policy Implementation Survey to Motorists

<i>No</i>	<i>Statement</i>	<i>Before</i>	<i>After</i>	<i>Gaps</i>
1	<i>Must have an appropriate driver's license for the vehicle used</i>	3,3	4,5	1,19
2	<i>Use seat belts while the vehicle is in operation. the same is necessary for passengers</i>	2,8	4,4	1,56
3	<i>If you are under the influence of alcohol or illegal drugs, driving is a serious offence</i>	3,0	4,4	1,37
4	<i>The driver must stay in the vehicle while the engine is running.</i>	2,8	4,5	1,64
5	<i>Drivers must use appropriate PPE when leaving the vehicle cabin in the designated area of PPE.</i>	2,7	4,5	1,86
6	<i>Adhere to the facility's maximum speed limit of 20kph at all times. Obey all traffic signs at the facility.</i>	2,7	4,6	1,94
7	<i>Using mobile phones/handheld radios/Bluetooth hands-free devices while driving is strictly forbidden. The vehicle must stop before using the mobile phone.</i>	2,6	4,5	1,89
8	<i>Smoking while driving is prohibited.</i>	2,9	4,5	1,53
9	<i>Reduce your speed before entering intersections, blind spots and corners. Horns when approaching alleys and crossroads.</i>	2,7	4,3	1,64
10	<i>Do not drive through project erection/assembly areas where construction activities are underway.</i>	2,6	4,3	1,74
11	<i>Do not park near blasting, painting, lifting, or near the machine's work area. Do not park near muster points, utility stations, and areas marked with 'No Parking'. Do not block the main road and the entrance to the building.</i>	2,3	4,3	1,96
12	<i>No personnel can remain in the vehicle cabin during loading and unloading.</i>	2,3	4,2	1,96
13	<i>Use a spotter when the trailer/truck is manoeuvring or reversing, and always follow the instructions.</i>	2,3	4,3	1,99
	<i>Average</i>	35,0	57,3	22,3

Obtained measurement of driver briefing policy understanding survey data by Multinational Company Workshop employee riders with 13 statement items. Then obtained, the results of obtaining data on the answers

of 70 respondents in the form of the number of data distributions and gaps using the spider web method to get comparison results before and after are presented in the radar chart below:

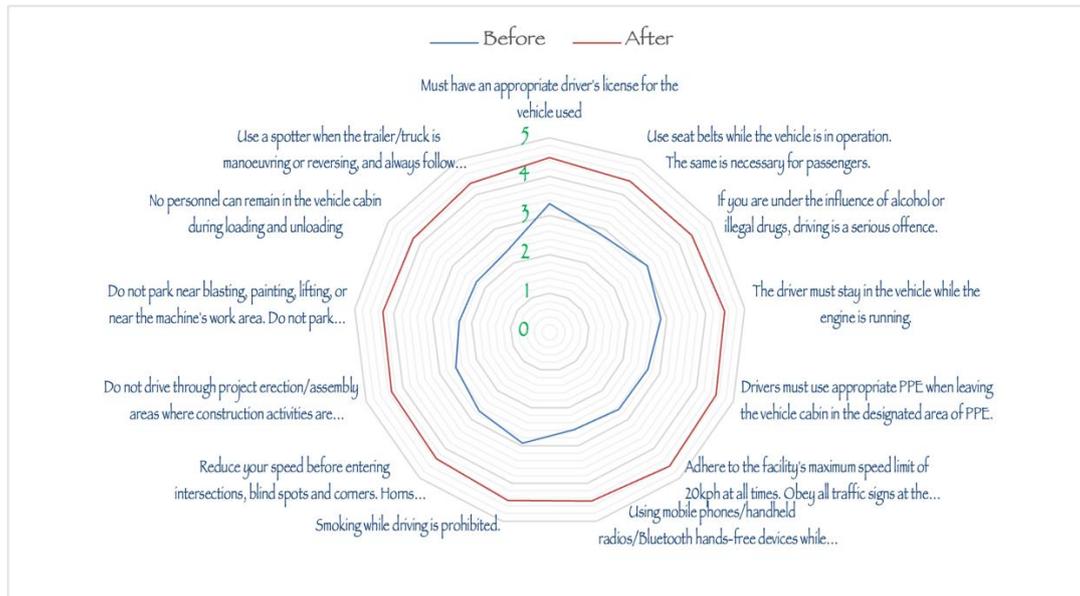


Figure 1 - Radar Chart of Respondent Survey Results Based on Statements

The result of the discussion in the Parameter statement above is that the first is that one Must have an appropriate driver's license for the vehicle used. A driver's license serves as proof of driving competence. At this point, employees who drive in the Multinational Company Workshop Area are required to bring a driver's license based on the vehicle used, but some employees still need to comply with the regulation. It is essential to carry a driver's license as a form of guarantee of driving legitimacy. In the radar data picture, the respondents' results above stated that the comparison of actual performance before and after the regulation was improved had the slightest difference with a value of 1.19. Then the second parameter is using seat belts when the vehicle is operating. The same is necessary for passengers. Using seat belts when driving is very important because you can withstand shocks so that they do not bounce and protect body parts prone to impact (head, face, and body) during sudden events. A safety belt also makes the driver and passengers feel safer and more comfortable. Some heavy and light vehicles are not designed to have seat belt alarms, which makes many passengers ignore these regulations. The comparison in this statement still needs to be bigger at 1.56. The statement on the third parameter about If you are under the influence of alcohol or illegal drugs, driving is a serious offense. The management of Multinational Company Workshop will immediately fire the use of illegal drugs and alcohol. This statement must be known by all employees, both vendors, and subcontractors who work in the Multinational Company Workshop Area. The company will carry drug tests weekly to avoid using illegal drugs because they can create work accidents or problems. The result of the comparison of actual performance before and after this regulation is the second smallest, with a value of 1.37.

Furthermore, the fourth parameter is that the driver must not leave the vehicle when the engine starts. Drivers of large vehicles that operate or enter the Multinational Company Workshop Area significantly ignore this regulation. Turning off the car engine, even if it only drops for a while, and then returning to the car is essential. There can be accidents such as the car forgetting the brakes and problems with the battery or battery if you do not turn off the car engine when the driver leaves. The comparison value is 1.64. The fifth parameter discusses that the driver must use the appropriate PPE when leaving the vehicle cabin in the designated area of PPE. PPE must be used if it has passed through the warehouse area. Suppose it has passed through the area and entered the erection area of the project. In that case, motorists are required to use PPE, such as wearpacks / work clothes, so that they can be protected from wounds, safety shoes, safety helmets, and safety glasses, and are required to follow a safety briefing first to avoid work accidents. This regulation is not widely known by employees and vendors who may not work in the erection or project assembly area while working, primarily those who do not know about working in the office or new visitors. The comparison value in this statement is relatively high, which is 1.86, then in the sixth parameter is to obey the maximum speed limit of the facility of 20kph at any time. Obey all traffic signs at the facility. Not only do toll roads and highways have a driving speed limit, but the Multinational Company Workshop area also has a maximum speed limit of 20 kph. Of course, this regulation is applied to avoid accidents

while driving. The security department oversees supervising the driving speed of employees using a speed gun. If there is a motorist who crosses the maximum limit, they will be asked to make a statement letter. The comparison before and after the regulation was implemented was relatively high, namely 1.94.

The seventh parameter states that it is strictly forbidden to use a mobile phone/handheld radio/Bluetooth hands-free device while driving. Vehicles must stop before using a cell phone. It is still a rule not to use a mobile phone while driving and working. Using mobile phones, handheld radios, and Bluetooth hands-free devices by motorists can reduce focus while driving, which causes vehicle accidents such as collisions. The driver can stop pulling over to answer or reply to an important call. Many drivers still use mobile phones when driving, and the comparison value before and after the regulations is relatively high, which is 1.89. After that, the eighth parameter is No smoking while driving. The rules for smoking while driving has been regulated in the Road Traffic and Transportation Law (LLAJ) Number 22 of 2009. In the law, the ban on activities other than driving is intended for all drivers, from cars to trucks. In addition to self-harm, the residual ash of cigarette burning exposed to the wind can hit the face of the motorist behind. Smoking while driving can damage the car if the cigarette embers fall and can cause a fire. The actual performance comparison value before and after the regulation was increased by 1.53. Moreover, the ninth parameter is to Reduce your speed before entering intersections, blind spots, and corners. Horn when approaching alleys and crossroads. Blind spots occur a lot at intersections or corners. The driver cannot detect the presence of objects or other vehicles. This happens because the car's rearview mirror range is limited, and the driver lacks attention to the surrounding conditions and the dimensions of large vehicles (trucks or buses). Therefore, in this regulation, motorists are asked to reduce speed and use horns when entering intersections and corners so that there are no accidents between drivers. From the results of the comparison value in the table above, which is 1.64, there are still some drivers with high speeds entering intersections and corners.

The tenth parameter is not to drive through the erection/assembly area of the project where construction activities are taking place. Driving in the erection/assembly area of the project is strictly prohibited as it may cause the rider to be crushed or exposed to heavy items from above while the employee is at work. There is already a particular lane that motorists in the Multinational Company Workshop Area can pass. The comparison value is 1.74, and many drivers still need to pay attention to the prohibition signs in the construction area. Then the eleventh parameter is not parked near blasting, painting, lifting, or the heavy equipment work area. Do not park near muster points, utility stations, and areas marked with 'No Parking. Do not block the main road and the entrance to the building. The above regulations prohibit motorists from only thinking randomly in a predetermined area. Motorists must pay attention to signs in the Multinational Company Workshop Area, such as signs prohibiting parking in blasting areas, heavy equipment work areas, gathering points, utility stations, main roads, and entrances to the building. This arrangement is so that there is no risk of accidents such as being hit by heavy equipment or module ruins, hearing loss due to sounds that are too noisy or loud, exposure to chemicals, being hit by bursts or being hit by high-power pressure and electrocution. Many motorists who need to learn this regulation, from the comparison before and after this regulation was increased, get a considerable comparison value of 1.96. Then the twelfth parameter is that No personnel are allowed to remain in the vehicle cabin during loading and unloading. For the above statement, only a few drivers know, especially those who deliver goods. Personnel is prohibited from being in the vehicle cabin during loading and unloading to avoid damaging goods and goods containing toxic chemicals. The comparison value in this statement is 1.96, the same as the previous statement. Next, the thirteenth parameter is to Use a spotter when the trailer/truck is maneuvering or reversing and always follow the instructions. This statement focuses more on trailer user drivers and trucks because they are heavy equipment vehicles that need spotters. A spotter is needed To provide directions/instructions to authorized operators operating a unit while operating in a work area requiring direction. This is necessary to avoid the possibility of other workers or other heavy equipment in operation. The highest comparison is found in this statement with a value of 1.99 because not all motorists know this rule. Only heavy vehicle users know.

IV. CONCLUSION

The conclusion obtained based on the results of the study "Implementation of Driver Briefing Policy in Improving Driver Safety at Multinational Company Workshop is based on the results of this research survey. The highest gap is found in the 13th statement with a gap value of 1.99 because this regulation is only for drivers of large vehicles. For four-wheeled and three-wheeled drivers, this regulation does not apply. After this, all motorists must know this regulation as a theoretical basis for driving in the Multinational Company Workshop Area. The lowest gap is found in the first statement, with a gap value of 1.19. This statement is already a common rule in all companies and on the highway as a sign of eligibility for a person to be able to drive a vehicle. Many motorists already know this regulation, and some need to learn that a driver's license is also mandatory when driving in the Multinational Company Workshop area as proof of driving skills, obeying, and understanding all traffic rules, and

not endangering themselves and others. The results of this study prove that implementing the driver briefing policy after being upgraded makes motorists understand and know more about the driving regulations that apply in the Multinational Company Workshop Area so that the risk of accidents is reduced, and driver safety can increase.

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The Effect of Marketing Capability and Financial Capability on Improving Coffee Commodity Performance and Implications for Value Added in Kerinci Regency

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ABSTRACT

Purpose: This research study investigates the effect of marketing capability and financial capability on improving coffee commodity performance and its implications for value added in Kerinci Regency.

Methodology: A quantitative research approach was used, and data were collected from 110 coffee industries through a structured survey. Data were analyzed using Smart-PLS 4 software, using confirmatory factor analysis and path analysis.

Findings: The results showed significant positive relationships between marketing capability and coffee commodity performance, financial capability and coffee commodity performance, marketing capability and value-added, and financial capability and value-added. The findings highlight the importance of marketing capabilities and financial capabilities in improving coffee commodity performance and generating added value. This study provides practical implications for coffee industry stakeholders and suggests strategies to strengthen marketing and financial capabilities to improve performance and value creation in the coffee industry. However, it is important to consider the limitations of this study, such as the specific geographical context and reliance on self-reported data. Future research could replicate this study across different regions and use a mixed-methods approach to gain a more comprehensive understanding.

Paper type: Research paper

Keyword: *Marketing Capability, Financial Capability, Coffee Commodity Performance, Value-Added.*

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I. INTRODUCTION

Coffee is one of the most popular beverages in the world. In the 2018/19 harvest year, more than 165 million 60-kilogram bags of coffee were consumed. Production is largely focused in South America, Asia, Central America and Africa (Statista.com, 2016). The coffee industry is a significant contributor to the economies of many countries around the world. According to a study of the coffee industry in India, coffee cultivation is carried out on large plantations and by small farmers. However, coffee is an expensive crop to grow, given that its production is very labor-intensive and requires attention to many details. As such, there are various challenges facing the coffee industry, and labor shortages and water wastage are among the most acute (Ottman, 2011). In Vietnam, coffee production has a significant impact on the country's economic growth. The coffee industry has followed sustainable economic development practices, which has contributed to the country's economic growth (Nguyen & Vo, 2021).

Ethiopia is one of the largest coffee producers in the world. However, the value of coffee exported from Africa, including Ethiopia, has declined drastically over the past few years due to the lack of sustainability and low competitiveness of this subsector in national and international markets. The coffee sector is challenged by various factors, including low productivity due to lack of improved varieties, diseases and pests, inappropriate processing methods, lack of post-harvest handling such as storage facilities, climate change, land degradation, and marketing. To mitigate these challenges, various efforts have been made, such as strengthening extension in the

distribution of improved and disease-resistant varieties, proper processing methods, construction of storage facilities, development and adaptation of varieties for climate change, afforestation and reforestation, preventing illegal settlements, and market regulation (Alo-Sora & Guji, 2021; Melese & Kolech, 2021). In Colombia, the coffee industry has been able to upgrade its value chain, innovate and industrialize, resulting in economic development for the country, especially for coffee-producing regions. The process of value chain upgrading in the Colombian coffee industry has contributed to the country's economic development, which is represented as an improvement in the country's infrastructure and living conditions, economic growth, industrialization rate, and educational access perspectives (Parente-Laverde, 2020). In Indonesia, the coffee industry faces strong competition from Brazil and Colombia, which is due to the fact that they face similar markets in the United States, Germany, Italy, and Japan. In addition, coffee products from Indonesia are 90% Robusta with low quality, which causes them to get low prices among other exporting countries (Purnamasari et al., 2014).

Indonesia is the fourth largest coffee producer in the world, and coffee is a significant contributor to the country's economy. According to a study on marketing strategies at Cafe Dalgona, a micro, small, and medium-sized enterprise in Indonesia, competition between owners of the same business poses a threat to Dalgona's sales. Therefore, by analyzing a good marketing strategy by knowing the strengths, weaknesses, opportunities, and threats, it is expected that Cafe Dalgona can survive and run its business (Subandrio et al., 2022). A study on the impact of coffee sustainability schemes on the living standards of rural coffee producer households in Aceh province, Indonesia, found that the gains from the certified coffee trade did not significantly affect farmers' economies. However, the impact of certification was significant on coffee prices under fairtrade and organic schemes, with fairtrade providing higher coffee prices compared to organic coffee prices. This price increase is also followed by an increase in farmers' monthly per capita income (HAMID et al., 2023).

Indonesian coffee is one of the most popular in the world. Indonesian coffee exports continue to be in demand by a number of countries in the world. As the Indonesian Statistics report shows, the volume and value of Indonesian coffee exports recorded an increase in 2021. Indonesia's coffee export volume was 380.17 thousand tons in 2021. This figure increased by around 1.21% compared to the previous year which amounted to 375.60 thousand tons. Meanwhile, the export value of Indonesian coffee amounted to US\$ 842.52 million. This figure increased by around 4.11% compared to 2020 which amounted to US\$ 809.20 million. The United States is the main destination country for Indonesian coffee exports in 2021. It was recorded that the volume of Indonesian coffee exports to Uncle Sam's Country was 57.69 thousand tons. Meanwhile, the export value was US\$ 194.76 million. In terms of trends, the volume and value of Indonesia's coffee exports have tended to decline in the last 10 years. The highest volume and value of coffee exports were recorded in 2013, while the lowest was in 2018.

Kerinci is one of the regions in Indonesia that is famous for its high-quality coffee. To create sustainable performance and added value for coffee entrepreneurs in Kerinci, there are several factors that need to be considered. The coffee industry plays a significant role in the economic development of many regions worldwide, including Kerinci Regency. Kerinci Regency, located in Indonesia, is renowned for its coffee production and is recognized as one of the major coffee-growing regions in the country. The success and competitiveness of the coffee industry in Kerinci Regency depends not only on the quality of the coffee itself but also on the marketing and financial capabilities of the industry stakeholders.

Microfinance services can play an important role in accelerating entrepreneurial activity and improving firm performance (Nakabugo et al., 2022). Financial training, microcredit, savings mobilization, and agricultural inputs have been shown to positively influence the performance of smallholder coffee entrepreneurs (Nakabugo et al., 2022). However, government regulations may negatively moderate the relationship between microfinance services and smallholder coffee entrepreneur performance (Nakabugo et al., 2022). To improve coffee supply chain performance, innovation is needed through a value-added approach among business actors using transparency and supply chain management (Syofya, 2022). Sustainable supply chain management can have a positive impact on the performance of organic Robusta coffee in farmer groups in Malang District (Putri & Retnoningsih, 2022). Coffee producers in Kerinci are increasingly implementing sustainable practices, such as shade-grown coffee, organic farming, water conservation, and reforestation efforts (Stofya, 2023). These sustainable practices contribute to environmental preservation and improve value chain dynamics, leading to improved market access and increased added value for coffee producers (Stofya, 2023).

In conclusion, creating sustainable performance and added value for coffee entrepreneurs in Kerinci, Indonesia, requires a holistic approach that considers microfinance services, government regulations, supply chain management, environmental sustainability, fermentation conditions, and the use of used coffee waste. By implementing sustainable practices and innovative approaches, coffee entrepreneurs in Kerinci can improve their performance and contribute to regional economic development (Nizori et al., 2021; Sarkar et al., 2021).

Marketability and financial capability are important factors to improve the performance and added value of coffee commodities in Kerinci Regency. To improve the performance of the coffee supply chain, innovation is needed through a value-added approach among business actors using transparency and supply chain management approaches (Stofya, 2023). Kerinci coffee has become an industry with complete components from upstream to

downstream sectors, contributing coffee subsector gross domestic product (GDP) to agricultural GDP to national GDP (Syofya, 2022). Marketability refers to the skills, resources, and strategies used by coffee industry stakeholders to effectively promote and sell their products in the marketplace. It covers various aspects, including market research, branding, distribution channels, pricing strategies, and customer relationship management. By improving marketing capabilities, industry players can increase their market share, create brand differentiation, and attract a loyal customer base.

On the other hand, financial capability relates to the financial resources, management practices, and investment decisions of coffee industry stakeholders. Adequate financial capability enables the allocation of resources to support product development, infrastructure improvements, quality control measures, and other activities that improve the performance of coffee commodities. It also enables industry players to explore opportunities for value-added initiatives, such as processing, packaging, and exporting, which can significantly contribute to overall regional economic growth. In a study conducted in Kerinci Regency, it was found that net profits differed significantly between cooperative and non-cooperative farmers, with hired labour being the most variable cost incurred by all farmers (Kaido & Takashino, 2023). This highlights the financial benefits of agricultural cooperatives for smallholder farmers. In addition, microfinance services, such as financial training, microcredit, savings mobilization, and farm inputs, positively affect the performance of smallholder coffee entrepreneurs (Nakabugo et al., 2022). However, government regulations negatively moderate the relationship between microfinance services and performance of smallholder coffee entrepreneurs (Nakabugo et al., 2022).

To improve the sustainability and performance of the coffee industry, various strategies can be adopted, such as branding and labelling, value chains through bio-dynamic farming, sales through direct auctions, collectivization, direct sales of ripe cherries to companies, internet marketing, and organic certification (Yadava et al., 2022). Improvement strategies can be difficult at the chain level without institutional support, so the government needs to develop policies to facilitate adoption by coffee farmers of the identified improvement strategies (Yadava et al., 2022).

In recent years, the coffee industry in Kerinci Regency has experienced significant growth, providing both opportunities and challenges for local coffee producers, farmers and other stakeholders. To ensure the continued growth and profitability of the coffee industry in Kerinci Regency, it is imperative to examine the factors that contribute to the improved performance and added value of coffee commodities. Two key factors that significantly impact the success of this industry are marketability and financial capability.

Understanding the relationships between marketability, financial capability, coffee commodity performance, and value-added in Kerinci Regency is critical for policy-makers, coffee producers, processors, exporters, and other industry stakeholders. By identifying the key drivers of success, stakeholders can make informed decisions, allocate resources effectively, and implement targeted strategies to improve industry performance and competitiveness. The main objective of this study is to determine the effect of marketing capability and financial capability on improving the performance of coffee commodities and its implications for added value in Kerinci Regency.

A. Literature Review

1. Marketing Capabilities

The relationship between marketing capabilities and performance is critical in various industries, including the coffee industry. Marketing capabilities can significantly affect business performance, customer relationship management, and value-added in the coffee sector. In the coffee industry, added value can be achieved through various stages of production, processing, and marketing¹. For example, processing coffee beans into ground coffee or roasted coffee can provide higher added value than primary products such as dried cherries or cherries (Aklimawati, 2017). In the case of Oro Gayo Coffee, the export value-added of grade 1 (special) and grade 2 (premium) green bean Arabica coffee is moderate, and its marketing is considered efficient (Baihaqi et al., 2020). A study on Bali's Kintamani Arabica Coffee showed that an optimized supply chain and high value-added can be achieved through a marketing strategy that includes a network of partnerships with stakeholders, selection of high-value-added businesses and technologies, and calculation of value-added on various coffee agro-industry products (Udayana & Wirajaya, 2021). In the context of digital marketing capabilities, a study in the United Arab Emirates insurance sector found that digital marketing capabilities have a significant impact on improving business performance (Nuseir & Refae, 2022). Similarly, another study in China found that digital marketing capabilities (DMC) significantly influenced customer relationship capabilities (CLC), market sensing capabilities (MSC), consumer-brand engagement (CBE) and firm performance (Liu, 2022).

The relationship between marketing capabilities and firm performance can be dynamic, as changes in marketing capabilities over time can impact changes in firm performance (Ding et al., 2021). In the case of small firms, the role of technological innovation and marketing capabilities can be particularly important in determining the relationship between R&D investment and management performance (Bader et al., 2022; Sher & Yang, 2005).

In summary, marketing capabilities play an important role in improving performance and adding value in the coffee industry. By focusing on adding value through processing, marketing strategies, and digital marketing capabilities, businesses in the coffee sector can improve their overall performance and competitiveness.

H1: Marketing Capability has a positive and significant effect on the performance of the coffee industry in Kerinci.

H2: Marketing Capability has a positive and significant effect on the value added of the coffee industry in Kerinci.

2. Financial Capability

The relationship between financial capability and performance in the coffee industry can be observed through various factors, such as working capital management, accounting performance, economic value-added, and supply chain management. These factors contribute to the growth, efficiency, and effectiveness of coffee businesses, which ultimately affect their financial performance and value-added.

A study of Colombian SMEs producing coffee products found that these businesses grew in sales and assets, achieving average accounting profits. However, they destroyed economic value added (EVA) within four years, with medium-sized firms generating negative market value added (Godoy, 2022). This indicates that financial performance in the coffee industry can be volatile and is affected by capital structure and financing decisions. In the case of Luckin Coffee, a sound marketing strategy and proper implementation of new ways, such as accurate targeting of the target market, smart brand design and promotion, and appropriate marketing to increase customer loyalty, have contributed to its success (Cao, 2022). In addition, the adoption of new retail modes through a combination of online and offline channels, as well as the use of high technology and big data, has given Luckin Coffee a competitive edge in the industry. Supply chain management also plays an important role in the financial performance of coffee businesses. For example, the coffee supply chain can be divided into four main groups: coffee cultivation and primary processing, international distribution, roasting and sales, and final consumption (Zybarena & Voroniuk, n.d.). By optimizing the supply chain and reducing the number of intermediaries, coffee businesses can potentially improve their financial performance. A financial feasibility analysis of the coffee husk biopellet industry in Jember Regency showed that the industry is financially viable, meeting the financial feasibility criteria (Rusdianto et al., 2018). This suggests that effective utilization of coffee waste can contribute to the financial performance of the coffee industry.

In conclusion, the relationship between financial capability and performance in the coffee industry is influenced by various factors, including working capital management, accounting performance, economic value added, supply chain management, marketing strategy, and effective utilization of coffee waste. By optimizing these factors, coffee businesses can improve financial performance and added value.

H3: Financial Capability has a positive and significant effect on the performance of the coffee industry in Kerinci.

H4: Financial Capability has a positive and significant effect on the value added of the coffee industry in Kerinci

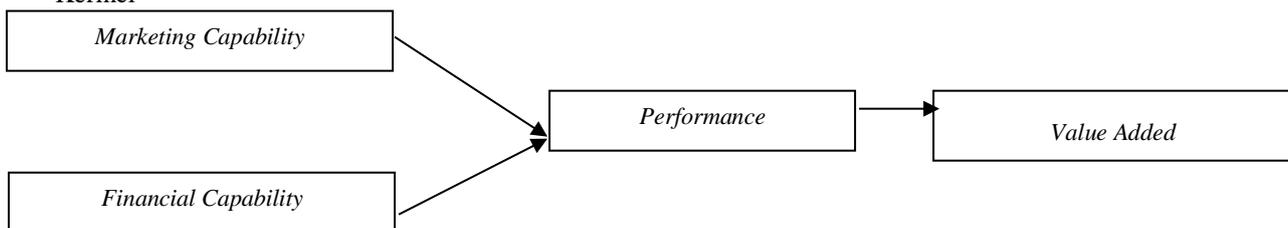


Figure 1. Conceptual Frame Work

II. METHODS

This study was quantitative in nature with a cross-sectional approach (Creswell, 2013). Data were collected from the target population in Kerinci Regency of entrepreneurs in the coffee industry. This study used entrepreneurs as the sample. This study chose proportional strata sampling and convenient sampling. According to the data collection procedure, 150 entrepreneurs were selected, and the questionnaires were distributed offline; 150 self-administered questionnaires were distributed to coffee entrepreneurs in Kerinci. This technique was also confirmed in a study by (Shah et al., 2009) In addition, of the 150 returned questionnaires, 110 means (81%) of the questionnaires. In this study, a 5-point Likert scale was used to measure the items.

Using the Structural Equation Model (SEM), data were analyzed to evaluate the impact and test hypotheses. Because all variables in this study are latent variables measured by dimensions and indicators, the data in this

study is processed using Partial Least Squares (PLS) with SmartPLS-4 software. We use multidimensional dimensions in this investigation, including composite and reflective measures (Jarvis et al., 2003). This means that measurement model types for first- and second-order constructs can and should be represented separately (MacKenzie et al., 2005). The merging of common parts is a crucial configuration of second-order constructions. First-order constructs use a reflecting measurement model in the combined common factor configuration, but second-order designs do not. In the combined common factor configuration, the first-order construct employs the reflective measurement model, while the second-order construct is the composite formed by the first-order construct. This is the most common technique in social science research (Ringle et al., 2012), indicating that this type of hierarchical component model merits more exploration.

III. RESULTS AND DISCUSSION

Descriptive statistics were calculated to provide an overview of the characteristics of the sample and the variables studied. The sample consisted of 110 coffee industry entrepreneurs in Kerinci Regency, including coffee farmers, processors, and exporters. Participants' demographic information showed diverse representation across age groups, gender, and organizational roles.

Descriptive statistics revealed the following:

The mean score for marketing capability was found to be 4.21 on a scale of 1 to 5, with a standard deviation of 0.82. This indicates that, on average, coffee industry entrepreneurs in Kerinci Regency have a moderate level of marketing capability.

The average score for financial capability was 4.58 on a scale of 1 to 5, with a standard deviation of 0.91. This indicates that coffee industry entrepreneurs have a relatively higher level of financial capability compared with marketing capability.

Coffee commodity performance indicators, including yield and production levels, quality, certification compliance, and traceability, showed varying scores. Average scores ranged from 3.89 to 4.75, indicating moderate to high levels of coffee commodity performance.

The average score for value-added was found to be 4.12 on a scale of 1 to 5, with a standard deviation of 0.78. This indicates that coffee industry entrepreneurs perceive a moderate level of value-added to the coffee commodity produced in Kerinci Regency.

Tabel 1. Reliabilitas dan Validitas Test

<i>second-order constructs</i>	<i>First-order constructs</i>	<i>Cronbach's Alpha</i>	<i>Composite Reliability</i>	<i>Average Variant Extracted</i>
<i>Marketing Capability</i>	<i>Statistic Marketing, Dynamic Marketing, Customer Relationship</i>	<i>0.814</i>	<i>0.823</i>	<i>0.705</i>
<i>Financial Capability</i>	<i>Financial literacy, Financial access, Financial Functioning</i>	<i>0.911</i>	<i>0.917</i>	<i>0.702</i>
<i>Performance</i>	<i>sales performance, profitability</i>	<i>0.821</i>	<i>0.826</i>	<i>0.657</i>
<i>Value Added</i>	<i>Efficiency, Innovation, Financial Performance</i>	<i>0.898</i>	<i>0.920</i>	<i>0.621</i>

Source: Results Process Data (2023)

The next stage is to consider validity and reliability, which determine the extent to which a measurement or metric has a positive relationship with the construct (Hair Jr et al., 2016). Researchers examine the average variance extracted (AVE) and indications of out-loading (Hair et al., 2016). The AVE criterion is 0.50 or higher (Hair et al., 2017). An AVE of less than 0.50 indicates that there is greater variation in item errors than the variance explained by the construct (Hair et al., 2016). According to research (Gaskin et al., 2018), the results of this construct reliability test are measured using Cronbach's alpha and composite reliability. When the composite

reliability score is greater than 0.70 and Cronbach's alpha is greater than 0.60, it indicates that the construct is reliable or meets the requirements. Based on the criteria in Table 1, the results show a good model fit index, which supports the reliability and validity of the measurement model. Indicating that the observed variables effectively capture the latent constructs of marketing capability, financial capability, coffee commodity performance, and value-added. The composite reliability value exceeded the recommended threshold of 0.7, indicating satisfactory internal consistency. In addition, the average variance extracted (AVE) value is above 0.5, which indicates convergent validity.

Tabel 2. Loading Factor Results

<i>second-order constructs</i>	<i>First-order constructs</i>	<i>Indicator</i>	<i>Loading Factor</i>
<i>Marketing Capability</i>	<i>Statistic Marketing</i>	<i>MCA.1</i>	<i>0.751</i>
		<i>MCA.2</i>	<i>0.908</i>
	<i>Dynamic Marketing</i>	<i>MCA.3</i>	<i>0.856</i>
		<i>MCA.4</i>	<i>0.743</i>
	<i>Customer Relationship</i>	<i>MCA.5</i>	<i>0.846</i>
		<i>MCA.6</i>	<i>0.908</i>
<i>Financial Capability</i>	<i>Financial Literacy</i>	<i>FCA.1</i>	<i>0.794</i>
		<i>FCA.2</i>	<i>0.856</i>
	<i>Financial Acces</i>	<i>FCA.3</i>	<i>0.830</i>
		<i>FCA.4</i>	<i>0.909</i>
	<i>Financial Functioning</i>	<i>FCA.5</i>	<i>0.853</i>
		<i>FCA.6</i>	<i>0.790</i>
<i>Performance</i>	<i>Profitability</i>	<i>PFO.1</i>	<i>0.820</i>
		<i>PFO.2</i>	<i>0.820</i>
		<i>PFO.3</i>	<i>0.829</i>
	<i>Sales Performance</i>	<i>PFO.4</i>	<i>0.730</i>
		<i>PFO.5</i>	<i>0.852</i>
		<i>PFO.6</i>	<i>0.785</i>
		<i>PFO.7</i>	<i>0.830</i>

Value Added	Efficiency	VAD.1	0.736
		VAD.2	0.757
		VAD.3	0.820
	Financial Performance	VAD.4	0.727
		VAD.5	0.845
		VAD.6	0.842
		VAD.7	0.781

Source: Results Process Data (2023)

Factor loadings were found to be significant, indicating that the observed variables effectively captured the latent constructs of marketing capability, financial capability, coffee commodity performance, and value-added.

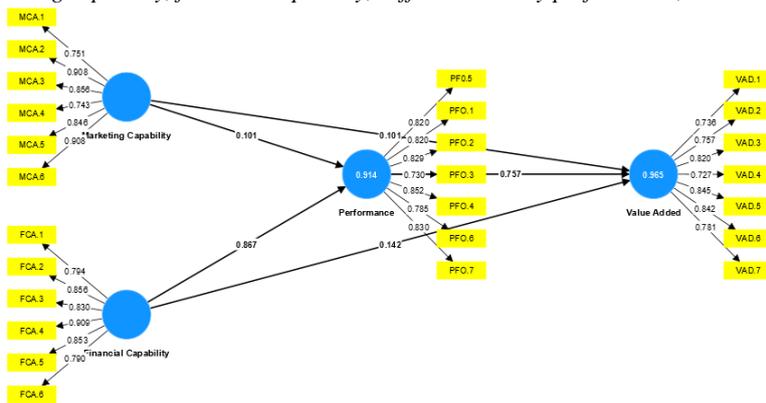


Figure 2. Model Research Contruks

SmartPLS-4 analysis revealed a suitable model for this project. The following are the model fit indices Table 2.

Table.3 Result Model

Model Measures	Value
R-Squared	
Performance	0.452
Value Added	0.513
Goodness-of-Fit (GOF)	0.3053
Q2	0.384

Source: Results Process Data (2023)

The findings of the inner model are examined in two steps, beginning with the intermediate model. (Hair et al., 2017) differentiate between first-order and second-order structures. The goal is to establish how much of the first-order construct's reflecting level and significant influence is reflected. Second-order structure. Second, evaluate the model in relation to structural models or second-order structures. The structural model is evaluated by comparing t-statistics at the 95% confidence level with t-tables or with a loading factor value of 1.96 for endogenous constructs. R square is defined as 0.67 (strong), 0.33 (moderate), and less than 0.19 (weak) by (Chin, 1998). The extent of the variance in the dependent variable (performance and value added) that can be explained by the independent variables (marketing capabilities and financial capabilities) is indicated by the R-squared value. In this case, these qualities explain 45.2% of the variance in performance development, while value added explains 51.3% of the variance.

An inner model analysis between second-order constructs was undertaken to ensure that a strong and proper structural model was constructed (Ghozali, 2014). A strong regression is used when the error data distribution is not normal or there are several outliers that harm the model (Jarvis et al., 2003). The inner-order construct inner model can be evaluated using a variety of measures, including the coefficient of determination (R²), predictive Relevance (Q²), and Goodness of Fit Index (GoF).

According to (Tenenhaus et al., 2005), a small GoF is 0.1, a moderate GoF is 0.25, and a big GoF is 0.38. The GoF metric evaluates the model's overall fit and demonstrates how well the model reproduces the covariance structure of the observed data. If the value obtained is 0.02 or less, the model has weak predictive power, according to (Jarvis et al., 2003). The Q² measure is a predictive accuracy metric that evaluates a model's ability to predict future data.

A. Bootstrapping

In the PLS SEM, which is a provision such as (Hair et al., 2017), the hypothesis is tested using a bootstrap process, which generates statistical results. The hypothesis is considered significant if the t-statistic value is greater than the t-statistic with a 95% confidence level (> 1.96). The SmartPLS-4 bootstrap software provided the results shown below. Meanwhile, estimate the loading factor at the original SmartPLS-4 sample output to determine how much influence each variable has. This is illustrated in the smartPLS-4 output route coefficient table. The path coefficients are shown in the table below.

Structural model analysis examined the relationships among marketing capability, financial capability, coffee commodity performance, and value-added. The results show the following significant findings:

Table 4. Results Bootstrap

<i>Hypothesis</i>	<i>Original Sample (O)</i>	<i>Sample Mean (M)</i>	<i>Standard Deviation (STDEV)</i>	<i>T-statistic</i>	<i>p-Values</i>
<i>Financial Capability -> Performance</i>	<i>0.867</i>	<i>0.863</i>	<i>0.058</i>	<i>14.947</i>	<i>0.000</i>
<i>Financial Capability -> Value Added</i>	<i>0.142</i>	<i>0.146</i>	<i>0.064</i>	<i>2.225</i>	<i>0.026</i>
<i>Marketing Capability -> Performance</i>	<i>0.126</i>	<i>0.116</i>	<i>0.053</i>	<i>2.004</i>	<i>0.012</i>
<i>Marketing Capability -> Value Added</i>	<i>0.101</i>	<i>0.089</i>	<i>0.050</i>	<i>2.017</i>	<i>0.044</i>
<i>Performance -> Value Added</i>	<i>0.757</i>	<i>0.765</i>	<i>0.066</i>	<i>11.550</i>	<i>0.000</i>

Source: Results Process Data (2023)

Path analysis showed a positive and significant relationship between marketing capability and coffee commodity performance (t = 14.947, p < 0.000). This suggests that higher levels of marketing capability are associated with improved coffee commodity performance in Kerinci Regency. Analysis showed a positive and significant relationship between financial capability and coffee commodity performance (t = 2.225, p < 0.026). This suggests that stronger financial capability is associated with improved coffee commodity performance. The results showed a positive and significant relationship between marketing capability and value-added (t = 2.004, p

< 0.012). This implies that organizations with higher marketing capabilities are more likely to achieve increased value-added in coffee commodities. The analysis showed a positive and significant relationship between financial capability and value-added ($t = 2.017$, $p < 0.044$). This suggests that organizations with better financial capability are more likely to generate higher value-added in coffee commodities. In addition, Performance is significantly related to value added where the t -value = 11.550 and p -values are 0.00.

B. Discussion

The findings of this study provide valuable insights into the influence of marketing capability and financial capability on improving coffee commodity performance and its implications for value-added in Kerinci Regency. The results confirm that marketing capability and financial capability significantly influence the performance and value-added of coffee commodities.

The positive relationship between marketing capability and coffee commodity performance highlights the importance of effective marketing strategies, branding, market research, and distribution channels in improving coffee commodity performance. Organizations with higher marketing capabilities are better equipped to understand consumer preferences, position their products effectively, and meet market demands. This, in turn, leads to improved coffee commodity performance and higher added value. In line with previous research, the relationship between marketing capabilities and performance is significant, and has a considerable impact on value-added, particularly in the coffee industry. Marketing capabilities, including digital marketing, customer relationship management, and sustainable practices, can improve business performance and create added value for customers and stakeholders (Lin et al., 2015; Nuseir & Refae, 2022). In the context of the coffee industry, sustainable practices such as waste treatment, energy saving, and water conservation can positively influence customer perceptions of a brand's sustainability image (Lin et al., 2015). For example, valorization of coffee processing waste by producing high-value-added products, such as fatty acids, can reduce environmental impact and increase the profitability of the coffee industry (Montoya et al., 2019). In addition, digital marketing capabilities have been shown to significantly impact the improvement of business performance in various sectors (Nuseir & Refae, 2022). In the case of the coffee industry, effective digital marketing strategies can help businesses reach a wider audience, increase customer engagement, and ultimately improve their overall performance. The dynamic relationship between marketing capabilities and firm performance found that changes in marketing capabilities over time are positively related to changes in firm performance (Ding et al., 2021). This suggests that investing in marketing capabilities can improve performance in the long run. In summary, the relationship between marketing capabilities and performance is significant, especially in the coffee industry. By focusing on sustainable practices, digital marketing, and continuous improvement of marketing capabilities, coffee businesses can improve their performance and create added value for their customers and stakeholders (Cao, 2022; Ding et al., 2021; Lin et al., 2015; Montoya et al., 2019; Nuseir & Refae, 2022).

Similarly, the positive relationship between financial capability and coffee commodity performance indicates the importance of financial resources, financial planning, investment decisions, and financial performance evaluation in driving coffee commodity performance. Organizations with stronger financial capabilities can invest in quality control measures, state-of-the-art processing facilities, and market expansion initiatives, leading to improved performance and increased added value (Stofya, 2023; Syofya, 2022). This is in line with previous research, The relationship between financial capability and performance is significant, and has a considerable impact on value-added in various industries, including the coffee industry. Financial capability can influence a firm's ability to manage its resources efficiently, invest in growth opportunities, and maintain a competitive advantage in the market (García et al., 2017; Yorulmaz & Birgün, 2017). In the coffee industry, financial capability plays an important role in determining the success of companies such as Starbucks and Luckin Coffee (Cao, 2022; Wu, 2022). In the context of the coffee industry, financial capability can impact various aspects of performance, such as liquidity risk and financing capacity (Xinyue et al., 2022). For example, Starbucks, a representative of the coffee industry, has successfully secured development opportunities by leveraging its financial capabilities during the COVID-19 pandemic (Xinyue et al., 2022). This demonstrates the importance of financial capabilities in navigating challenging market conditions and ensuring sustainable growth of the coffee industry. In conclusion, financial capabilities play an important role in determining the performance and added value of businesses in various industries, including the coffee industry. Companies with strong financial capabilities can better manage their resources, invest in growth opportunities, and maintain a competitive advantage in the market, which ultimately leads to improved performance and added value.

IV. CONCLUSION

A. Implications

The results of this study have significant implications for the coffee industry in Kerinci Regency. Organizations should prioritize developing marketing capabilities, including market research, branding, and effective distribution channels, to improve coffee commodity performance and generate higher value-added. Similarly, strengthening financial capabilities through prudent financial planning, investment decisions, and evaluation of financial performance can contribute to improved performance and added value of coffee commodities. Collaboration between coffee industry stakeholders, such as farmers, processors, exporters, and government officials, is essential to collectively develop and implement strategies that promote marketability and financial capability in the Kerinci region.

B. Limitations and Future Research Directions

While this research provides valuable insights, it is important to recognize its limitations. First, the study was conducted within a specific geographical context (Kerinci Regency), which may limit the generalizability of the findings to other regions. Second, the study relied on self-reported data, which may introduce response bias. Third, the study used a cross-sectional design, which captures a picture of the relationship at a specific point in time. Despite these limitations, these findings contribute to the existing literature on the coffee industry by shedding light on the important role of marketing capability and financial capability in improving coffee commodity performance and generating added value. The practical implications and recommendations derived from this study can guide coffee industry stakeholders in Kerinci Regency and beyond in their efforts to improve performance and create value along the coffee value chain.

C. Conclusion

In conclusion, this research study examined the effect of marketing capability and financial capability on improving coffee commodity performance and its implications for added value in Kerinci Regency. The findings of the study provide valuable insights into the relationships between these variables and their significance in the context of the coffee industry.

The results highlight the positive impact of marketing capability on coffee commodity performance and added value. Organizations with higher marketing capability, including effective marketing strategies, branding, market research, and distribution channels, are more likely to achieve improved coffee commodity performance and increased added value. Similarly, the study revealed a positive relationship between financial capability and coffee commodity performance. Organizations with stronger financial capability, including financial resources, planning, investment decisions, and performance evaluation, are better positioned to enhance coffee commodity performance and generate higher added value.

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Sorghum Sticks (*Sorghum bicolor*) with Added Protein Source: Dumbo Catfish Meal (*Clarias gariepinus*)

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ABSTRACT

Purpose: The study aims to determine the combination of selected treatments in the proportion of sorghum flour: wheat and the amount of dumbo catfish meal and the financial feasibility of the sorghum stick business.

Design/methodology/approach: The study used a Group Randomized Design (RAK) factorial pattern with factor (P) proportion of sorghum flour: wheat (P1 = 25:75, P2 = 50:50, and P3 = 75:25) and factor (K) concentration of dumbo catfish meal (K1 = 20% and K2 = 30%), with three repeats. Observations in the study include analysis of protein, fat, water, ash, total and carbohydrate levels, yield tests, developmental tests, and organoleptic tests, including preferences for colour, aroma, taste, crispness, and texture. Data processing of protein, fat, water, ash, carbohydrate, yield, and growth values is analyzed using fingerprints (ANOVA). If there is a fundamental difference, it will be continued with the Duncan test with a confidence level of 95%. Organoleptic test data uses the Friedman test. Alternative selection is done to determine the selected treatment using the Expected Value method. The Weight test method is carried out to determine the importance of the weight of each parameter. The financial feasibility of the sorghum stick business in this study uses the BEP (Break Even Point), NPV (Net Present Value), IRR (Internal Rate of Return), and PP (Payback Period) methods.

Findings: Based on the study's results, the P1K2 treatment (proportion of sorghum flour: wheat flour 40:60 and dumbo catfish flour concentration 30%) became the selected treatment with an expectation value of 8.20. This treatment yields 74.92%, water content 12.59%, ash content 3.65%, protein content 8.99%, fat content 19.49%, carbohydrate content 55.28%, and development power 95.58%. It has a total percentage of liking for colour 96.7%, aroma 94.5%, taste 88.9%, and texture 98.9%. The results of the financial analysis of sorghum sticks are worthy of development, with BEP parameters of 20,623 packs equivalent to IDR 408,294,154.00, NPV of IDR 116,980,531.71, IRR reaching 17.79%, PP 3 years 3 months.

Research limitations/implications: This research is specifically for the development of a sorghum stick product entrepreneurial with Added Protein Source: Dumbo Catfish Meal (*Clarias gariepinus*)

Practical implications: The development of sorghum-based entrepreneurship products must continue to be promoted to continue to support food security

Originality/value: This paper is original

Paper type: Research paper

Keywords: *Sorghum sticks, catfish meal dumbo, Protein sources, Selected treatment, and Financial Feasibility.*

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I. INTRODUCTION

Sticks are one type of snack that people like. One of the ingredients that can be used is sorghum. As a local food ingredient, the nutritional value of sorghum contains protein (8-12%) equivalent to wheat or higher than rice (6-10%), and its fat content (2-6%) is higher than rice (0.5-1.5%). Sorghum is rich in fibre, gluten-free, antioxidants, and contains tannins (Khoddami et al. 2023).

According to the Indonesian National Standard (SNI) No. 01-2713-2000, the quality standard for stick products for protein is at least 5%. Sticks should contain enough protein apart from being a snack. One way to

increase protein sticks is to add foods with a high protein content, including fishmeal. Fishmeal is a solid product produced by removing water and fat from fish. Fishmeal contains protein, minerals, and B vitamins; High-quality fishmeal contains 6 -10% water, 5 - 12% fat, 60 -75% protein, and 10 - 20% ash. One type of fish that can be used as a fish meal is "dumbo" catfish (*Clarias gariepinus*), a freshwater aquaculture fish in great demand by the public. Currently, the national production of African catfish continues to increase every year. The protein content of "dumbo" catfish per 100 g is 18.2% which is higher than the protein content of grouper at 16.97%, red snapper at 17.82%, carp at 14.61%, snakehead fish at 17.61%, and blanket squid at 16.31%. The meat will be easily damaged by the relatively high water content of "dumbo" catfish, 78.1%. Processing is needed to minimize damage, namely by processing it into flour (Ismiana, Setiyoko, and Slamet 2023).

In addition, catfish flour contains a lot of essential amino acids (amino acids that cannot be produced in the body). Processed catfish oil has a relatively good fatty acid profile because it contains 22.65% oleic (C18:1) fatty acids, 17.79% linoleic (C18:2) fatty acids, 1.21% linolenic (C18:3) fatty acids, EPA 0.57%, and DHA 3.51%. Also, fish oil from freshwater (catfish, cork, and gold) can be a source of omega-6 fatty acids. In addition, oleic fatty acids (omega 9) also provide health benefits if consumed. Seeing the many potentials of sorghum and the advantages of catfish compared to other types of fish, it is necessary to research making sticks, which aims to diversify food by substituting wheat flour with sorghum flour and adding catfish flour as a protein source to stick products (Ayundra Putri et al. 2022).

II. METHODS

This study used a factorial pattern Group Randomized Design (GRD) with a proportion factor of sorghum flour: wheat flour (P) and dumbo catfish meal concentration (K) (Pszczółkowski et al. 2023). Each level is repeated three times, and the design of this study is presented in Table 1.

Table 1. Main Research Design

<i>Dumbo Catfish Meal Concentration (K)</i>	<i>Proportion of Sorghum Flour: Wheat</i>		
	<i>P1 = (40%:60%)</i>	<i>P2 = (50%:50%)</i>	<i>P3 = (60%:40%)</i>
<i>K1 = 20%</i>	<i>P1K1</i>	<i>P2K1</i>	<i>P3K1</i>
<i>K2 = 30%</i>	<i>P1K2</i>	<i>P2K2</i>	<i>P3K2</i>

Tests are carried out to measure the quality of sticks sorghum. These tests include yield, chemical/proximate, expandability, and organoleptic tests. The resulting data will be tested statistically using SPSS 16.0 software. The data is analyzed using a variety of fingerprints (ANOVA); if there is a noticeable difference, it will be continued with the Duncan test. The Duncan test was conducted to determine the differences in each treatment with a confidence level of 95%. Organoleptic test data is non-parametric, so data processing will be calculated using Descriptive and Friedman tests. The selection of alternatives is carried out to choose the best treatment from several existing treatments. Decision-making is a process of systematically selecting the best treatment. Determination of the best / selected treatment using the Expected Value method is a weighted average of all possible outcomes where the weight is the probability value associated with each outcome (Junianto et al. 2023).

Meanwhile, to determine the importance and weight of each parameter, a Weight Test was carried out on each parameter by giving a questionnaire to the panellists. The Weight test method is carried out to determine the importance of the weight of each parameter. The financial feasibility of the sorghum stick business in this study uses the BEP (Break Even Point), NPV (Net Present Value), IRR (Internal Rate of Return), and PP (Payback Period) methods (Wulansari et al. 2023).

III. RESULTS AND DISCUSSION

The test results of yield, water content, ash content, fat content, carbohydrate content, protein content, and growing power content are presented in Figure 1-4 as follows:

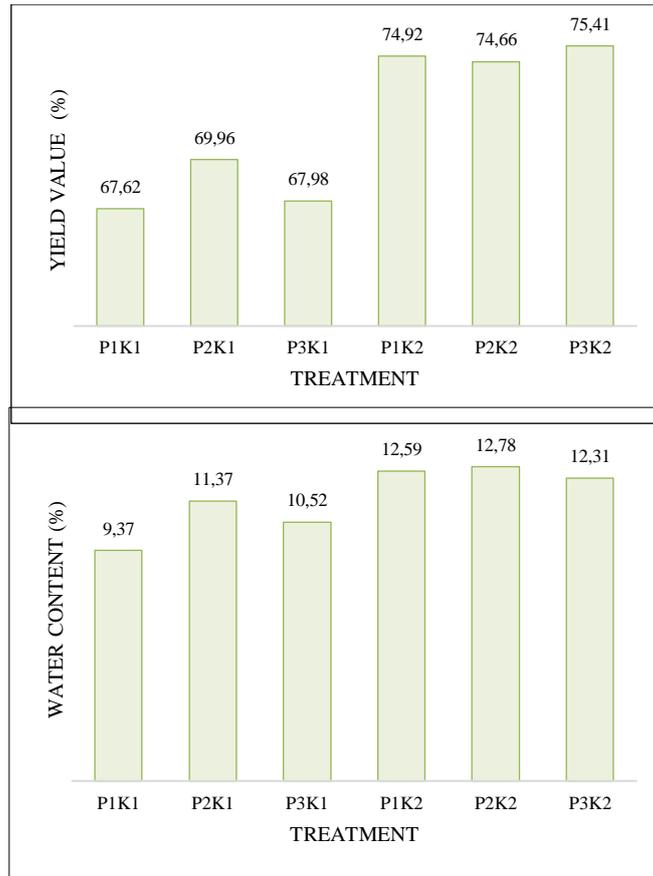


Figure 1. Sorghum Stick Yield Value and Water Content

Table 2. Duncan Test Results of Sorghum Stick

Dumbo Catfish Flour Concentration	Yield (%)	Water Content (%)
K1 (20%)	68.52±STD (b)	10.42 ±STD (a)
K2 (30%)	75.00±STD (a)	12.56±STD (b)

Description: Different notations in the same column indicate significant

Figures 1 and 1 show that the yield observations showed that there was no interaction between treatments, besides that the proportion of sorghum:wheat flour (P) had no significant effect on the yield of sorghum sticks with F count (0.129) < F table (4.10). Meanwhile, the concentration of African catfish flour (K) had a significant effect on the yield of sorghum sticks with Fcount (14.688) > Ftable (4.96), and then Duncan's test was carried out (Wulansari et al. 2023). In observing the water content, it was found that there was no interaction between treatments, besides that the proportion of sorghum:wheat flour (P) did not significantly affect the moisture content of sorghum sticks with F count (0.540) < F table (4.10). Meanwhile, the concentration of African catfish flour (K) had a significant effect on the moisture content of sorghum sticks with Fcount (6.114) > Ftable (4.96), and then Duncan's test was carried out (George et al. 2023; Yadav et al. 2023).

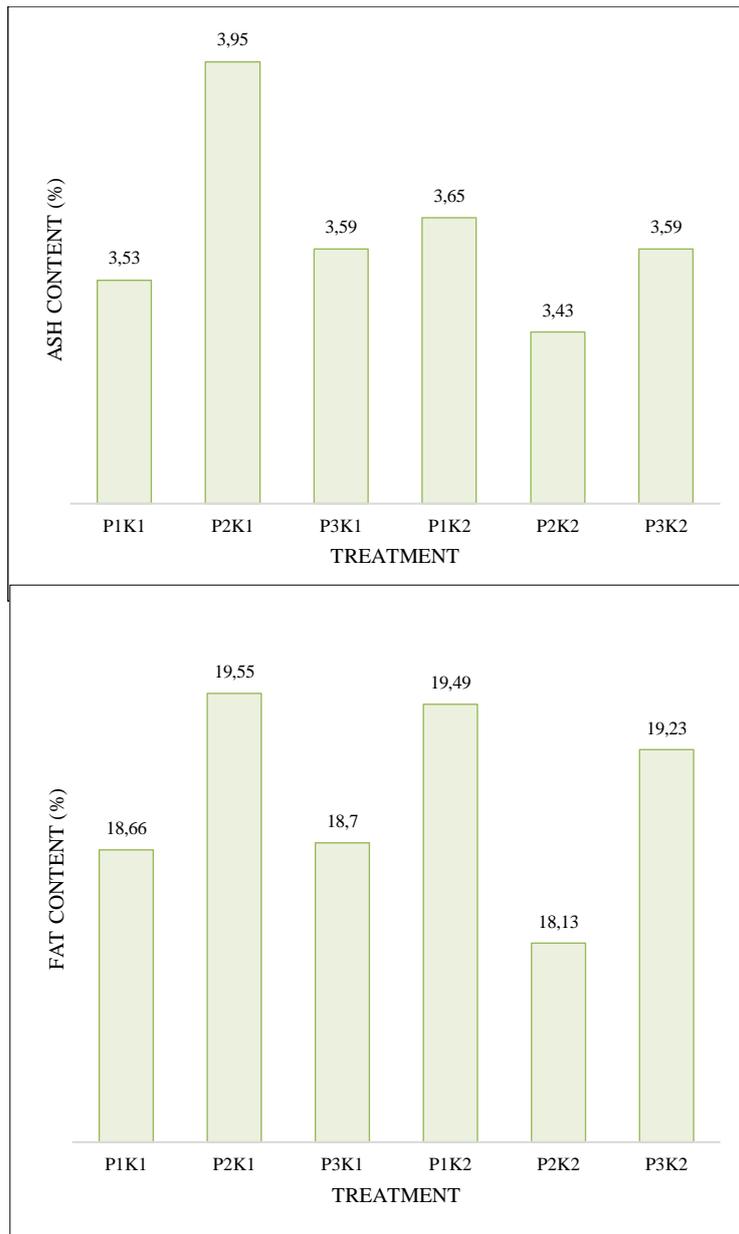


Figure 2. Sorghum Stick Ash and Fat Content

Figure 2 shows that the observation of ash content showed no interaction between treatments. Also, the proportion of sorghum: wheat flour (P) did not significantly affect the ash content with F count (0.027) < F table (4.10), and African catfish flour concentration (K) had no significant effect on the ash content of sorghum sticks with F count (0.110) < F table (4.96) (Yadav et al. 2023). Observation of fat content showed that there was no interaction between treatments. Also, the proportion of sorghum:wheat flour (P) did not significantly affect the fat content with a calculated F count (0.005) < F table (4.10), and the concentration of African catfish flour (K) had no significant effect on the fat content of sorghum sticks, with a calculated F count (0.010) < F table (4.96) (Parmar et al. 2022; Yadav et al. 2023).



Figure 3. Sorghum Stick Protein, Carbohydrate Content, and Growing Power

Table 2. Duncan Test Results of Sorghum Stick

Dumbo Catfish	Protein Content (%)	Growing Power (%)
<i>Flour Concentration</i>		
K1 (20%)	6.41 ± STD (b)	125.94 ± STD (a)
K2 (30%)	8.80 ± STD (a)	104.03 ± STD (b)

Description: Different notations in the same column indicate significant

Figure 3 and Table 2 show that the observed protein content showed no interaction between treatments. Besides, the proportion of sorghum flour: wheat (P) did not significantly affect the protein content of sorghum sticks. While the concentration of dumbo catfish flour (K) significantly affected the protein content of sorghum sticks with F count (2.918) < F table (4.96). The calculated F value of the proportion factor of sorghum: wheat flour (P) was shown, namely F count (6,984) > F table (4.96), and then Duncan's test was carried out (Syamsuar, Ghaffar, and Erna 2023). Observation of carbohydrate content resulted in no interaction between treatments. The sorghum: wheat flour (P) proportion did not significantly affect carbohydrate content, and the concentration of Dumbo catfish flour (K) had no significant effect on the carbohydrate content of sorghum sticks with F count (2.918) < F table (4.96). While the observation on Growing Power showed no interaction between treatments, the proportion of sorghum: wheat flour (P) did not significantly affect the growing power level of sorghum sticks. Meanwhile, the concentration of Dumbo catfish flour (K) had a significant effect on the Growing Power of sorghum sticks with F Count (6.439) > Ftable (4.96), and then Duncan's test was carried out (Afiyah and Sarbini 2021).

Table 3. Friedman Test of Organoleptic Test Sorghum Stick

<i>Test Statistics</i>				
	<i>Taste</i>	<i>Colour</i>	<i>Falvor</i>	<i>Texture</i>
<i>N</i>	90	90	90	90
<i>Chi-Square</i>	14.931	43.881	18.070	53.480
<i>Df</i>	5	5	5	5
<i>Asymp. Sig.</i>	.011	.000	.003	.000

a. Friedman Test

Table 3 shows that χ^2 count (43,881) > χ^2 table (11.07), then the proportion of sorghum: wheat flour and the concentration of Dumbo catfish flour have a significant effect on the colour of the sorghum sticks. There is a significant effect between the proportion of sorghum: wheat flour and the concentration of Dumbo catfish flour on the flavour of sorghum sticks, shown by χ^2 count (18.070) > χ^2 table (11.07). Based on χ^2 count (14,931) > χ^2 table (11.07), the proportion of sorghum: wheat flour and the concentration of African catfish flour significantly affect the taste of sorghum sticks. There is a significant effect between the proportion of sorghum: wheat flour and the concentration of Dumbo catfish flour on the texture of sorghum sticks, shown χ^2 count (53.480) > χ^2 table (11.07) (Ella, Yuwana, and Silsia 2023; Mutaqqien et al. 2023; Naimah, Ulilalbab, and Suprihartini 2023).

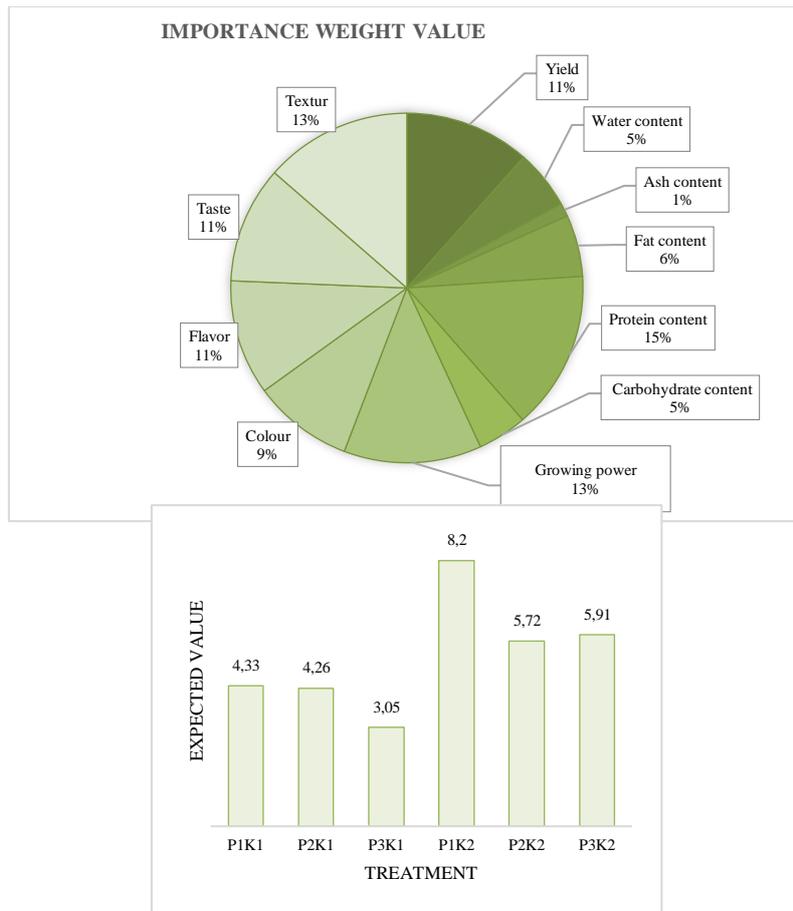


Figure 4. Sorghum Stick Importance Weight Value and Expected Value

Figure 4 shows that the highest importance of sorghum sticks is protein content, followed by texture, swelling, yield, taste, flavour, colour, fat content, moisture content, carbohydrate content, and ash content (Abreu, Lima, and Rocha 2023; Jimenez-Champi et al. 2023). Meanwhile, the highest expected value was 8.2 in the P1K2 treatment and was the chosen treatment, namely the treatment between the proportion of sorghum flour: 40:60 wheat flour and 30% dumbo catfish flour concentration. This treatment yields 74.92%, water content 12.59%, ash content 3.65%, protein content 8.99%, fat content 19.49%, carbohydrate content 55.28%, and development power 95.58%. It has a total percentage of liking for colour 96.7%, flavor 94.5%, taste 88.9%, and texture 98.9% (Errico et al. 2023; Quintieri et al. 2023; Soares Mateus et al. 2023).

The results of the financial analysis of sorghum sticks are worthy of development, with BEP parameters of 20,623 packs equivalent to IDR 408,294,154.00, NPV of IDR 116,980,531.71, IRR reaching 17.79%, PP 3 years 3 months.

IV. CONCLUSION

Based on the study's results, the P1K2 treatment (proportion of sorghum flour: wheat flour 40:60 and dumbo catfish flour concentration 30%) became the selected treatment with an expectation value of 8.20. This treatment yields 74.92%, water content 12.59%, ash content 3.65%, protein content 8.99%, fat content 19.49%, carbohydrate content 55.28%, and development power 95.58%. It has a total percentage of liking for colour 96.7%, aroma 94.5%, taste 88.9%, and texture 98.9%. The results of the financial analysis of sorghum sticks are worthy of development, with BEP parameters of 20,623 packs equivalent to IDR 408,294,154.00, NPV of IDR 116,980,531.71, IRR reaching 17.79%, PP 3 years 3 months.

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Analysis of the Effect of U-Turn Access Closure on the Performance of Gajah Mada Road, Batam Indonesia

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ABSTRACT

Purpose: Gajah Mada Road, Batam Taman Kota area is a primary collector road 1 that has a U-Turn and dense current if passed by motorists on weekdays in the afternoon. This study aims to analyze road performance due to the closure and opening of U-Turn access.

Design/methodology/approach: The research method used systematic observation is carried out on Mondays and Fridays (weekdays when the U-Turn is closed and opens) at 17.15 - 18.00 WIB in MKJI 1997.

Findings: The volume of vehicles and the average speed of vehicles passing when the U-Turn is closed is higher compared to the U-Turn is opened. Meanwhile, the level of road service (LoS) is classified as good because of the stable current and normal volume even though the vehicle speed is limited and affected by traffic.

Research limitations/implications: The U-Turn closure policy is believed to be a solution to reducing vehicle congestion.

Practical implications: Vehicle buildup factors due to U-Turn access are the main factors hampering road performance.

Originality/value: This paper is an original work.

Paper type: Research papers.

Keywords: Access, U-Turn, Road Performance

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I. INTRODUCTION

Transportation is a very important means of human survival (Andika et al., 2022). Transportation is the greatest need of mankind because it is related to the economy, personal travel, trade, fulfillment of needs, and much more (Garber & Hoel, 2019). The tendency of human beings to often move from one place to another or mobilize is one of the main factors in the importance of the existence and usefulness of the means of transportation (Mufhidin et al., 2022). Mobilization is an attempt to move people or some people to carry out an activity by most individuals themselves (Rogers et al., 2018). Over time, many developing countries in the world such as the Netherlands, Japan, and Malaysia encourage the need for infrastructure facilities, especially highways (Shahu et al., 2020). Highways became the most important means of mobilization used by land transport to travel from one place to its destination. The purpose of building a highway is so that people in an area can mobilize easily.

In Indonesia, the level of population mobilization from year to year has increased significantly. Throughout 2021, Indonesia's population mobility rate was recorded at 6,577,916 times the events of moving and coming to an area (Directorate General of Population and Civil Registration, 2022). This data proves that Indonesia is one of the countries with the largest population in the world. The most important factor that becomes the success of population mobilization is the facilities and facilities used, one of which is the highway. A good highway will

provide a sense of security and comfort to motorists to get to their destination. However, the increasing population in Indonesia, has also caused an increase in road users. This is one of the problems due to the volume of highways that are no longer able to accommodate many vehicles.

One of the regions in Indonesia that has the largest population is Batam City. Batam City is one of the cities located in the Riau Islands Province and is also one of the industrial cities so its daily industrial activities are quite dense. It is proven that in 2021, Batam City contributed 63.97% to the Gross Regional Domestic Product of Riau Islands Province (BP Batam, 2022). One example of industrial activity in Batam City is the mobilization of heavy vehicles such as trucks. This is one of the obstacles to traffic in Batam City considering that the available road sections are not enough to accommodate various kinds of vehicles. The volume of vehicles in Batam City will increase if the effective time works such as departure in the morning and return in the afternoon. This causes road performance bottlenecks that cannot be avoided every day.

Hampered road performance can be interpreted as a condition when the travel flow on a road is not smooth or hampered due to various things such as small road sections, heavy vehicles passing by, accident tragedies, and so on (Albalate & Fageda, 2019). One of the bad points of road performance in Batam City is Gajah Mada Road, Batam City Park area to the Tiban area. This can happen due to narrow road sections as well as a very large volume of vehicles. Road performance problems in this area occur because motorists from the Tiban and Baloi's directions are very congested so the smooth running of the journey in both directions is hampered. In addition, one of the factors that cause poor road performance to be unavoidable is the traffic sign policy that applies to the area.

Traffic signs are a policy of disciplining road users so that traffic flow can run well. Traffic signs are an important means of communicating with each other, controlling traffic, and safety between drivers (Ben-Bassat et al., 2019). Classification of traffic signs is indispensable for drivers. One of the success factors in classifying traffic signs is the visual appearance to make them easy to understand by road users (Serna & Ruichek, 2018). The existence of traffic signs that should be able to bring order to motorists is one of the factors obstructing road performance in this area. One of the traffic signs in this area that is the cause of the constraints on the flow of road performance is the U-Turn. A U-Turn is a traffic sign that allows traffic movement from two opposite directions (Al-Obaedi, 2019). The existence of U-Turn greatly interferes with the smooth flow of vehicles due to the congested road so motorists who want to turn around have to wait for space so that they can walk. This is what causes the rear driver to have to wait so that there is a buildup in the volume of the vehicle.

Therefore, the police as the party responsible for the smooth flow of traffic issued a temporary policy if congestion occurs in the City Park area. The policy was implemented by closing U-Turn access in the area around City Park so that no motorists would turn around. This can reduce vehicle buildup due to waiting for motorists to access the U-Turn. Motorists can reverse directions on the Gajah Mada Road U-Turn. However, the volume of vehicles in the area is also dense, so this policy reaps pros and cons from some road users. The purpose of this study is to analyze road performance related to policies imposed on U-Turn access closures and the level of effectiveness of these policies.

A. Literature Review

1. U-turn

Traffic signs are a policy that is regulated and compiled in such a way as to regulate road users so that road performance in certain areas can run well. The purpose of traffic signs is to give an overall signal regarding traffic to road users (Babić et al., 2017). Good traffic signs will provide understanding to motorists to determine the level of safety of road users. However, the level of safety also depends on the driver driving his vehicle (Kaplan et al., 2018). The effectiveness of traffic signs is an important role in reducing the number of accidents in population mobility (Wang et al., 2021).

The traffic sign policy that serves as a lane change for road riders by turning vehicles up to 180 degrees is called a U-Turn. One of the weaknesses of U-Turn is that road user who wants to detour in their direction receive a small gap for their movement. So this can cause obstacles to road performance conditions (Pannela & Bhuyan, 2017). The placement of traffic signs greatly affects road performance and traffic management on a road (Konushin et al., 2021). Improper placement of traffic signs can be a major obstacle to smooth road performance. The placement he U-Turn policy should be placed on a fairly wide section of the road. This aims to prevent excessive vehicle buildup (Purnamasari, 2019).

B. Road Performance

The highway became the main medium used to mobilize vehicles from one place to another. The road is certainly used by a variety of vehicles ranging from two-wheeled vehicles, four-wheeled vehicles, and even heavy vehicles (Science, 2018). One of the factors that factor in the good and smooth performance of the road in certain areas is the volume and type of vehicles passing by (He et al., 2020). In addition, it must also be adjusted to the time, the volume of road sections, and traffic sign policies (Rao et al., 2017). Smooth and good road performance

will greatly determine the welfare of road users. Good road performance will certainly provide a sense of security and comfort for motorists (Albalate & Fageda, 2019).

Road performance can be interpreted as how road conditions work for road users with some of their parameters. Parameters related to road performance are road sections and road flows. The problem of road performance bottlenecks must be something that must be considered by various parties. Another potential that will be problem with road performance is the increasing number of residents which will increase the number of vehicle owners so that the number of road users passing by will increase (Agyapong & Ojo, 2018).

C. Traffic Management

Traffic is one of the basic needs needed by humans because they tend to move from one place to another to meet their needs (Javed et al., 2020). Good traffic, of course, must have good management as well. This is one of the factors for the high number of accidents and deaths on the road (Soehodho, 2017). According to the Regulation of the Minister of Transportation of the Republic of Indonesia KM 14 of 2006, traffic management and engineering is an optimization activity in the use of the entire road network that aims to improve safety, create order, and smooth traffic flow.

Traffic management is one of the factors that can determine the success of motorists in using the road. Traffic cannot be used in the absence of clear management governing and binding road users (Blagojević et al., 2021). Traffic management policies have certainly been considered with road conditions for their application to be effective. Traffic management at a location is very necessary because it concerns the effectiveness and time efficiency of road users. Therefore, traffic management policies include setup, installation, procurement, and planning. This policy certainly aims to provide safety, security, order, and smooth traffic flow in a certain area (Rehena & Janssen, 2018).

II. METHODS

This research uses quantitative methods and systematic observations in the field for data collection based on the MKJI 1997. Data is one of the main strengths in compiling scientific research and modeling (Rifai et al., 2015). Data and information collection is carried out on Gajah Mada Road, Batam City Park area on Mondays and Fridays (weekdays when the U-Turn is closed and opened) at 17.15 - 18.00 WIB by identifying road performance to obtain the required parameter data. The process of systematic scientific research must begin with the identification of appropriate problems (Rifai et al., 2016).

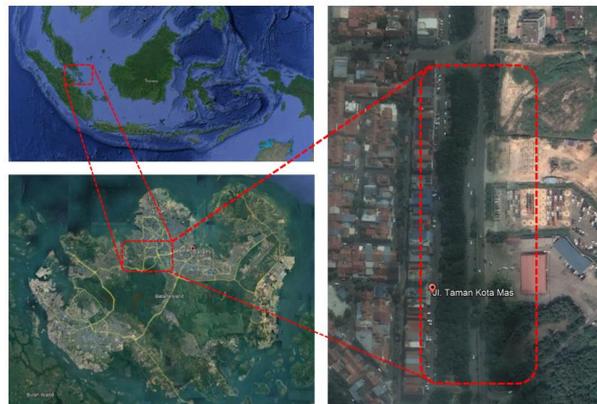


Figure 1 - Research Location on Gajah Mada Road, Batam (Google Earth, 2022)

Information that has been obtained from a case study on Gajah Mada Road, Batam, Taman Kota area will be used as a source of data regarding the consequences caused by the U-Turn access closure policy. The policy will also review the level of road service (LoS). In addition, the data obtained, will be studied whether the policy is the right step in reducing the level of vehicle density. Several parameters are used as a reference in obtaining data to draw the following conclusions.

The calculation of vehicle volume is carried out on weekdays, namely Monday (when the U-Turn is closed) and Friday (when the U-Turn is opened) at the same time at 17.15 - 18.00 WIB. Vehicle type data analyzed in traffic volume calculations include motorcycle (MC), light vehicle (LV), and heavy vehicle (HV). Data analysis was also carried out by calculating vehicles passing from the direction of Baloi towards Tiban and Tiban towards

Baloi. According to the Presidential Regulation of the Republic of Indonesia Number 87 of 2011 concerning the Spatial Plan for the Batam, Bintan, and Karimun Areas in Article 22 Paragraph (2) states that Gajah Mada Road, Batam is a primary collector road 1 or a road that connects the national activity center with the center of local activities and/or regional activities or between regional activities and local activities.



Figure 2 - Closure of U-Turn Gajah Mada Road, Batam (Observation Results, 2022)

Road capacity is a measure used to accommodate the adequacy and quality of the level of road service (Directorate General of Highways, 1997). The analysis of road capacity in Gajah Mada, Batam is guided by the 1997 MKJI which aims to assess and draw conclusions on the road in accommodating the capacity of passing vehicles. Considering Jalan Gajah Mada, Batam City Park area is often traversed by motorists because it connects the Tiban area where the majority of people live in the area. Road capacity can also be one of the parameters that is an assessment of the policy of the effect of U-Turn access closures on this area.

The calculation of the degree of saturation (DS) aims to see the ratio of the accuracy of certain roads traveled by vehicles (Directorate General of Highways, 1997). According to the 1997 MKJI guidelines, these data are used to determine the level of performance of intersections and road segments. The value of the degree of saturation is closely related to the level of road service (LoS). Road service level (LoS) is a measure used in the 1985 US-HCM to view and assess speed, travel time, freedom of movement, traffic interruptions, comfort, and safety (Directorate General of Highways, 1997). From this data, of course, it will be known regarding the level of effectiveness of the effect of U-Turn closure because it is an indispensable parameter to draw conclusions.



Figure 3 - Opening of U-Turn Gajah Mada Road, Batam (Observation Results, 2022)

In addition to some of the parameters above, there are several other parameters that can be one of the assessments of the U-Turn access closure policy research, namely speed. Free current speed (FV) can be interpreted as the speed of a road user if driving a light vehicle without being influenced by other motorists (Directorate General of Highways, 1997). This data will be a comparison between the speed that a passing vehicle has when the U-Turn access is closed and opened. The effectiveness of this policy can also be measured from the speed of passing vehicles by looking at data on the average speed of vehicles of various types such as two-wheeled vehicles (MC), four-wheeled vehicles (LV), and more than four-wheeled vehicles (HV) when U-Turn access is closed and opened.

III. RESULTS AND DISCUSSION

The data obtained in systematic observations on Gajah Mada Road, Batam in the Taman Kota area on Mondays and Fridays (weekdays when the U-Turn is closed and opened) at 17.15 - 18.00 WIB is processed based on the MKJI 1997. Some of the parameters studied include the following.

A. Traffic Volume

Traffic volume was found in data from the number of vehicles passing on Gajah Mada Road, Batam, Taman Kota area. The type of road contained in the case study is four lanes divided into 2 directions (4/2 D) with the total current in both directions exceeding 1800 vehicles per hour based on table 1 so that the vehicle equivalent factor according to the MKJI 1997 document is classified as a motorcycle (MC) = 0.25; light vehicle (LV) = 1.0; and heavy vehicle (HV) = 1.2.

Table 1 - Traffic volume when the U-Turn is closed (Source: Observation Results, 2022)

<i>Baloi's direction toward Tiban</i>			
<i>Time</i>	<i>Type</i>		
	<i>MC</i>	<i>LV</i>	<i>HV</i>
<i>17.15 - 17.30</i>	<i>1059</i>	<i>459</i>	<i>5</i>
<i>17.30 - 17.45</i>	<i>841</i>	<i>464</i>	<i>13</i>
<i>17.45 - 18.00</i>	<i>811</i>	<i>453</i>	<i>6</i>
<i>Total</i>	<i>2711</i>	<i>1376</i>	<i>24</i>
<i>smp/hour</i>	<i>677,75</i>	<i>1376</i>	<i>28,8</i>
<i>Total smp/hour</i>	<i>2082,55</i>		
<i>Tiban direction toward Baloi</i>			
<i>Time</i>	<i>Type</i>		
	<i>MC</i>	<i>LV</i>	<i>HV</i>
<i>17.15 - 17.30</i>	<i>328</i>	<i>167</i>	<i>12</i>
<i>17.30 - 17.45</i>	<i>321</i>	<i>159</i>	<i>9</i>
<i>17.45 - 18.00</i>	<i>341</i>	<i>189</i>	<i>14</i>
<i>Total</i>	<i>990</i>	<i>515</i>	<i>35</i>
<i>smp/hour</i>	<i>247,5</i>	<i>515</i>	<i>42</i>
<i>Total smp/hour</i>	<i>804,5</i>		

When viewed from table 1, it can be seen that the number of motorcyclists (MC) who pass is quite high at 17.15 - 17.30 WIB while for the high number of light vehicle riders (LV) and heavy vehicles (HV) passing by occurs at 17.30 - 18.00 WIB. To compare with the degree of effectiveness of road performance can be compared with table 2 on the data of vehicles passing by at the time the U-Turn was opened as follows.

Table 2 - Traffic volume when the U-Turn is opened (Source: Observation Results, 2022)

<i>Baloi direction toward Tiban</i>			
<i>Time</i>	<i>Type</i>		
	<i>MC</i>	<i>LV</i>	<i>HV</i>
<i>17.15 - 17.30</i>	<i>887</i>	<i>405</i>	<i>4</i>
<i>17.30 - 17.45</i>	<i>602</i>	<i>407</i>	<i>9</i>
<i>17.45 - 18.00</i>	<i>665</i>	<i>318</i>	<i>11</i>
<i>Total</i>	<i>2154</i>	<i>1130</i>	<i>24</i>
<i>smp/hour</i>	<i>538,5</i>	<i>1130</i>	<i>28,8</i>
<i>Total smp/hour</i>		<i>1697,3</i>	
<i>Tiban direction toward Baloi</i>			
<i>Time</i>	<i>Type</i>		
	<i>MC</i>	<i>LV</i>	<i>HV</i>
<i>17.15 - 17.30</i>	<i>288</i>	<i>170</i>	<i>8</i>
<i>17.30 - 17.45</i>	<i>297</i>	<i>188</i>	<i>5</i>
<i>17.45 - 18.00</i>	<i>304</i>	<i>169</i>	<i>3</i>
<i>Total</i>	<i>889</i>	<i>527</i>	<i>16</i>
<i>smp/hour</i>	<i>222,25</i>	<i>527</i>	<i>19,2</i>
<i>Total smp/hour</i>		<i>768,45</i>	

Based on table 2 of the data obtained from the results of research on the volume of roads when the U-Turn opened, among others, the number of motorcyclists (MC) passing by at 17.15 - 17.30 WIB was relatively high compared to other part-time. For light vehicles (LV) and heavy vehicles (HV), the high number of motorists passing by occurred at 17.30 - 18.00 WIB. This is fairly constant with the data obtained in table 1. However, there is a very significant data difference because the volume of vehicles passing by when the U-Turn is closed is higher than the volume of vehicles when the U-Turn is opened.

B. Road Capacity

Road capacity is a parameter that serves to determine the level of road service to accommodate the volume of vehicles. There are several equations for calculating the road capacity as follows.

$$C = 4 \times C_O \times FC_W \times FC_{SP} \times FC_{SF} \times FC_{CS} \tag{1}$$

The value of C is multiplied by 4 because it has 4 lanes from 2 different directions. The base capacity value (C_O) according to the MKJI 1997 guidelines table C-1:1 pages 5-50 at 1650 due to 4/2D type roads. The traffic width adjustment factor (FC_W) according to the MKJI 1997 guidelines table C-2:1 pages 5-51 is 1.00 due to the 4/2D type road with a width per lane of 3.5 meters. The directional separation adjustment factor (FC_{SP}) according to the MKJI 1997 guidelines table C-3:1 pages 5-52 is 1.00 because the 2-way road is divided by 50%-50%. The side resistance adjustment factor (FC_{SF}) according to the MKJI 1997 guidelines table C-4:1 pages 5-54 is 0.93 because the class of side resistance in the case study is classified as medium. The city size capacity factor (FC_{CS}) according to the MKJI 1997 guidelines table C-5:1 pages 5-55 is 0.93 because according to data from the Central Statistics Agency in 2022, Batam has around 1.196 million so the value of the city size capacity factor is 1.00.

Then the results of the calculation of road capacity using the following expansion 1 can be obtained:

$$\begin{aligned} C &= 4 \times C_O \times FC_W \times FC_{SP} \times FC_{SF} \times FC_{CS} \\ &= 4 \times 1650 \times 1.00 \times 1.00 \times 0.93 \times 1.00 \\ &= 6138 \text{ smp/hour} \end{aligned}$$

Table 3 - Capacity Analysis of Gajah Mada Road, Batam (Source: Observation Results, 2022)

Base Capacity	Lane Width	Direction Separator	Side Obstacles	Population	Capacity
<i>C_O</i>	<i>FC_W</i>	<i>FC_{SP}</i>	<i>FC_{SF}</i>	<i>FC_{CS}</i>	(smp/hour)
4/2D	3.5 m	50%-50%	Medium	1,0 - 3,0	6138
1650	1,00	1,00	0,93	1,196	

C. Degree of Saturation (DS)

The degree of saturation is a parameter that is calculated as one of the requirements for determining the level of road service (LoS). As for the calculation, it can be seen in the following equation.

$$DS = Q / C \tag{2}$$

Road volume (Q) is the sum of the traffic volumes of 2 lanes. While capacity (C) is the known capacity value from equation (1).

The value of the degree of saturation (DS) obtained at the time the U-Turn is closed as follows:

$$\begin{aligned} DS &= 2887.05 / 6138 \\ DS &= 0.4703 \end{aligned}$$

Meanwhile, the value of the degree of saturation (DS) obtained at the time the U-Turn is opened as follows:

$$\begin{aligned} DS &= 2465.75 / 6138 \\ DS &= 0.4017 \end{aligned}$$

Table 4 - Analysis of Saturation Degree Values (Source: Observation Results, 2022)

Day	Time	Volume
When U-Turn is closed		
Monday	17.15 - 18.00	2887,05
Degree of Saturation		0,4703

When U-Turn is opened		
Friday	17.15 - 18.00	2465,75
Degree of Saturation		0,4017

D. Road Service Level

The level of road service (LoS) is an index that determines the good and bad performance of a road. Some of the parameters used as a reference to determine the type of road performance include road flow, vehicle volume, and vehicle speed. Guided by the US-HCM 1985 and MKJI 1997, it was found that the level of road service (LoS) from the research data at the time the U-Turn was closed was in group C because it had a saturation degree (DS) value of 0.4703. Group C has a stable current with speed influenced by normal traffic and volume. Meanwhile, the level of road service (LoS) at the time the U-Turn opened was in group B because it had a saturation degree (DS) value of 0.4017. This means that the level of road service (LoS) when the U-Turn is opened has a stable current with limited speed and normal volume.

The results of the road service level (LoS) statement were found from previously interconnected parameters, including the volume of vehicles passing on Jalan Gajah Mada, Batam City Park area which was calculated when the U-Turn access was opened and closed. Furthermore, this result was determined by the parameters of calculating road capacity in a case study which showed that Jalan Gajah Mada, Batam could not accommodate more passing vehicles because the road section was not too wide. In addition, the last parameter that determines the results of the level of road service (LoS) is the degree of saturation (DS) which is a calculation found using equation 2 involving the volume and capacity of Jalan Gajah Mada, Batam.

E. Free Current Speed (FV) Analysis of Light Vehicles

The free flow speed (FV) is calculated to be used as a comparison between the average speed of vehicles passing on Gajah Mada Road, Batam Taman Kota area on Monday and Friday (weekdays when the U-Turn is closed and opened) at 17.15 - 18.00 WIB. The equation for determining the speed of the free current is as follows:

$$FV = (FV_o + FV_w) \times FFV_{SF} \times FFV_{CS} \tag{3}$$

The basic free flow speed of the vehicle on the observed road is classified as 4/2D so the FV_o value according to the MKJI 1997 Guidelines Table B-1.1 Pages 5-44 is 57 km/h. The speed adjustment for the road width (km/h) reviewed 4/2D is 3.5 meters so the FV_w value according to the MKJI 1997 guidelines table B-2.1 pages 5-45 is 0. The adjustment factor for side resistance and shoulder width or barrier curb distance is 1 meter with moderate resistance class so that the FFV_{SF} value according to MKJI 1997 Table B-3.1 Pages 5-46 is 0.95. The speed adjustment factor (FFV_{CS}) for Batam City according to data from the Central Statistics Agency in 2020 ranges from 1.196 million people based on MKJI 1997 table B-4.1 pages 5-48, the value is 1.00.

Then the results of the calculation of the free current speed (FV) can be obtained using equation 3 as follows:

$$\begin{aligned} FV &= (FV_o + FV_w) \times FFV_{SF} \times FFV_{CS} \\ &= (57 + 3.5) \times 0.95 \times 1 \\ &= 57.475 \text{ km/h} \end{aligned}$$

Table 5 - Free Current (FV) Speed Analysis (Source: Observation Results, 2022)

FV _o	FV _w	FFV _{SF}	FFV _{CS}	FV
57	0	0,95	1	57,475

F. Vehicle Speed

The calculation of the speed of passing vehicles is aimed at analyzing the effect of U-Turn access closure with benchmarking when U-Turn access is opened. This of course will appear different because when the U-Turn is closed there are no vehicles waiting so there is no buildup. Unlike when the U-Turn is opened, there will be a vehicle that will rotate through the U-Turn so that there is a buildup of vehicles when taking turns to rotate. The distance used to measure the speed of the vehicle speed is a range of 10 meters and time measurement using a stopwatch.

The average speed equation of passing vehicles is as follows:

$$V = L / TT \tag{4}$$

Speed (L) is a speed value with a unit of meters per second owned by the vehicle at the time of passing. While the vehicle travel time (TT) is the value of time with second units owned by passing vehicles.

Table 6 - Vehicle Speed Calculation (Source: Observation Results, 2022)

Day	Direction	Lowest Speed		Top Speed		Average (km/h)
		Time	km/h	Time	km/h	
Monday	Tiban		29,65		48,55	39,1
(U-Turn closed)	Baloi	17.15 - 17.45	28,17	17.45 - 18.00	45,94	37,055
Friday	Tiban		17,33		32,12	24,725
(U-Turn opened)	Baloi	17.15 - 17.45	19,34	17.45 - 18.00	33,54	26,44

In calculating the average speed of vehicles, only a few samples of motorcycle (MC), light vehicle (LV), and heavy vehicle (HV) were taken. The data obtained from the analysis using meters per second is then converted into a basic unit of speed, namely km/h to obtain the average speed results of the vehicle. The result of the data obtained is that the average vehicle speed is higher when the U-Turn access is closed than when the U-Turn access is opened.

IV. CONCLUSION

From the data obtained, the U-Turn closure occurred at 17.15 - 17.30 WIB on Monday and there was no U-Turn closing on Friday. Using the MKJI 1997, it can be concluded that the results include based on tables 1 and 2, heavy traffic flow occurs in the direction of Baloi towards Tiban. There is a difference that occurs because the volume of vehicles passing when the U-Turn is closed is higher than when the U-Turn is opened. The road capacity value is 6138 smp / hour and the degree of saturation obtained from the calculation using formula (2) is 0.4703 (when the U-Turn is closed) and 0.4017 (when the U-Turn is opened). Thus, the level of road service (LoS) from the research data when the U-Turn was closed was in group C, which means that the steady flow at speed is influenced by normal traffic and volume. Meanwhile, the level of road service (LoS) when the U-Turn is opened is in group B, which means a stable current with limited speed and normal volume. The free current (FV) speed value of light vehicles was found to be 57.475 km / h which is a comparison with the average speed data of passing vehicles. Based on table 8, the average speed value obtained on Monday (when the U-Turn is closed) is higher than on Friday (when the U-Turn opens). The data obtained proves that the U-Turn access closure policy has had a positive effect on the smooth performance of Gajah Mada Road, Batam, Taman Kota area. This is certainly an alternative to reduce the density of vehicles considering the capacity of the road that cannot accommodate the high volume of vehicles.

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Suitability of Work Role and Organizational Commitment on Work Engagement in District Government Employees in the Province of Bali

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ABSTRACT

Purpose: Work engagement has a very positive impact on individuals and organizations, because work engagement is a positive attitude towards work and the organization where they work. The research design can be interpreted as a strategy to organize research steps in order to obtain valid data according to the variable characteristics and research objectives.

Methodology: This research is an ex-post facto research (measurement after the event), because the research data for both the independent variable and the dependent variable have occurred before this research was conducted. Path Analysis (Path Analysis) is used to determine the magnitude of the relationship and the direct and indirect influence of work role suitability (X1), organizational commitment (X2), on work engagement (X3). Because the data obtained from the questionnaire is ordinal data, while the data analysis used to prove the truth of the hypothesis suggests a minimum of interval data, the ordinal data needs to be scaled up to an interval scale through the "method of successive interval. There is a significant influence of work role suitability and organizational commitment together on work engagement. The first research hypothesis is that there is influence from the suitability of work roles and organizational commitment on work engagement in employees of the Regional Government of the Regency of Bali Province. based on the results of the path analysis test or Path Analysis in Table 4.8 the results obtained are the magnitude of the influence of work role suitability on work engagement showing the results $R_{yx1x2} = 0.926$, with a p-value of $0.000 < 0.05$, which states that H_0 is rejected which means there is an influence from role suitability work and organizational commitment to work engagement. There is an influence of work role suitability on work engagement. The second research hypothesis is that there is an influence of suitability of work roles on work engagement in employees of the Regional Government of the Regency of Bali Province. based on the results of the path analysis test or Path Analysis in Table 4.8, the result is that the magnitude of the influence of work role suitability on work engagement is 0.771 with a p-value of $0.000 < 0.05$. There is an Effect of Organizational Commitment on Work Engagement. The third research hypothesis is that there is an influence of organizational commitment on work engagement in employees of the Regional Government of the Regency of Bali Province.

Findings: based on the results of the path analysis test or Path Analysis in Table 4.8 the result is the magnitude of the influence of organizational commitment on work engagement of 0.388 with a p-value of $0.000 < 0.05$. Appropriateness of work roles and Organizational Commitment have a significant positive effect on work engagement in the Regional Government Employees of the Regency of Bali Province. Appropriateness of work roles has a significant positive effect on work engagement for Regional Government Employees of the Regency of Bali Province. Organizational Commitment has a significant positive effect on work engagement in the Regional Government Employees of the Regency of Bali Province.

Paper type: Research paper

Keyword: *Marketing Capability, Financial Capability, Coffee Commodity Performance, Value-Added.*

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I. INTRODUCTION

The success of an organization in order to grow and develop in a solid and reliable manner, of course, requires professional performance in carrying out its duties and obligations. Human resources play an important role in increasing the sustainability of an organization (Wibowo, 2018). Organizational forms and goals, various visions are designed for the benefit of the people, where they are led and guided by humans in carrying out the mission. This means that human resources are very important in all organizational activities. Therefore, personnel resources must be planned, strategies relevant to the goals set and implemented consistently to improve the performance and efficiency of the organization where these personnel resources are located. Employee performance is the success of employees in fulfilling their duties and responsibilities (Gede et al., 2017). Performance consists of carrying out an activity in accordance with the responsibilities given to achieve the programmed goals (Harsan et al., 2020). It can be said that employee performance provides an overview of the success of an institution. Therefore it is important for a company to pay attention to the performance of its employees. However, in fact, based on the results of observations and temporary interviews with the Regional Governments of Buleleng, Jembrana, Tabanan, Badung, Gianyar, Bangli, Klungkung, and Karangasem Regencies in the Province of Bali, it shows that there are still relatively many people using public services who have an impression of being unsympathetic and disillusioned with the attitudes and behavior of district government employees who should be community servants, setting an example, and becoming the backbone of regional development have turned into community commanders. The poor quality of service to the community can be traced from the many complaints raised by the public, especially those related to services that are long-winded and tend to be bureaucratic, high costs, the existence of additional fees, the behavior of officials who act more as officials rather than servants of the community, and public service. Discriminatory (Haris, 2019). This gives an indication of the existence of symptoms that are employees of the Regency Regional Government in the Province of Bali who are less clean, less authoritative, and less upholding their mission as servants of the state and society. The phenomenon of the low performance of district government employees is a reflection of: (1) the lack of suitability of employee work roles to carry out the tasks assigned to them, (2) the relatively low commitment of employees to district government organizations and (3) employee engagement in work is still weak both in identifying work, participating actively in work and the importance of work performance for self-esteem (Munir, 2012).

Performance that is not optimal for employees is indicated by the amount of work carried out by employees that has not reached the target and does not meet the needs of society, employee engagement physically and psychologically at work is still relatively low, the suitability of employee work roles is not optimal, and employee commitment to the organization is still low. All of this will affect the low level of performance of district government employees in achieving organizational goals. This fact is also supported by the findings of research conducted at the Center of Population and Policy Studies (2016) which shows that the productivity of civil servants in Indonesia is still very low, namely it has only reached an average productivity rate of 51.40%. This fact provides an implicit indication that the performance of Regency Regional Government employees in Bali Province is still relatively low because Regency Regional Government employees in Bali Province also include civil servants. The performance targets for local public services have not been achieved as expected by the central government due to the relatively low commitment of employees to the organization and the suitability of human resource work roles (Dorania Lumbanraja, 2020). This statement is also supported by a statement of weaknesses owned by the government in the provision of public service infrastructure, including limited capacity of apparatus resources, budget shortages, management and technology weaknesses in the procurement of public service infrastructure (Abdullah, 2020). So, based on this description it is stated that the quality of employee performance is not optimal, one of the factors that causes it is the suitability of work roles.

The suitability felt by employees between their self-concept and the suitability of their work role in the organization will result in meaningful experiences and work engagement. Work role suitability is a work role that is felt to be in accordance with the individual's self-concept that must be issued in individual performance as an employee (Fairus & Kurniawan, 2018). Job role fit refers to the match between individual skills and job requirements. When individual tasks and responsibilities match their competencies, there will be a good job role match (Rossouw & Rothmann, 2020). High role suitability will lead to high performance, because the work given is well understood by employees and there are already standard rules governing work procedures that must be carried out (Ayuniari et al., 2017). If a person feels that the work he is doing is in accordance with his abilities, it will create the confidence to do it, comfort to do it and happy to do it. Several research findings state that work role compatibility is an important factor in understanding the relationship between work orientation and psychological meaningfulness experiences at work (Rothmann & Hamukang'andu, 2013). Findings suggest that mental health and work role suitability are significantly related to work involvement (Zyl et al., 2020). Based on this description, it can be said that work role suitability is defined as the perceived match between the strengths, personality, and work preferences of individuals with the job-related roles they occupy. In other words, the

suitability of work roles will have an impact on employee performance. In addition to the suitability of work roles, the factors that affect performance are organizational commitment.

Organizational commitment can be synthesized as a person's emotional attachment to an organization that involves loyalty, belief in organizational values and is willing to make high efforts to achieve organizational goals (Mukrodi & Wahyudi, 2018). Organizational commitment is one of the most important factors for the survival and stability of organizational development (Fajar & Rohendi, 2016). Organizational commitment is a force that binds individuals to an action related to the target (Pramana & Mujiati, 2020). Organizational commitment possessed by employees will have a good impact on the organization where they work, and will be more motivated at work. Organizational commitment is the biggest influence on performance when compared to the influence of other variables (Shalahuddin, 2018). Organizational commitment is a mental attitude that represents the desire, need and obligation to continue work in an organization, John P. Meyer and Natalie J. Allen (1991) have developed three organizational commitment factor models, namely: Affective commitment, Continuance commitment), normative commitment (Shintia & Erawati, 2017). Organizational commitment includes elements of loyalty to the organization, involvement in work, and identification of organizational values and goals (Daud & Afifah, 2019). Employees who are committed to their organization will behave, such as considering the goals and benefits of the organization as their own, taking risks for the organization and wanting to remain in the organization (Desniari & Dewi, 2020). Several findings related to organizational commitment include findings stating that organizational commitment and job satisfaction can affect Organizational Citizenship Behavior (Krisjayanti & Supartha, 2020). The findings state that the variables of job satisfaction and organizational commitment have a positive and significant effect on employee performance (Mardiani & Dewi, 2015). So it can be said that the existence of organizational commitment will affect employee performance.

In addition to these two factors, employee performance is also influenced by employee engagement. Work engagement is defined as a positive state that motivates employees to complete work characterized by high energy, full involvement with work and appreciation when completing work (Rachmatan & Kubatini, 2018). Work engagement is a positive psychological condition of employees that they are able to contribute physically, cognitively and emotionally which is marked by an outpouring of energy and mentality at work (Diri et al., 2020). Work engagement is a positive thing, it is fulfillment, an affective-motivational state of work-related wellbeing as opposed to burnout at work, and engaged employees have high levels of energy, and are enthusiastic about being involved in their work (Adi & Indrawati, 2019). Work engagement is a positive employee ability that is characterized by an outpouring of physical and mental energy at work as well as strong involvement and full concentration at work (Aidina & Prihatsanti, 2018). Work engagement is also characterized by high energy levels and strong identification with one's work (Sofiyan, 2018). This description illustrates that work engagement is in a positive state which makes employees motivated to complete work which is characterized by high energy, full involvement with work and appreciation when completing work. Work engagement has a very positive impact on individuals and organizations, because work engagement is a positive attitude towards work and the organization where they work. Based on the descriptions of performance and the factors that influence employee performance, this is one of the reasons this research was conducted. Research that examines the influence of work role suitability and organizational commitment on employee engagement. The difference between this study and existing ones is the suitability of work roles with organizational commitment as a factor influencing work engagement. This study entitled the effect of work role suitability and organizational commitment on work engagement in district government employees in the province of Bali.

II. METHODS

The research design can be interpreted as a strategy to organize research steps in order to obtain valid data according to the variable characteristics and research objectives. This research is an ex-post facto research (measurement after the event), because the research data for both the independent variable and the dependent variable have occurred before this research was conducted. Random sampling from SPU in this study used $f = 50\%$, the sample size fraction for research using descriptive-correlational methods was at least 20% of the population. By using $f = 50\%$, the size of the sample unit is the four District Governments. The four District Governments that were randomly selected were the District Governments of Buleleng, Bangli, Gianyar, and Karangasem. Of the four selected District Governments, based on area sampling, they can be stratified into two work unit strata, namely Administration & Administration Assistant (Assistant I) and Assistant for Economics & Social Welfare (Assistant II). Then each stratum is divided into four sub-stratums, namely group IV, group III, group II, and group I.

In this study the sample size was 140 respondents or 25.69% of the population. Because the employees of the Regional Government of Buleleng, Bangli, Gianyar, and Karangasem Regencies who are the observation units

consist of two work unit strata, namely Administration & Administration Assistant (Assistant I) and Economic & Social Welfare Assistant (Assistant II) and each work unit stratum is divided into four substratum, namely group IV; class III; class II; and group I, in this study the determination of the sample used was a stratified random sampling technique with a size proportional to the population strata (proportional to size) and the selection of samples from each population stratum used a simple random sampling technique.

A. Data Collection Methods and Research Instruments

Methods of data collection in this study using questionnaire techniques and documentation techniques. The questionnaire technique is used to capture data on the suitability of work roles, organizational commitment, and employee engagement on the dependent variable. The questionnaire technique is a way of collecting data by distributing questionnaires or questionnaires containing a number of questions or statements to all members of the sample for their answers. This technique was taken considering the large number of samples and spread over a large area. This is in accordance with the opinion (Sugiyono, 2015a) which says that the questionnaire technique is an efficient data collection technique and is suitable for large respondents and spread over a large area.

The data collection instrument is a data collection tool that is used to retrieve data from data sources. As explained above, the data collection instruments are adjusted to the type and source of data required. The data in this study can be grouped into three groups, namely: suitability of work roles, organizational commitment, and employee engagement. Based on the type and source of existing data, in this study for data on (1) suitability of work roles, (2) organizational commitment to performance and (3) work engagement, using a questionnaire. The data in this study were collected using closed questionnaires and observation guidelines which were compiled by the researchers under the guidance of the supervisor, the preparation of which was carried out in the following stages: (1) identification of variables based on the formulation of the title, (2) elaboration of the sub-variables of each variable, (3) determining the indicators of each sub-variable, (4) compiling questions from each indicator, and (5) completing the instrument with instructions for filling out. Alternative answers available from each question (questionnaire) or observation guidelines are measured using the Likert scale model, which is a method for measuring attitudes, opinions, and perceptions of a person or group of people about social phenomena (Sugiyono, 2007). Alternative answers to the questionnaire items were measured using a Likert scale, with the weighting of the answers as follows. For alternative answers to positive statements, the weights are: Always (5), Often (4), sometimes (3), rarely (2) and never (1). As for alternative answers to statements that are negatively weighted are: always (1) often (2), sometimes (3), rarely (4) and never (5). Test the validity and reliability of the instrument

Validity test is a test used to measure whether or not a questionnaire is valid. If the questions or statements in the questionnaire can reveal what will be measured, then the questionnaire is considered valid. The basis for the decision to find out whether an instrument is valid or not, namely by looking at the significance value, if the significance value is < 0.05 (5%) then the questionnaire is said to be valid, but if > 0.05 (5%) then the questionnaire is said to be invalid (Sugiyono, 2013). Reliability test is a test that is used as a tool to measure a questionnaire which is an indicator of a variable. If the respondent's answers to a question or questionnaire statement are consistent or stable, then it can be said that the questionnaire is reliable. The basis for decision making in this test is by looking at the Cronbach Alpha value. Instruments or variables can be said to be reliable if they have a Cronbach Alpha value > 0.60 (Ghozali & Imam., 2011).

B. Data analysis method

Path Analysis (Path Analysis) is used to determine the magnitude of the relationship and the direct and indirect influence of work role suitability (X1), organizational commitment (X2), on work engagement (X3). Because the data obtained from the questionnaire is ordinal data, while the data analysis used to prove the truth of the hypothesis suggests a minimum of interval data, the ordinal data needs to be scaled up to an interval scale through the "method of successive interval" from Hays (1969:39).

Table 1. Contribution of the Effect of Variables X1 and X2 on Y

<i>X1 directly against Y</i>	<i>px3x1.px3x1</i>
<i>X1 indirectly through X2 against Y</i>	<i>px3x1.r x1x2.P x3x2</i>
<i>X1 in total to Y</i>	<i>A</i>
<i>X2 directly against X3</i>	
<i>X2 indirectly through X1 against Y</i>	<i>px3x2. px3x2 px3x2.r x1x2.px3x1</i>
<i>X2 in total to Y</i>	<i>B</i>
<i>Overall total against Y</i>	<i>A + B</i>
<i>Another variable (E1) with respect to Y</i>	<i>– (A + B)</i>

III. RESULTS AND DISCUSSION

A. Research result

The object of this study is the Suitability of Work Roles and Organizational Commitment to Work Engagement in Local Government Employees of the Regency of Bali Province. In this study the sampling process was carried out using stratified random sampling technique through two stages (two stage cluster sampling), namely conducting the first random stage to determine the number of District Governments that were sampled in the research area and then carrying out the second stage random to determine the number of employees who became respondents in the District Government that has been selected. In this study there were eight primary sampling units (SPUs) because in the Province of Bali there were eight District Governments and District Governments used as SPUs. The data collection used in this study was through distributing questionnaires online by providing a link to the questionnaire to the District Government Employees of the Province of Bali. The number of samples and distribution of questionnaires was 140 respondents, so the number of questionnaires that could be processed was 140 responses. Test the validity and reliability of the instrument.

1. Validity test

Validity Test is a test used to measure whether or not a questionnaire is valid. If the questions or statements in the questionnaire can reveal what will be measured, then the questionnaire is considered valid. The basis for the decision to find out whether an instrument is valid or not, namely by looking at the significance value, if the significance value is <0.05 (5%) then the questionnaire is said to be valid, but if > 0.05 (5%) then the questionnaire is said to be invalid (Sugiyono, 2013).

Table 2. Validity Test Results

<i>Variabel</i>	<i>Pearson Correlation Sig. (2 – tailed</i>	<i>N</i>	<i>Inf.</i>
<i>Work Role Suitability (X1)</i>			
<i>KPK1</i>	<i>0,852</i>	<i>140</i>	<i>Valid</i>
<i>KPK2</i>	<i>0,867</i>	<i>140</i>	<i>Valid</i>

<i>KPK3</i>	<i>0,858</i>	<i>140</i>	<i>Valid</i>
<i>Organizational Commitment (X2)</i>			
<i>KO1</i>	<i>0,501</i>	<i>140</i>	<i>Valid</i>
<i>KO2</i>	<i>0,635</i>	<i>140</i>	<i>Valid</i>
<i>KO3</i>	<i>0,719</i>	<i>140</i>	<i>Valid</i>
<i>KO4</i>	<i>0,635</i>	<i>140</i>	<i>Valid</i>
<i>KO5</i>	<i>0,283</i>	<i>140</i>	<i>Valid</i>
<i>KO6</i>	<i>0,426</i>	<i>140</i>	<i>Valid</i>
<i>KO7</i>	<i>0,592</i>	<i>140</i>	<i>Valid</i>
<i>KO8</i>	<i>0,675</i>	<i>140</i>	<i>Valid</i>
<i>KO9</i>	<i>0,631</i>	<i>140</i>	<i>Valid</i>
<i>KO10</i>	<i>0,266</i>	<i>140</i>	<i>Valid</i>
<i>Work Attachment (X2)</i>			
<i>KK1</i>	<i>0,566</i>	<i>140</i>	<i>Valid</i>
<i>KK2</i>	<i>0,758</i>	<i>140</i>	<i>Valid</i>
<i>KK3</i>	<i>0,767</i>	<i>140</i>	<i>Valid</i>
<i>KK4</i>	<i>0,832</i>	<i>140</i>	<i>Valid</i>
<i>KK5</i>	<i>0,554</i>	<i>140</i>	<i>Valid</i>
<i>KK6</i>	<i>0,309</i>	<i>140</i>	<i>Valid</i>

2. Reliability

Reliability testing in this study used the help of the Statistical Package for Social Science (SPSS) 23 for Windows program to make it easier to process research data. Instruments or variables can be said to be reliable if they have a Cronbach Alpha value of >0.60 (Ghozali & Imam., 2011). The reliability test in this study was through the SPSS version 23 program with a total of 140 respondents. The results of the reliability test that has been processed through the program are presented in the following table.

Tabel 3. Reliability Test Results

<i>Research Variables</i>	<i>Cronbach's Alpha</i>	<i>AlphaStandard</i>	<i>Information</i>
<i>Work Role Suitability (X1)</i>	<i>0,849</i>	<i>0,60</i>	<i>Reliabel</i>
<i>Organizational Commitment (X2)</i>	<i>0,731</i>	<i>0,60</i>	<i>Reliabel</i>
<i>Work Attachment (Y)</i>	<i>0,758</i>	<i>0,60</i>	<i>Reliabel</i>

3. Data analysis method

Data analysis is a process of simplifying data in a form that is easier to understand and interpret using statistics. Based on the research objectives stated above, namely to determine the effect of work role suitability, organizational commitment, on employee engagement, the data analysis used is path analysis. The steps taken in data analysis are as follows. (1) data description, (2) perform analysis prerequisite test, and (3) test the hypothesis.

4. Data description

The raw data that has been collected needs to be described to make it easier to understand. For this purpose, the variable data of work role suitability, organizational commitment and work engagement with descriptive statistics. Descriptive analysis was carried out to be able to clearly describe all research variables (Sugiyono, 2015b). The descriptive analysis in question is a description of the frequency distribution (f), the average score (M), the highest score, the lowest score, the range, class size, class width, and standard deviation.

Table 4. Data Description

<i>Information</i>	<i>Work Role Suitability</i>	<i>Organizational Commitment</i>	<i>Keterikatan Kerja</i>
<i>Min.</i>	<i>7,00</i>	<i>32,00</i>	<i>19,00</i>
<i>Max.</i>	<i>15,00</i>	<i>48,00</i>	<i>30,00</i>
<i>Average</i>	<i>10,8786</i>	<i>39,2714</i>	<i>24,1143</i>

5. Testing Statistical Hypotheses

Path Analysis (Path Analysis) is used to determine the magnitude of the relationship and the direct and indirect influence of work role suitability (X1), organizational commitment (X2), on work engagement (X3). Because the data obtained from the questionnaire is ordinal data, while the data analysis used to prove the truth of the hypothesis suggests a minimum of interval data, the ordinal data needs to be scaled up to an interval scale through the "method of successive interval" from Hays (1969:39). Based on the calculation results using the help of the SPSS 20.0 for windows program, the calculation results are obtained as in table 1 below.

Table 5. SPSS Output Path Analysis Influence X1 and X2 on Y

<i>No</i>	<i>Parameters</i>	<i>Value</i>	<i>P-value</i>	<i>Alpha (a)</i>	<i>Decision</i>	<i>Conclusion</i>
<i>1</i>	<i>Ryx1x2</i>	<i>0,926</i>	<i>0,000</i>	<i>0,05</i>	<i>Reject Ho</i>	<i>There is a collective effect of work role suitability and organizational commitment to work attachment, which is 92.6%</i>

2	R_{2yx1x2}	0,858	0,000	0,05	Reject Ho	The combined influence of work role suitability and organizational commitment to work attachment is 85.8%
3	P_{yx1}	0,771	0,000	0,05	Reject Ho	There is an effect of work role suitability on work attachment, which is 77.1%
4	P_{2yx1}	0,878		0,05	Reject Ho	The effect of work role suitability on work attachment is 87.8%
5	P_{yx2}	0,388	0,000	0,05	Reject Ho	There is an effect of organizational commitment on work attachment, which is 38.8%
6	P_{2yx2}	0,622	0,000	0,05	Reject Ho	The influence of the organization's commitment to work engagement is 62.2%
7	P_{x1x2}	0,773		0,000	Reject Ho	There is an influence of X1 on X2
8	P_{2x2x1}	0,597	0,000	0,000	Reject Ho	The effect of work role suitability on organizational commitment is 59.7%
9	ϵ	0,145				The contribution of other variables on work attachment is 14.5%

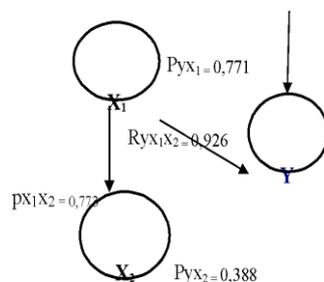


Figure 1. Structure of Influence of Work Role Conformity (X1) and Organizational Commitment (X2) on Work Engagement (Y)

Table 6. Contribution of the Influence of Variables X1 and X2 on X3

<i>Information</i>	<i>Big Donation</i>	<i>Percentage (%)</i>
<i>The direct influence of X1 on Y</i>	<i>0,878</i>	<i>87,8%</i>
<i>The magnitude of the indirect influence of X1 on Y through X2</i>	<i>-0,107</i>	<i>-10,7%</i>
<i>The total influence of X1 on Y</i>	<i>0,771</i>	<i>77,1%</i>
<i>How big is the influence of X1 on X2</i>	<i>0,773</i>	<i>77,3%</i>
<i>The direct influence of X2 on Y</i>	<i>0,388</i>	<i>38,8%</i>
<i>The Effect of X1 and X2 on Y</i>	<i>0,926</i>	<i>92,6%</i>
<i>Overall total against Y</i>	<i>0,858</i>	<i>85,8%</i>
<i>Another variable (E1) with respect to Y</i>	<i>0,145</i>	<i>14,5%</i>

Based on the results of the calculation of the Path Analysis statistical test in Table 4.6, it shows that the suitability of work roles and organizational commitment jointly affect work engagement in employees of the Regional Government of the Regency of Bali Province. The magnitude of the influence of work role suitability and organizational commitment on work engagement is 92.6%, while the relationship between other factors on work engagement is 14.5%. Based on the results of the calculation of the Path Analysis statistical test in Table 4.8, it shows that the suitability of work roles has a positive effect on work engagement for employees of the Regional Government of the Regency of Bali Province. The magnitude of the influence of work role suitability on work engagement is equal to 77.1%, while the large contribution of work role suitability to work engagement is equal to 87.8%. Based on the calculation results of the Path Analysis statistical test in Table 4.8, it shows that organizational commitment has a positive effect on work engagement in employees of the Regional Government of the Regency of Bali Province. The magnitude of the influence of organizational commitment on work engagement is equal to 38.8%, while the contribution of suitability of work roles to work engagement is equal to 62.2%.

6. Hypothesis test

- a. There is a significant influence of work role suitability and organizational commitment together on work engagement

The first research hypothesis is that there is influence from the suitability of work roles and organizational commitment on work engagement in employees of the Regional Government of the Regency of Bali Province. based on the results of the path analysis test or Path Analysis in Table 4.8 the results obtained are the magnitude of the influence of work role suitability on work engagement showing the results $R_{yx1x2} = 0.926$, with a p-value of $0.000 < 0.05$, which states that H_0 is rejected which means there is an influence from role suitability work and organizational commitment to work engagement. The size of the contribution of work role suitability and organizational commitment to work engagement together is 85.8%. Meanwhile, the influence of other variables is 14.5%. This indicates that H_0 is rejected, which means there is a significant positive effect on role suitability. work on work engagement for employees of the Regional Government of the Regency of Bali Province. The contribution of the influence of the suitability of work roles on work engagement is 87.8%.

- b. There is an influence of work role suitability on work engagement

The second research hypothesis is that there is an influence of suitability of work roles on work engagement in employees of the Regional Government of the Regency of Bali Province. based on the results of the path analysis test or Path Analysis in Table 4.8, the result is that the magnitude of the influence of work role suitability on work engagement is 0.771 with a p-value of $0.000 < 0.05$, which indicates that H_0 is rejected, which means

there is a significant positive effect on work role suitability on work engagement on employees of the Regional Government of the Regency of Bali Province. The contribution of the influence of the suitability of work roles on work engagement is 87.8%.

c. There is an Effect of Organizational Commitment on Work Engagement

The third research hypothesis is that there is an influence of organizational commitment on work engagement in employees of the Regional Government of the Regency of Bali Province. based on the results of the path analysis test or Path Analysis in Table 4.8 the result is the magnitude of the influence of organizational commitment on work engagement of 0.388 with a p-value of 0.000 <0.05, which indicates that Ho is rejected which means there is a significant positive effect of organizational commitment on engagement work for employees of the Regional Government of the Regency of Bali Province. The contribution of the influence of the suitability of work roles on work engagement is 62.2%.

B. Discussion

1. The Effect of Work Role Suitability and Organizational Commitment on Work Engagement

Based on the results of the tests that have been carried out, the results obtained are that the variables of suitability for work roles and organizational commitment jointly affect work engagement for employees of the Regional Government of the Regency of Bali Province. Someone who feels the work he is doing is in accordance with his abilities, it will generate confidence to do it, comfortable to do it and happy to do it. The condition of employee engagement will be higher if the employee has high organizational commitment. The results of this study are in line with Desniari and Dewi (2020) which suggests that suitability for work roles will have an influence on employee organizational commitment. The more appropriate the employee's work role, the higher organizational commitment which indirectly has an influence on employee engagement. Based on this statement it can be said that with the suitability of work roles and organizational commitment will be able to make employees have higher work engagement.

2. Effect of Work Role Suitability on Work Engagement

Based on the results of the research that has been done, it shows that there is a significant positive influence from the suitability of work roles on work engagement in employees of the Regional Government of the Regency of Bali Province. These results are supported by Rossouw and Rothmann (2020) that work role suitability refers to compatibility between individual skills and job requirements. When individual tasks and responsibilities match their competencies, there will be a good job role match. This theory is also supported by Ayuniari et al. (2017) that high role suitability will lead to high performance, because the work provided is well understood by employees and there are already standard rules governing work procedures that must be carried out.

3. The Effect of Organizational Commitment on Work Engagement

Based on the results of the research conducted, it shows that there is a significant positive effect of organizational commitment on work engagement in employees of the Regional Government of the Regency of Bali Province. This result is supported by Catur Martian Fajar and Rohendi (2016) which states that organizational commitment is one of the most important factors for the continuity and stability of organizational development. This theory is supported by Mardiani and Dewi (2015) which states that the variables of job satisfaction and organizational commitment have a positive and significant effect on employee performance. This opinion is also in line with research conducted by Shalahuddin (2018) that organizational commitment has a greater effect on performance than the influence of other variables.

The limitations in this research are that the variables studied are still limited, there are still variables that are not included in the study, so it is hoped that future researchers will examine other variables that can affect work engagement. The results of this research prove that the relationship between work role suitability and organizational commitment greatly influences work engagement. High role suitability will lead to high performance, because the work given is well understood by employees and there are already standard rules governing work procedures that must be carried out.

Organizational commitment possessed by employees will have a good impact on the organization where they work, and are more motivated to work so as to create good performance. It is expected that recruiting employees in accordance with the roles and abilities in their fields, because the suitability of work roles greatly affects employee performance. And it is also expected to maintain organizational commitment because organizational commitment is one of the most important factors for the survival and stability of organizational development. improve employee engagement by paying attention to factors that can increase employee engagement which can be done by creating skills development programs, fostering work relations that will have a positive impact on employees and provide opportunities for employees to participate in making decisions related to their work . Employees will be more likely to feel more attached to their work and have higher motivation to

achieve their performance. For further analysts who wish to explore the field of Human Resource Management, given the importance of the relationship between work role suitability, organizational commitment, and work engagement, it is hoped that they will conduct further research using variables that have not been included in this study, as well as those that have an influence on work engagement.

IV. CONCLUSION

Appropriateness of work roles and Organizational Commitment have a significant positive effect on work engagement in the Regional Government Employees of the Regency of Bali Province. Appropriateness of work roles has a significant positive effect on work engagement for Regional Government Employees of the Regency of Bali Province. Organizational Commitment has a significant positive effect on work engagement in the Regional Government Employees of the Regency of Bali Province.

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Analysis of Annual Rainfall Distribution and Planned Rain Intensity at 11 (Eleven) Rain Post Stations in Serang District

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ABSTRACT

Purpose: This research aimed to find the best rainfall probability model and planned rain intensity using the Mononobe formula for 11 rain stations in Serang Regency.

Methodology: Annual rainfall data is processed and evaluated as secondary data using the rain data consistency test method, the Gumbel probability distribution, the Normal probability distribution, the Log Normal probability distribution, and the Pearson Type III Log probability distribution.

Findings: The consistency test results reveal that the rainfall data is consistent. The Gumbel probability distribution is used to examine the design rain intensity based on the analysis. This study is intended to guide estimating the design rainfall intensity to develop the design flood discharge and run-off calculations. Suggestions for future research include improving the accuracy of rain data processing and making longer-term data available to provide a more accurate frequency analysis.

Paper type: Research paper

Keyword: Rainfall, Probability Distribution, Planned Rain Intensity.

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I. INTRODUCTION

A. Background

Serang Regency is made up of 29 sub-districts and 326 settlements. Cinangka sub-district is the largest, covering 111.47 km² or 7.60 per cent of Serang Regency's total size. Meanwhile, Bandung District has the smallest area, with 25.18 km³ or 1.72 per cent of the entire region. The subdistrict with the most villages is the Cikeusal subdistrict, which oversees 17 villages. In contrast, the subdistrict with the fewest villages is the Binuang subdistrict and Gunungsari subdistrict, each of which supervises seven villages. Furthermore, in Serang Regency, various islands are lying in territorial seas, with a total of 17 islands documented.

According to the BNPB, (2014) Indonesian Disaster Risk Index (IRBI), Serang Regency is in a high disaster-risk area. It is ranked three (three) out of eight (eight) districts/cities in Banten Province in terms of disaster potential. Nonetheless, all regencies/cities in the Province are listed as disaster-prone zones. Natural catastrophes that may occur in the Serang Regency area include the following:

- a. Flood disasters with a high level of risk;
- b. Earthquake disasters with a high level of risk;
- c. Tsunami disaster with a high level of risk;
- d. Forest and land fire disasters with a high level of risk;
- e. Landslide disaster with moderate risk level;
- f. Extreme wave and abrasion disasters with a high level of risk;
- g. Drought disaster with a high level of risk;
- h. Severe weather disasters with a high level of risk.

According to Serang Regency BPS data, the maximum number of rainy days in 2016 was 242, while the lowest was 147 in 2015. Looking at average rainfall, 2017 and 2016 have the highest and lowest average rainfall,

respectively. There were 185 rainy days in 2018, with a total rainfall volume of 7.56 mm. June has the most increased average precipitation of 17.90 mm across 11 days. The lowest average rainfall of 3.00 mm between 1 and 10 days occurred in July and September. In 2018, the average monthly rainfall was 7.56 mm. In 2019, there was a 125-day drop-in day and rain, with an average rainfall of 3.44 mm/month. Following a reduction in rainfall in 2019, the number of days and average rainfall climbed in 2020 to 159 days and 3.45 mm/month, respectively.

According to the 2019 Serang Regency RKPD document, the climate of Serang Regency is divided into three categories: the northern Tropical Monsoon (Ama), the southern Tropical Rain Forest (Afa), and parts of the Subtropical climate (Cfa). As a result, the northern hemisphere has a dry month at least once a year. There is no such thing as a dry month in the country's southern half. Rainfall patterns in portions of the Cfa climate are comparable to those in the south region. In August, the lowest temperature in Serang Regency in 2014 was 22.2 degrees Celsius. The highest temperature was 34.1 degrees Celsius in October, with a temperature range of 23.6 degrees Celsius to 32.2 degrees Celsius with 81 per cent relative humidity.

Climate change, which constantly recurs, increases the number of flash floods, which impact people and infrastructure and should be minimized based on historical evidence. Efforts to overcome this can be made by modelling the rainfall process in order to better understand the changes and characteristics of rainfall in the past, including projecting rainfall distribution. According to Zufimar & Zainal, (2020). there are statistical parallels between previous and future rainfall events. It is significant because it may be used to plan water resources and increase the sensitivity of a region's rainfall system.

B. Research Purposes

The purpose of this study is to find the best rainfall probability model based on the analysis of the Kolmogorov-Smirnov and Chi-squared appropriateness tests and to plan the rain intensity using the Mononobe Formula at 11 (eleven) rain stations in Serang Regency.

C. Benefits of Research

This research can contribute to identifying the method of rain intensity and type of distribution based on annual rainfall data characteristics. It can be used as a guide or a comparison when determining design rainfall intensity, flood discharge, and run-off.

D. Review of Literature and Theory

1. Rain Data Consistency Test

A consistency test was performed to determine the consistency of rain data. (Sri Harto, 1999) describes the RAPS (Rescaled Adjusted Partial Sum) approach as one way to test it.

2. Probability Distribution

Rain and other hydrological phenomena are stochastic processes that cannot be predicted naturally. As a result, probability theory and frequency analysis are used to comprehend and describe occurrences (Alabekee et al., 2015) Furthermore, according to (Mohit Al, 2010) a collection of daily rainfall or sub-rainfall data is extensively employed for predicting severe rainfall, particularly daily sub-rainfall. However, due to a shortage of data, research in Indonesia often uses an annual maximum daily rainfall data set. SNI 2451:2016 is referenced in a national standard in Indonesia. It describes 8 (eight) probability distributions of Indonesia's annual maximum rainfall. In Indonesia, only four probability distributions are typically used: Log Normal, Normal, Log-Pearson III, and Gumbel (Abas et al., 2019). Zainal & Zufimar, (2021) states that each region has a unique probability distribution for rain occurrences. Table 1 describes the formula for each probability distribution.

Distribution	Distribusi Probabilitas	Range	Parameter
Normal	$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}$	$-\infty < x < +\infty$	μ = mean σ = standard deviasi ($\sigma > 0$)
Log Normal	$f(x) = \frac{e^{-\frac{1}{2}\left(\frac{\ln(x)-\mu}{\sigma}\right)^2}}{(x)\sigma\sqrt{2\pi}}$	$\gamma < x < +\infty$	μ = shape parameter ($\mu > 0$) σ = skala parameter ($\sigma > 0$) γ = lokasi parameter ($\gamma = 0$)
Log-Pearson III	$f(x) = \frac{1}{ \beta \Gamma(\alpha)} \left[\frac{\ln(x)-\gamma}{\beta}\right]^{\alpha-1} e^{-\left[\frac{\ln(x)-\gamma}{\beta}\right]}$	$0 < x < e^{\beta}$ $e^{\beta} \leq x < +\infty$	α = shape parameter ($\alpha > 0$) β = skala parameter ($\beta \neq 0$) γ = lokasi parameter
Gumbel	$f(x) = \alpha \cdot e^{-\alpha(x-\mu)} \cdot e^{-e^{-\alpha(x-\mu)}}$	$-\infty < x < +\infty$	α = skala parameter μ = lokasi parameter

Sumber : Mohita dkk. (2010)

Figure 1. Probability Distribution

A nonparametric test can be used to choose the most acceptable probability distribution given a series of rainfall data. Its goal is to assess the relationship between observed and theoretical frequencies. The Kolmogorov-Smirnov and Chi-square appropriateness tests can be employed in hydrology.

II. METHODS

A. Research Location

The research site is in 11 (eleven) Rain Station Posts in Serang Regency, with a 10-year data set (2010 - 2019) available. The Rain Station Posts are distributed as follows:

1. Anyar
2. Cinangka
3. Ciomas
4. Ciruas
5. Keramatwatu / Pegadingan
6. Pabuaran
7. Padarincang
8. Pamarayan
9. Pontang
10. Regas Hilir
11. Walantaka

B. Data Collection and Analysis Techniques

Secondary data from annual rainfall data was gathered from linked agencies. The available data is then processed and examined using the data consistency test method, and the probability distribution is performed using the Gumbel, Normal, Normal Log, and Pearson Type III Log Probability Distribution methods. The Mononobe formula is used in the final stage of planning rain intensity assessments.

III. RESULTS AND DISCUSSION

A. Rain Data Consistency Test Results

The RAPS consistency test findings reveal that the rainfall data is CONSISTENT. The table below summarizes the consistency test findings.

No.	Pos Stasiun Hujan	D_y	$Q_{terhitung}$	Q_{harus}	Hasil Uji	Keterangan
1	Anyar	30,72	3,12	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
2	Cinangka	33,26	2,05	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
3	Ciomas	20,07	2,36	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
4	Ciruas	19,28	2,70	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
5	Keramatwatu / Pegadingan	19,67	3,22	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
6	Pabuaran	17,18	3,53	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
7	Padarincang	28,42	2,69	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
8	Pamarayan	16,68	1,96	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
9	Pontang	26,21	1,87	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
10	Regas Hilir	21,26	2,04	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$
11	Walantaka	11,93	2,25	3,60	Konsisten	$Q_{terhitung} < Q_{harus}$

Figure 2. Consistency Test Analysis Results

1. Analysis Results of Determining the Probability Distribution of Anyar Rain Station Posts

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima

2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima

3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 3. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	96,81
2	5	135,46
3	10	161,05
4	15	175,48
5	50	217,36
6	100	241,17
7	200	264,89
8	500	296,18
9	1000	319,84

Figure 4. The planned rain intensity of Anyar Rain Station Post

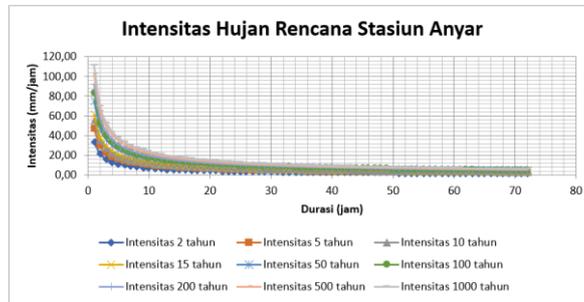


Figure 5. The planned rain intensity of Anyar Rain Station Post

2. Analysis Results of Determining the Probability Distribution of Cinangka Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima

2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima

3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 6. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	115,05
2	5	156,89
3	10	184,59
4	15	200,22
5	50	245,56
6	100	271,33
7	200	297,01
8	500	330,89
9	1000	356,50

Figure 7. The planned rain intensity of Cinangka Rain Station Post

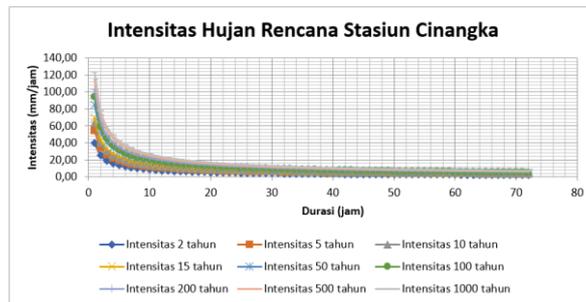


Figure 8. The planned rain intensity of Cinangka Rain Station Post

3. Analysis Results of Determining the Probability Distribution of Ciomas Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima
Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari: DISTRIBUSI GUMBEL*		

Figure 9. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	98,28
2	5	123,53
3	10	140,24
4	15	149,67
5	50	177,03
6	100	192,58
7	200	208,08
8	500	228,52
9	1000	243,97

Figure 10. The planned rain intensity of Ciomas Rain Station Post

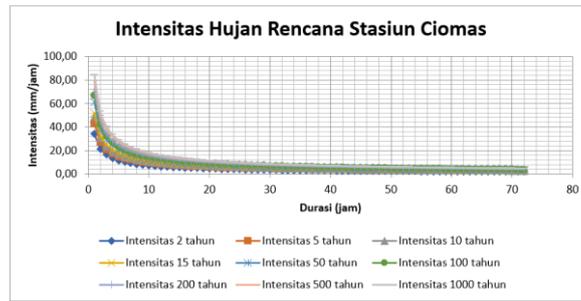


Figure 11. The planned rain intensity of Ciomas Rain Station Post

4. Analysis Results of Determining the Probability Distribution of Ciruas Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 12. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana		
No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	70,25
2	5	94,50
3	10	110,55
4	15	119,61
5	50	145,89
6	100	160,83
7	200	175,71
8	500	195,35
9	1000	210,19

Figure 13. The planned rain intensity of Ciruas Rain Station Post

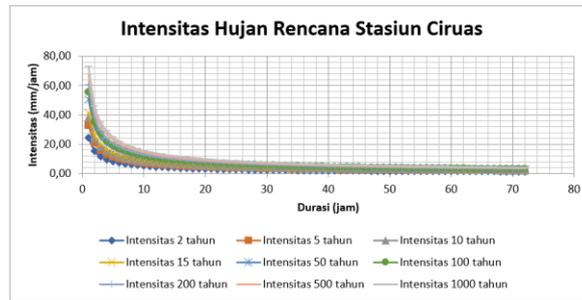


Figure 14. The planned rain intensity of Ciruas Rain Station Post

5. Analysis Results of Determining the Probability Distribution of Kramatwatu / Pegadingan Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima

22. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima

3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 15. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana		
No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	75,29
2	5	100,04
3	10	116,43
4	15	125,67
5	50	152,49
6	100	167,74
7	200	182,93
8	500	202,97
9	1000	218,11

Figure 16. The planned rain intensity of Kramatwatu / Pegadingan Rain Station Post

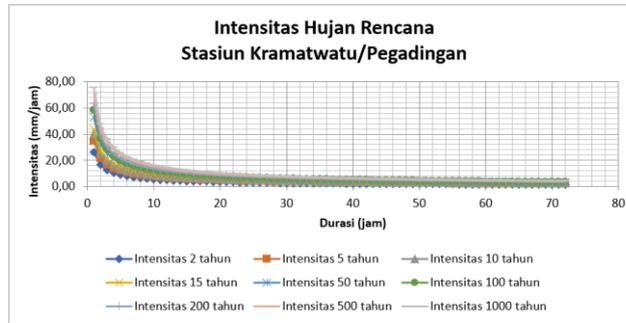


Figure 17. The planned rain intensity of Kramatwatu / Pegadingan Rain Station Post

6. Analysis Results of Determining the Probability Distribution of Pabuaran Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima

2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima

3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:

No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 18. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana		
No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	78,15
2	5	99,76
3	10	114,06
4	15	122,13
5	50	145,55
6	100	158,86
7	200	172,12
8	500	189,62
9	1000	202,84

Figure 19. The planned rain intensity of Pabuaran Rain Station Post

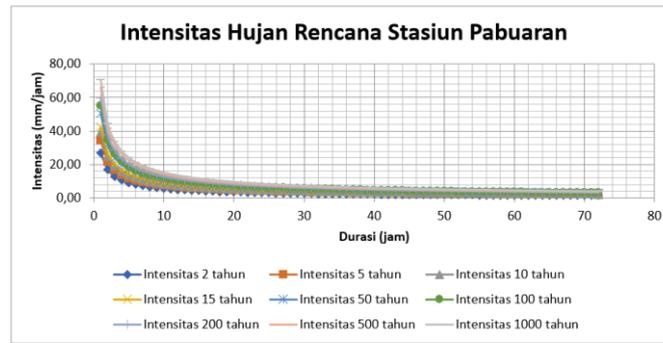


Figure 20. The planned rain intensity of Pabuaran Rain Station Post

7. Analysis Results of Determining the Probability Distribution of Padarincang Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Diterima
Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari: DISTRIBUSI GUMBEL*		

Figure 21. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	123,89
2	5	159,64
3	10	183,31
4	15	196,66
5	50	235,39
6	100	257,41
7	200	279,35
8	500	308,30
9	1000	330,18

Figure 22. The planned rain intensity of Padarincang Rain Station Post

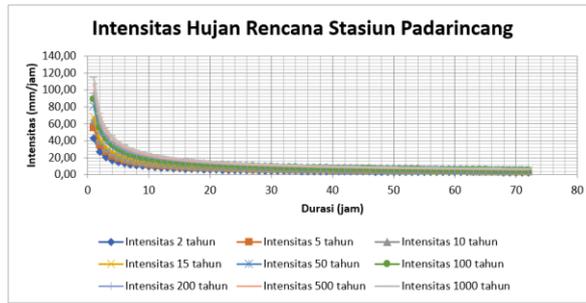


Figure 23. The planned rain intensity of Padarincang Rain Station Post

8. Analysis Results of Determining the Probability Distribution of Pamarayan Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima
Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari: DISTRIBUSI GUMBEL*		

Figure 24. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana		
No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	86,21
2	5	107,19
3	10	121,09
4	15	128,93
5	50	151,67
6	100	164,59
7	200	177,48
8	500	194,47
9	1000	207,31

Figure 25. The planned rain intensity of Pamarayan Rain Station Post

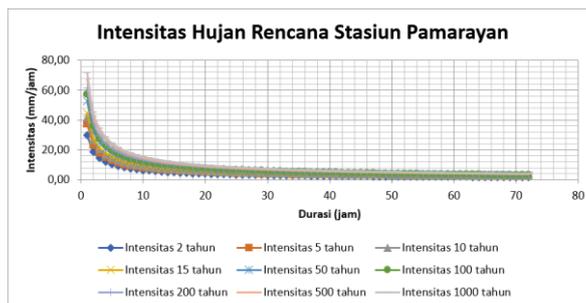


Figure 26. The planned rain intensity of Pamarayan Rain Station Post

9. Analysis Results of Determining the Probability Distribution of Pontang Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima

2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima

3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 27. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

Hujan Rencana		
No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	75,56
2	5	108,53
3	10	130,35
4	15	142,67
5	50	178,39
6	100	198,70
7	200	218,94
8	500	245,64
9	1000	265,81

Figure 28. The planned rain intensity of Pontang Rain Station Post

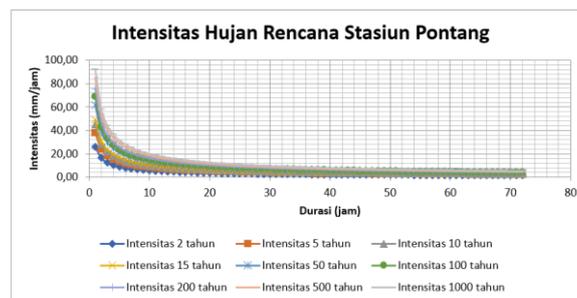


Figure 29. The planned rain intensity of Pontang Rain Station Post

10. Analysis Results of Determining the Probability Distribution of Regas Hilir Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima
Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari: DISTRIBUSI GUMBEL		

Figure 30. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	73,06
2	5	99,81
3	10	117,51
4	15	127,50
5	50	156,48
6	100	172,95
7	200	189,37
8	500	211,02
9	1000	227,39

Figure 31. The planned rain intensity of Regas Hilir Rain Station Post

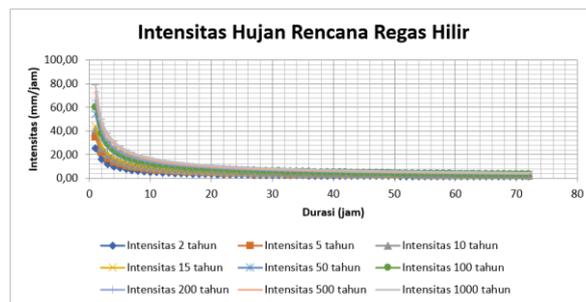


Figure 32. The planned rain intensity of Regas Hilir Rain Station Post

11. Analysis Results of Determining the Probability Distribution of Walantaka Rain Station Post

1. Penentuan jenis distribusi probabilitas yang sesuai dengan mencocokkan parameter data:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Dapat Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Dapat Diterima
2. Penentuan jenis distribusi probabilitas dengan Metode Chi-Kuadrat (χ^2) adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Tidak Diterima
2	Normal	Tidak Diterima
3	Log Normal	Tidak Diterima
4	Log Pearson Type III	Tidak Diterima
3. Penentuan jenis distribusi probabilitas dengan Metode Smirnov-Kolmogorof adalah sebagai berikut:		
No.	Distribusi	Penentuan Jenis Distribusi
1	Gumbel	Diterima
2	Normal	Diterima
3	Log Normal	Diterima
4	Log Pearson Type III	Tidak Diterima

Berdasarkan perhitungan yg telah dilakukan, hujan rencana yang digunakan adalah dari:
DISTRIBUSI GUMBEL*

Figure 33. Results of the Analysis of Determining the Probability Distribution

The following presents a graph of the planned rain intensity using the Gumbel Distribution, Using the Mononobe Formula:

No.	Periode Ulang T (tahun)	Hujan Rencana (mm)
1	2	78,70
2	5	93,71
3	10	103,65
4	15	109,26
5	50	125,53
6	100	134,78
7	200	143,99
8	500	156,15
9	1000	165,34

Figure 34. The planned rain intensity of Walantaka Rain Station Post

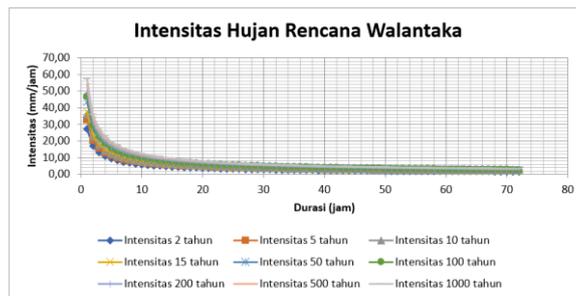


Figure 35. The planned rain intensity of Walantaka Rain Station Post

IV. CONCLUSION

1. The rainfall data utilized is short-term and is the annual maximum series;
2. The RAPS approach yielded CONSISTENT findings for the data consistency test at 11 (eleven) Rain Station Posts in Serang Regency;
3. The Gumbel Distribution was used in the computations to determine the planned intensity of the rain.

Some suggestions for future similar studies to improve results are as follows:

1. If the amount of data obtained from observation stations is significant, accuracy in processing rain data is required.

2. A longer duration of rain data is required for a more accurate frequency analysis. As a result, the appropriate agencies must examine the availability of data over a more extended period.

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The Influence of Halal and Conventional Tourism on NTB's Regional Original Revenue: A Comparative Analysis

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ABSTRACT

Purpose: The purpose of this study was to determine the comparison of the effects of conventional tourism and halal tourism on regional original revenue, especially in West Nusa Tenggara (NTB) Province.

Design/methodology/approach: This research is a quantitative descriptive research using the ANN (Artificial Neural Network) model.

Findings: The results of this study indicate the difference between before becoming halal tourism (conventional) before the NTB governor's regulation, which significantly affects regional original revenue, domestic tourists with a value of 54.68% and foreign tourists with a value of 32.48%, and when it has become halal tourism, which greatly affects foreign tourists, namely (53.52%), and local tourists with a value of 42.91%. As for the USD exchange rate factor against the rupiah, it has no effect on regional original revenue with a value of both 12.82% for conventional tourism and 3.55% for halal tourism.

Practical implications: These results are expected to provide input to NTB provincial stakeholders, especially in the field of tourism, to improve and maintain the advantages and uniqueness of halal tourism. **Originality/value:** Research that compares the effect of tourism before and after becoming halal on regional income is still very rarely done, especially by using the ANN method.

Paper type: Research paper

Keyword: Conventional Tourism, Halal Tourism, Local Revenue, ANN

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I. INTRODUCTION

The potential to increase revenue from tourism makes it a crucial industry for the development of regional economies. People of modern urban cities frequently create distinctive itineraries. As a result, the tourism sector has the potential to grow in the future (Djakfar, 2017). The tourist industry has grown significantly in importance within the last few years to the global economy. 10% of the total GDP is contributed by the tourism industry. One in ten employments are generated by the tourism industry. In 2016, the tourist industry provided 1.4 trillion USD (7% of all exports) in export value. Additionally, tourism makes up 30% of all services exported globally (Destiana & Astuti, 2019).

The patterns of tourist travel started to alter throughout time. Tourist consumption patterns (customer behavior patterns) for tourism goods or tourist destinations that are no longer focused on the 3S (sun, sea, and sand) might be encouraged by changes in visitor motivation and travel patterns (Priyadi, 2020). Halal tourism is also a modern alternative to traditional trips. Because it is regarded as more welcoming to Muslim tourists, halal tourism has become a viable choice for Muslims. The Islamic concept of Muamalah, which educates about human connections via everyday activities, includes tourism. (Djakfar, 2017). The demand for halal tourism worldwide has been increasing, making it an emerging market with potential to increase local income (Subarkah, 2018; Herawati, 2023).

West Nusa Tenggara Province is the province that has fully established international standards for halal tourism. Particularly after NTB Province won a prize at the 2016 World Halal Tourism Awards (Hamzana, 2017). The NTB Provincial Government only discovered the perfect format or formulation for halal tourism in NTB in 2015. Halal tourism has grown since it was first proclaimed in 2010. This was evidenced by the presence of NTB Governor Regulation No. 51 of 2015 regarding Halal Tourism, which was signed on September 29, 2015, by the NTB Governor in office at the time. Moreover, the NTB Regional Regulation No. 2 of 2016 on halal tourism has strengthened it. The study by Amelia (2017) indicates that in NTB, Islamic character formation starts at an early age. Furthermore, Hamzana (2018) suggests that the West Nusa Tenggara Department of Industry and Commerce and the Health Service in conjunction with the Ulema Council of Indonesia issue halal certificates. These findings suggest the potential for the development of halal tourism destinations in NTB. The NTB Provincial Government can enhance the sector's revenue if it works hard to promote tourism. The NTB Provincial Government could become more independent and less reliant on the federal government as a result. Tourism can provide local revenue through hotel taxes, restaurant taxes, entertainment taxes, lodging, boarding, and villa levies, as well as through levies on leisure sites, or it can generate foreign exchange through international visitors (Arlina & Purwanti, 2013).

According to Nurjaya et al. (2020), many companies and parties participating in the tourism industry struggle to comprehend the products, services, and infrastructure associated with halal tourism. In particular, for West Nusa Tenggara Province as a possible halal tourism destination, the study by Subarkah (2018) proposed that halal tourism might be used as a tool for Indonesian public diplomacy to enhance tourist visits and improve the regional economy. Additionally, the growth of halal tourism may draw investment and prospects for employment (2018). In conclusion, halal tourism is an intriguing area for further investigation since it has the potential to significantly impact the economic growth of the West Nusa Tenggara Province (Nurcholifah, 2023).

Comparative studies of the effects of conventional and halal tourism on city tax revenues are still very rare. The importance of the study lies in its capacity to explain the effect of halal tourism on regional income using a statistical model (Abduh, 2022). This research is a quantitative descriptive study using the artificial neural network (ANN) model. This study also shows that, when viewed from a traditional tourism perspective, the number of domestic and international visitors has a sizeable impact on regional original revenue. The quantity of foreign visitors is also the most significant factor in halal tourism (Abduh, 2022). In addition, Rozalinda et al. (2019) examined the advantages and disadvantages of establishing halal tourism in Indonesia while mapping the economic potential of doing so. It is recommended that NTB provincial stakeholders in the tourism industry improve and maintain the excellence and distinctiveness of halal tourism based on the literature reviewed.

This research continues the findings of Nurcholifah (2023); Rozalinda et al. (2019); and Destiniana & Astuti (2019) by comparing tourism before and after the existence of NTB Governor Regulation No. 51 of 2015 concerning Halal Tourism. This study aims to determine tourism factors that affect NTB's local revenue. The results of this study are expected to provide input to NTB provincial stakeholders, especially in the field of tourism, to improve and maintain the advantages and uniqueness of halal tourism.

A. Factors Tourism

A country's economy relies heavily on tourism, which also creates jobs, both directly and indirectly. In this literature review, many studies show how various factors the tourism sector. These variables include the currency exchange rate, the number of local and international tourists.

1. Exchange Rate

Khanalizadeh et al. (2019) examine using the autoregressive distributed lag (ARDL) method to explore the impacts of economic growth, hotel development, and the real exchange rate on the tourism industry. Sharma et al. (2019) investigate the extent to which exchange rate fluctuations affect India's international tourism receipts. Ahmed (2019) examines the effect of exchange rate volatility on tourism stock prices on the Egyptian Exchange (EGX). Since perfectly reversible demand functions are generally used in tourism demand modelling, little attention has been given to the asymmetric tourist responses to exchange rate changes. Chi (2020) attempts to fill this gap by examining two types of asymmetric demand responses associated with exchange rate fluctuations: 1) currency appreciations and depreciations, and 2) rises and falls in exchange rate volatility. Over the past three decades, there has been an increasing focus on the subject of global tourism in Iran's economy. Mohammadzadeh et al. (2020) examine the most important economic factors affecting this industry in this country, especially economic policy uncertainty.

H1 = Exchange rate has a positive impact on regional original revenue

2. Local Tourism

An investigation by Laut, Sugiharti, and Panjawa (2021) in the Indonesian province of Central Java revealed that the supply-side contribution to local own-source income is less elastic than an increase in local tourism demand. This suggests that a growth in visitor demand could result in a discernible gain in local revenue. Arifai

(2019) did a study on the Blang Kolam waterfalls in Indonesia's Aceh Province and discovered that applying the creative economy, a profit-sharing structure based on sharia law, and environmental aspects of tourism are key components to boosting local original revenue. Susanti, and Kutaneegara (2019) showed that local income in a region with tourist attractions may rise concurrently with the growth of the tourism sector. They underlined the importance of the local level in the growth of Indonesian tourism.

H2 = Local tourism has a positive impact on regional original revenue

3. International Tourism

It has been discovered that Indonesia's regional income is significantly impacted by international tourism. The ASEAN Tourism Forum (ATF), which Indonesia uses to advertise itself as a tourist destination and draw in foreign investors, provides as an example of this (Rahmat, 2021). Given that it takes into account sociocultural, economic, and environmental sustainability, sustainable tourism management is essential to sustaining tourist growth (Rahadi, 2021). However, the COVID-19 epidemic has had a detrimental impact on the Indonesian tourism sector, causing a reduction in earnings as international visitor numbers drastically fell (Anele, 2021). In order to promote distinctive local qualities and ensure sustainable tourist management, it is crucial to use the creative industries in Indonesia.

H3 = International tourism has a positive impact on regional original revenue

B. Tourism Affecting Regional Original Revenue

This literature review aims to synthesize recent studies and investigate how tourism affects regional original revenue. According to Poto et al. (2022) recommended improving tourism training, supervision, and management, establishing regional regulations, and building cooperation with private and other regions regarding the Tourism Development Policy to increase regional original revenue. Wahyuni et al. (2018), employing Malang Raya as a case study, used the number of tourist arrivals, hotel room occupancy rates, the number of restaurants, and Gross Regional Domestic Product (PDRB) data from 2006 to 2016. They applied the fixed effect model of multiple regressions to analyze the secondary panel data from three local governments in Malang Raya. They concluded that tourism has a significant impact on the regional revenue of Malang Raya. Yulanda and Rahayu (2019) investigated Tanah Bumbu Regency's potential and development of the tourism sector for local revenues. They found that the strategic location and the support of the government, private parties, and the surrounding communities of tourism objects can be leveraged for business development and services in Tanah Bumbu Regency.

C. Research Framework

The research framework in this study is:

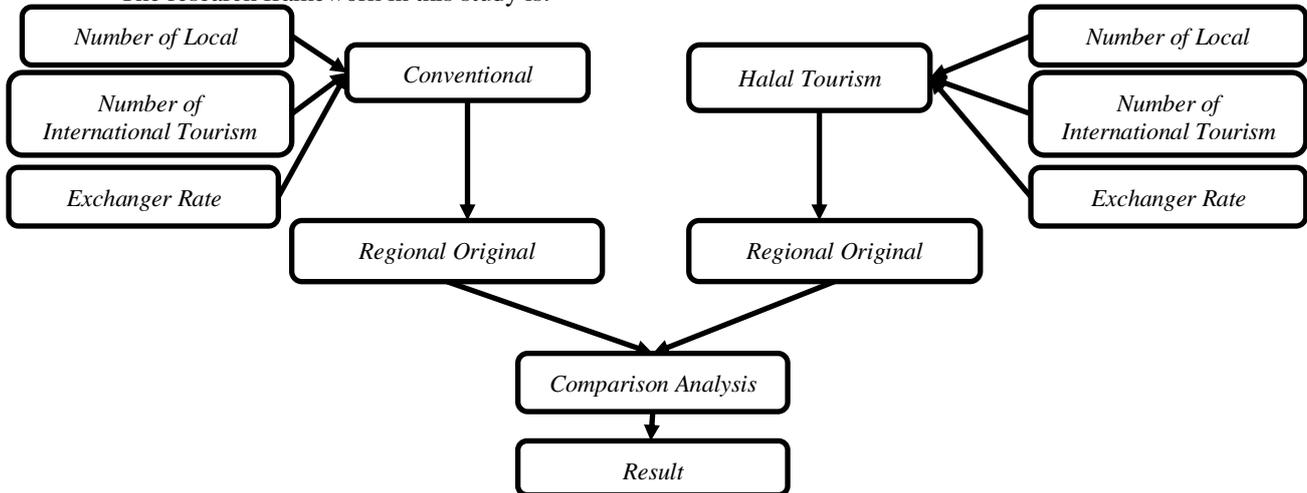


Figure 1. Research Framework

II. METHODS

A. Data

This study uses descriptive quantitative analysis by comparing the two findings between conventional tourism (before the NTB governor's regulation on halal tourism) and halal tourism (after the NTB governor's

regulation on halal tourism). The data used in this study are secondary data sourced from the website www.disbudpar.ntbprov.go.id for data on domestic and foreign tourists who come to West Nusa Tenggara. In addition, the rupiah exchange rate data uses data from www.bi.go.id. The time span taken is 2011–2015 for data before the formation of halal tourism in NTB and 2016–2020 for data after the formation of halal tourism.

B. Operational Variables

Operational variables are required to be defined which aims to explain the meaning contained in the research variables which provides instructions on how the research variables are measured.

Table 1. Operational Variable

<i>Research Variable</i>	<i>Definition</i>
<i>Exchange Rate (X1)</i>	<i>Rupiah to dollar exchange rate (www.bi.go.id)</i>
<i>Domestic Tourism (X2)</i>	<i>Number of local tourist arrivals that visit an area to benefit (Osiako, KUMMITHA, and SZENTE, 2022; Ocran, Adebajji, and Sarpong, 2019).</i>
<i>International tourism (X3)</i>	<i>The number of foreign tourists who come to a country with benefits (Zirulia, 2014; Hüseynova, 2021).</i>
<i>Regional Original Revenue (Y)</i>	<i>Local revenue refers to the total amount of revenue generated within a certain regional area. In this case specifically in tourism revenue.</i>

Source: data processed (2023)

C. ANN Model

Using the www.alyuda.com program, there are three steps to implementing the Artificial Neural Network (ANN) model to analyse how tourism-related factors affect local revenue, namely: 1) input data from all previous period variables; 2) the data will be processed through two stages, namely the training stage and the testing stage; and 3) the output will be obtained in the form of output from the predicted variables. The Artificial Neural Network (ANN) model can be represented by the following equations when doing technical data calculations (Vochozka, Horak, & Ule, 2019):

$$Y = f \left[v_0 + \sum_{j=1}^m h(\lambda_j + \sum_{i=1}^n x_i w_{ij}) v_j \right] \tag{1}$$

Where:

Y = network output

f = Activity Function of Output Layer

v0 = Output bias

h = Activity Function of hidden layer

λj = hidden unit biases (j = 1, ..., m)

The above results in a logarithm that is used in the learning process to aim for: (1) All neurons select the logistic function; (2) the output error is minimized by selecting the sum-of-squares error; (3) the logistic activation function uses between 0 and 1 to set the network output.

Furthermore, artificial neural networks are trained using special conditions to obtain the significance level of each variable by using inverse propagation for logarithmic learning, learning speed and momentum determined at 0,1, and completeness by maximizing the process at a mean square of less than 0.000001 or with the model completing 20,000 iterations. Thus, the information provided in this process is a significant variable that affects profitability (Anwar and Watanabe, 2010; Fakhri and Darmawan, 2022; Fakhri et al., 2020). The following is the research flow using ANN:



Figure 2. ANN Process

From the process above, the first process in analyzing with the ANN model is first to identify the data, the data to be analyzed will be identified by the amount of data, the choice of time series of the data, secondly choosing the best logarithm to produce the best output, then the Validity Test using CCR, and finally the output that tests the hypothesis where if it is more than 30% it will have an effect (Fakhri and Darmawan, 2021; Novida, and Oktaviani, 2022).

III. RESULTS AND DISCUSSION

In this section, the best logarithm generated from the data will be presented first, followed by the validity test using ROC (receiver operating characteristics). The output of the data will then be analysed using the comparison method.

A. Data Analysis Test Effect of Conventional Tourism on Local Revenue

1. The Best Logarithm

Data on the effect of Conventional Tourism on Local Revenue generating the best logarithm of the ANN model is:

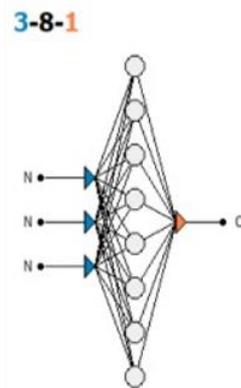


Figure 3. Best logarithmic ANN Effect of Conventional Tourism on PAD

The result is N3-8-1, this result shows that to process data on the effect of Conventional Tourism on Regional Original Revenue with 3 variables requires 8 Neurons to get optimal results.

2. ROC (Receiver Operating Characteristics)

The following are the results of data validation of the effect of Conventional Tourism on Regional Original Revenue using ROC:

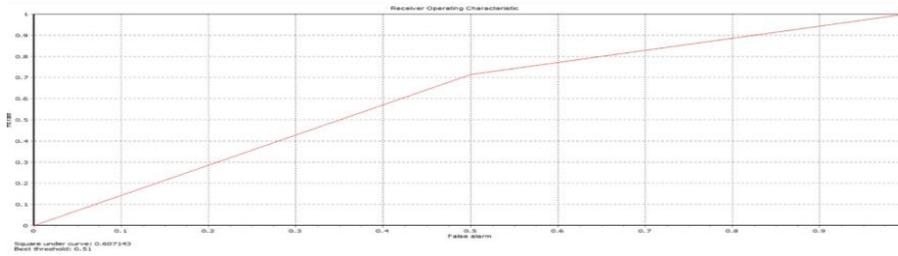


Figure 4. ROC Effect of Conventional Tourism on PAD

The validation results using ROC with a value of 60.3% declared the data valid. According to Fakhri and Darmawan (2021), it shows that if the ROC value exceeds 50%, the data analyzed is valid. So that the data can be analyzed further.

B. Data Analysis Test Effect of Halal Tourism on Local Revenue

1. The Best Logarithm

Data on the effect of Halal Tourism on Local Revenue generating the best logarithm of the ANN model is:

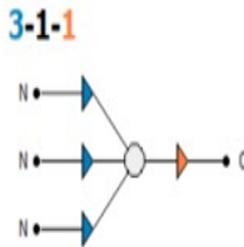


Figure 3. Best logarithmic ANN Effect of Halal Tourism on PAD

The result is N3-1-1, this result shows that to process data on the effect of Conventional Tourism on Regional Original Revenue with 3 variables only requires 1 Neuron to get optimal results.

2. ROC (Receiver Operating Characteristics)

The following are the results of data validation of the effect of halal Tourism on Regional Original Revenue using ROC:

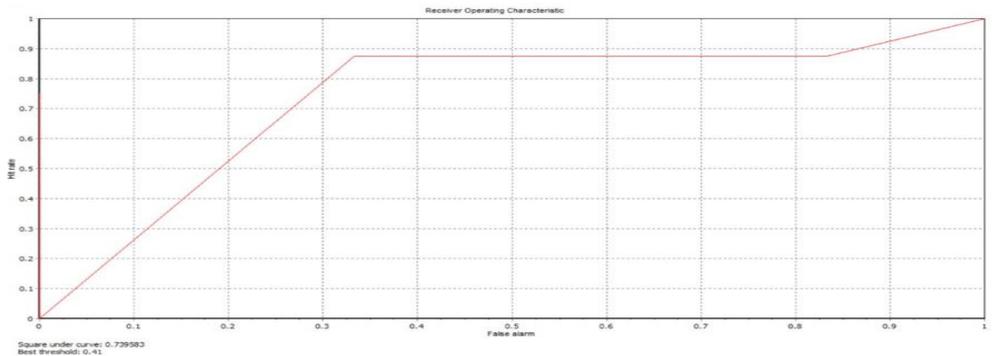


Figure 4. ROC Effect of Halal Tourism on PAD

The validation results using ROC with a value of 70.3% declared the data valid. So that the data can be analyzed further.

C. Result and Comparison Analysis

This section presents the results of halal and conventional tourism that affect local revenue generation. The results of both data are shown in the table below.

Table 2. Comparison of Conventional Tourism with Halal Tourism

<i>Information</i>	<i>Result</i>	
	<i>Conventional Tourism</i>	<i>Halal Tourism</i>
<i>The Best Logarithm</i>	3-8-1	3-1-1
<i>ROC</i>	60%	73%
<i>Number of Local Tourism</i>	54,68%	42,91%
<i>Number of International Tourism</i>	32,48%	53,52%
<i>Exchange Rate</i>	12,82%	3,55%

Source: ANN Model, 2023

The table above explains that the two data presented are equally valid with an ROC value of 60% conventional tourism, and 73% halal tourism. With different logarithms, namely conventional tourism N3-8-1 and halal tourism N3-1-1. This result shows that the processed conventional tourism data must require 8 neurons to get good validation, while for halal tourism data only requires 1 neuron.

The results of the two variables have differences and similarities, where the similarity of these results is in the exchange rate. The results of the exchange rate both do not affect local revenue with the results for conventional tourism which is 12.82% and halal tourism which is 3.55% because these results are less than 30%. Thus it can be concluded that H1 is rejected. This result is different from previous studies (Khanalizadeh et al., 2019; Chi, 2020; Mohammadzadeh et al., 2020), which argue that the exchange rate has a positive effect on local revenue. This can provide an explanation for why foreign and domestic tourists do not think about exchange rate differences because tourist attractions in West Nusa Tenggara (NTB) are very exotic.

Different results were found in the domestic and international tourist variables. Where the first position of the variable from conventional tourism that affects local revenue is domestic tourists with a value of 56.84%, in other words H2 is accepted, while halal tourism that affects local revenue is international tourists with a value of 53.52%, thus H3 is accepted. While the second position that affects local revenue is local tourists for halal tourism with a result of 42.91%, and foreign tourists for conventional tourism with a value of 32.48%. This difference proves that after West Nusa Tenggara won the title of "World Best Halal Tourism Destination and "World Best Halal Honeymoon Destination", many foreign tourists are interested in coming and want to know the tourist attractions in the area. The results of the influence of local tourists on local revenue are in accordance with previous research, namely Laut, Sugiharti, and Panjawa (2021); Arifai (2019); and Susanti and Kutaneegara (2019), which concluded that local tourists have a positive effect on local revenue. Likewise, with foreign tourists, the results are in accordance with previous research (Rahmat, 2021; Rahadi, 2021; Anele, 2021), which assessed that foreign tourists have a positive effect on local revenue.

IV. CONCLUSION

The potential to increase revenue from tourism makes it a crucial industry for the development of regional economies. This study aims to determine conventional and halal tourism factors that affect NTB's regional original revenue. The results of the two variables have differences and similarities, where the similarity of these results is

in the exchange rate. The results of the exchange rate both do not affect local revenue with the results for conventional tourism which is 12.82% and halal tourism which is 3.55% because these results are less than 30%. Thus it can be concluded that H_1 is rejected. Different results were found in the domestic and international tourist variables. Where the first position of the variable from conventional tourism that affects local revenue is domestic tourists with a value of 56.84%, in other words H_2 is accepted, while halal tourism that affects local revenue is international tourists with a value of 53.52%, thus H_3 is accepted. While the second position that affects local revenue is local tourists for halal tourism with a result of 42.91%, and foreign tourists for conventional tourism with a value of 32.48%. The results of this study are expected to provide input to NTB provincial stakeholders, especially in the field of tourism, to improve and maintain the advantages and uniqueness of halal tourism.

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Impact of Social Media Marketing and Brand Awareness on Purchase Intention in Coffee Shop Culinary in Surabaya

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ABSTRACT

Purpose: To explain the Effect of Social Media Marketing and Brand Awareness on Purchase Intention

Design/methodology/approach: Analysis techniques using Partial Least Square (PLS) and assisted by SmartPLS 3.0 software.

Findings: Social Media Marketing and Brand Awareness have a positive and significant effect on the Purchase Intention of Coffee Shop Culinary in Surabaya so it is recommended to increase Social Media Marketing can be done to create Coffee Shop Culinary social media to expand Coffee Shop Culinary promotion and establish relationships with customers or other companies. Meanwhile, to increase Brand Awareness, you can provide promotions and discounts on products purchased by consumers and promote with Influencer Marketing to attract consumers to Coffee Shop Culinary in Surabaya.

Practical implications: Improving Social Media Marketing can be done by creating Culinary Coffee Shop social media to expand Coffee Shop Culinary promotion and establish relationships with customers

Paper type: Research Paper.

Keyword: Social Media Marketing, Brand Awareness, Purchase Intention

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I. INTRODUCTION

The culinary business is one of the businesses that continues to grow in Surabaya. The growth of culinary business in Surabaya is spread across several strategic locations. On the other hand, the existence of universities in Surabaya is also the cause and trigger for the emergence of many culinary business people. Currently, the culinary business is one of the choices of someone in opening a business because it has a great influence on the needs of the community itself. Many culinary businesses are emerging today, including *cafes* or restaurants. Restaurant or Cafe itself is the choice of various consumers to meet their needs and life satisfaction.

Today development has occurred in various dimensions of life, including many changes that occur in human habits. Many factors behind this change occur, including technological advances. This technological advancement certainly has an impact on lifestyle changes in the community which causes companies or industries to Innovate and gain community acceptance when launching products (Kuspriyono & Nurelasari, 2018). This is what causes a lot of competition between businesses that are so tight that companies or industries are competing to introduce their products or services through social media with a variety of interesting content. Modern lifestyles in today's society include gathering places, relaxing activities, or drinking coffee in cafes and coffee shops, and this is usually done by individuals or groups. One of the *cafes* that are the choice of people in Surabaya is Warung Kopi X. Warung Kopi X has been operating since 2015 and is located at Jalan Dharmawangsa No. 29 Surabaya, located close to one of the state campuses in Surabaya which causes Warkop to be the choice of many young people to enjoy the various coffee menus available. This cafe has many variants of selected coffee menus from various

regions in Indonesia and other complementary foods that have quite affordable prices and have a place with a good and comfortable atmosphere to attract consumer buying interest.

In today's technological era, companies are required to carry out various strategies to maintain their business, one of which is utilizing the use of social media for marketing strategies. Marketing that uses social media or online media is called interactive marketing, where this marketing activity aims to build a brand image or product and create product or service sales activities.

Warkop X, a long-established coffee shop with many customers, uses web media (online) as a marketing medium. Social media itself is a very widely used device by the general public and its functionality is easily accessible from mobile phones. Access points such as the Internet make it easy for people to get up-to-date information about the products and services they need (Oktaviani & Rustandi, 2018). The use of social media, especially the internet in the marketing strategy of a business, is a positive thing because people or consumers can easily access and obtain information about the business. Social media marketing should also be creative and interesting to increase brand awareness (Upadana & Pramudana, 2020). This is very effective when introducing a corporate brand to buyers on a large scale, and it becomes a large-scale introduction of the brand to the consumer, allowing the brand to be established at the highest level in the consumer's mind and used as a reference for the brand when making a purchase.

One of these *digital* marketing techniques is social media marketing (*SMM*) is *promoting products and services using online media that is useful in the stage of introducing more specifically about the products and services offered*. *Social media marketing* utilizes an online-based communication process that includes blogs or *websites* used by companies to communicate with consumers, and is widely used as a medium for sales promotion, advertising, and other things related to promotional activities (Adhawiyah et al., 2019). This marketing activity is expected to improve and maintain a brand so that consumers can be more *aware* and always remember the brand of a company, which results in the emergence of consumer loyalty to the brand. In addition, companies must also be able to have the ability to approach buyers with the aim of collecting brand awareness so that buyers can recognize a product among other products (Upadana & Pramudana, 2020).

Many business people and companies believe that using social media marketing as a promotional tool offers operational benefits because promotions are less costly and more efficient. When consumers visit a company's website, they are more familiar with the products on offer, which increases the effectiveness of their product sales. The purpose of this marketing is to embed the brand in the consumer's mind so that when the consumer needs the product, a particular brand immediately comes to mind. *Social media marketing* is one of the factors in the formation of brand awareness in the decision-making process that will be carried out by consumers. *Brand awareness* means that consumers' ability to determine purchases to see and remember the return of a brand that is one of certain product parts (Adhawiyah et al., 2019). A high level of consumer awareness can influence the existence of the brand because consumers easily recognize and remember the brand. Currently, due to lack of marketing efforts, many consumers do not know the brand of the product (Upadana & Pramudana, 2020). Building consumer awareness to be able to recognize and remember a brand is a must done by business actors, in addition to products becoming more famous in order to make consumers repeat *customers*.

When *social media marketing strategies* succeed in forming *brand awareness*, consumers will give up their confidence in the brand when they use it. This confidence causes consumers to think about always remembering a brand and causes a tendency to consider and decide to choose a brand (brand) that they think can avoid risks that can harm consumers. A product that has high *brand awareness* is the first step that results in consumers will have a purchase intention or decision to buy the product. According to Upadana & Pramudana (2020), purchasing decisions are stages that determine buyers in making purchases of products or brands, and consuming them. Herdana (2015) also mentioned that every buying process made by consumers starts from brands they recognize and remember compared to brands they consider foreign.

Based on this analysis, brand awareness formation and purchase decisions are influenced by social media marketing. This is in consistent with the statement of Upadana & Pramudana (2020) shows that social media marketing plays a role in shaping brand awareness and driving purchasing decisions. Social media marketing activities should be accompanied by innovative and engaging activities so that consumers can make purchasing decisions with a high degree of confidence in your product (Upadana & Pramudana, 2020). The existence of this phenomenon has intrigued researchers to conduct research, the main focus of which is summarized in the title *"The Influence of Social Media Marketing on Purchasing Decisions with Brand Awareness as an Intervening Variable in Coffee Shop Culinary in Surabaya*.

The purpose of this study is to determine social media marketing and brand awareness in Surabaya Coffee Shop Culinary;

1. Consumer Behavior

Solomon (2018) Consumer behavior is defined as the study of the processes that occur when individuals or groups select, purchase, use, or dispose of products, services, ideas, or experiences to satisfy their needs and

desires. In the consumer action stage, purchase intent is the evaluation stage after consumers receive information.

2. *Purchase Intention*

Purchase Intention is motivated by what one sees, accompanied by feelings of enjoyment of the product, and creates a compelling desire that the product is beneficial to oneself (Chintia Pramesti & Rahanatha, 2018). Consumer interests, interests, decisions, in choosing a product or service can be influenced by *social media marketing*, because consumers choose products that are familiar or familiar (Leviana, 2019)). This shows that *purchase intention* can be increased through *social media marketing* used by business owners in strengthening *brand awareness*, and explained by research by Hikmareta (2020); Sutariningsih & Widagda K (2021). Ferdinand (2006) in Hikmareta (2020) states that *purchase intention* or purchase interest can be measured using several metrics such as deal interest, referral interest, preferred interest, and exploratory interest.

3. Marketing Communications

According to Kotler & Keller (2016), marketing communications are means intended to directly and indirectly inform, persuade, and remind consumers about the products and brands that a business sells.

Based on the above understanding, it can be understood that marketing communication is a relationship between one party or can be referred to as a communicator who conveys messages about products to other parties or communicants and the message is well received.

4. *Social Media Marketing*

Kotler & Keller (2016) define social media as the tools or methods that businesses and consumers use to share information with others in the form of text, images, video and audio, and vice versa. The influence of social media is very effective in influencing the intention of prospective buyers to make actual purchases of products, after consumers feel aroused, consumers will be encouraged to seek more information about the product (Firmansyah, 2018).

Research by Sutariningsih & Widagda K (2021) shows that marketing with attractive *social media* can increase purchase intent on a product and can increase brand awareness. Indicators of *Social Media Marketing variables* refer to the research of Aji et al. (2020); Kim & Ko (2012); Seo & Park (2018); Sutariningsih & Widagda K (2021) which is adjusted to current research, namely *Entertainment, Customization, Interaction, Word of Mouth, Trend*.

5. *Brand Awareness*

Brand Awareness according to Keller (2013), Brand awareness refers to the strength of brand nodes or traces in memory. This can be measured as a consumer's ability to discern a brand under different conditions. A brand is part of a specific product category. Kertajaya (2010) categorizes brand awareness into brand ignorance, brand awareness, brand recall, and overriding awareness. The Brand Awareness variable refers to the research of Aji et al. (2020); Seo & Park (2018) can be measured by several indicators, including brand knowledge, easy to remember, distinguishable.

II. METHODS

This type of research uses quantitative approach techniques to determine the impact of social media marketing on purchase intent through brand awareness. This research was carried out in Surabaya City in the period June – July 2023. The population in this study is dynamic (changes in number) so that the population number is not known with certainty. The study used *nonprobability sampling* techniques because the population is unknown Sekaran & Bougie (2016). The sampling technique through *Purposive Sampling* is someone who has been a customer at a Coffee Shop Culinary in Surabaya. So, the number of respondents in this study was set at 100 respondents. According to Sugiyono (2019: 143) the feasible sample size in research is between 30 to 500 so that it is stated that the number of research samples already has a decent number. Data collection methods were conducted by distributing questionnaires or by online questionnaires. The measurement scale used in this study was the Likert scale ranging from 1 to 5. In this study, partial least squares (PLS) were used for data analysis. PLS is Structural Equation Model (SEM). This research will be conducted in three phases: measurement model (external model), structural model (internal model), and hypothesis testing.

Table 1. Research Instrument Indicators

No	Variabel	Indikator
1	<i>Social Media Marketing (X1) Kim & Ko (2012), Seo & Park (2018), Sutariningsih & Widagda (2021), Aji et al.(2020)</i>	<i>Entertainment, Customization, Interaction, Word of Mouth, Trend.</i>
2	<i>Brand Awareness (X2) Seo & Park (2018), Aji dkk.,(2020)</i>	<i>1) Brand knowledge, 2) Ease of recall, 3) Distinguishable</i>
3	<i>Purchase Intention (Y) Sutariningsih & Widagda (2021), Priani et al (2019), Hikmareta & Zuliestiana (2020). Ferdinand (2006) dalam Hikmareta (2020)</i>	<i>1) Transactional Interest, 2) Referential Interest, 3) preferential interests, 4) Exploratory Interest</i>

Primary data were obtained directly from study subjects, namely MSME actors in Surabaya, through questionnaires given. The collected data will be analyzed using SMEs techniques. SMEs analysis will be used to examine the relationship between *Social Media Marketing* and *Brand Awareness* variables on *Purchase Intention* of Surabaya Coffee Shop Culinary.

A. Outer Model Testing

The model specification phase deals with internal and external model settings. External models, also called measurement models, are used to assess the relationship between indicator variables and corresponding components (Hair et al., 2014). Here are some tests on the Outer Model, namely:

1. Convergent Validity

An indicator is considered to be convergently valid if its loading factor value is greater than 0.50. The indicator total load factor values are:

Tabel 2 Validity Test (Convergent Validity)

Variable	Item	original sample	P-Values	Information
<i>Social Media Marketing (X1)</i>	<i>X1.1</i>	<i>0,795</i>		
	<i>X1.2</i>	<i>0,641</i>		
	<i>X1.3</i>	<i>0,778</i>	<i>0,000</i>	<i>Valid</i>
	<i>X1.4</i>	<i>0,717</i>		
<i>Brand Awareness</i>	<i>X2.1</i>	<i>0,830</i>		

<i>Variable</i>	<i>Item</i>	<i>original sample</i>	<i>P-Values</i>	<i>Information</i>
<i>(X2)</i>	<i>X2.2</i>	<i>0,888</i>		
	<i>X2.3</i>	<i>0,858</i>		
	<i>Y1</i>	<i>0,822</i>		
<i>Purchase Intention</i>	<i>Y2</i>	<i>0,849</i>		
	<i>(Y)</i>	<i>Y3</i>	<i>0,798</i>	
	<i>Y4</i>	<i>0,628</i>		

Source: Researcher's Processed Data (2023)

Based on the convergence validity test shown in Table 2 above, we find that all indicators have a convergence validity score of 0.5 or higher. Allow all indicators to be used effectively.

2. Discriminant Validity

If the value of the crossload index for a variable is greater than the value of the other variable, the index is declared to have discriminant validity.

Tabel 3 Cross Loadings

<i>Item</i>	<i>Social Media Marketing (X1)</i>	<i>Brand Awareness (X2)</i>	<i>Purchase Intention (Y)</i>
<i>X1.1</i>	<i>0.795</i>	<i>0.662</i>	<i>0.535</i>
<i>X1.2</i>	<i>0.641</i>	<i>0.566</i>	<i>0.305</i>
<i>X1.3</i>	<i>0.778</i>	<i>0.575</i>	<i>0.421</i>
<i>X1.4</i>	<i>0.717</i>	<i>0.511</i>	<i>0.443</i>
<i>X2.1</i>	<i>0.735</i>	<i>0.830</i>	<i>0.511</i>
<i>X2.2</i>	<i>0.666</i>	<i>0.888</i>	<i>0.551</i>
<i>X2.3</i>	<i>0.627</i>	<i>0.858</i>	<i>0.515</i>
<i>Y1</i>	<i>0.467</i>	<i>0.412</i>	<i>0.822</i>
<i>Y2</i>	<i>0.586</i>	<i>0.651</i>	<i>0.849</i>
<i>Y3</i>	<i>0.444</i>	<i>0.436</i>	<i>0.798</i>
<i>Y4</i>	<i>0.285</i>	<i>0.325</i>	<i>0.628</i>

Source: Processed Data Researchers (2023)

From the crossload values in Table 3 above, we can see that each index of the research variables has the largest crossload value of the constructed variables compared to the crossload values of the other variables. Therefore, it can be said that the measures used in this study have good discriminant validity when each variable is compiled.

3. Avarage Variance Extracted

AVE values greater than 0.5 are considered satisfactory. The AVE test results are shown in Table 4:

Tabel 4 AVE

<i>Variable</i>	<i>AVE</i>
<i>Social Media Marketing (X1)</i>	<i>0,501</i>
<i>Brand Awareness (X2)</i>	<i>0,639</i>
<i>Purchase Intention (Y)</i>	<i>0,532</i>

Source: Researcher's Processed Data (2023)

The AVE value results for the indicator block measuring the configuration can be expressed in good discriminant validity values because the AVE value is > 0.5 . All configuration variables are then declared to have good discriminant validity.

4. Composite Reliability

A variable is considered to have composite reliability if its composite reliability score is greater than 0.70. Here are the composite reliability scores for each variable used in this study:

Table 5 Composite Reliability

<i>Variable</i>	<i>Composite Reliability</i>
<i>Social Media Marketing (X1)</i>	<i>0,824</i>
<i>Brand Awareness (X2)</i>	<i>0,894</i>
<i>Purchase Intention (Y)</i>	<i>0,859</i>

Source: Researcher's Processed Data (2023)

Based on the data presented in Table 5 above, we find a combined reliability score of > 0.70 for all survey variables. Therefore, all variables are sufficient to measure latent variables/configurations and can be used for further analysis, as each variable has achieved combined reliability.

5. Cronbach Alpha

If a variable has a Cronbach's alpha value > 0.6 , the variable can be declared reliable or satisfy Cronbach's alpha. The Cronbach alpha value for each variable is:

Table 6 Cronbach Alpha

<i>Variable</i>	<i>Cronbach Alpha</i>
<i>Social Media Marketing (X1)</i>	<i>0,719</i>

Brand Awareness (X2) 0,822

Purchase Intention (Y) 0,785

Source: Researcher's Processed Data (2023)

From the test results in the table above, we can see that the Cronbach alpha values for each study variable are > 0.60. Each study variable then modified Cronbach's alpha value.

B. Inner Model Test

In this study, we used Partial Least Squares (PLS) analysis with the SmartPLS program to test our research hypotheses. Here is an image of the proposed PLS model.

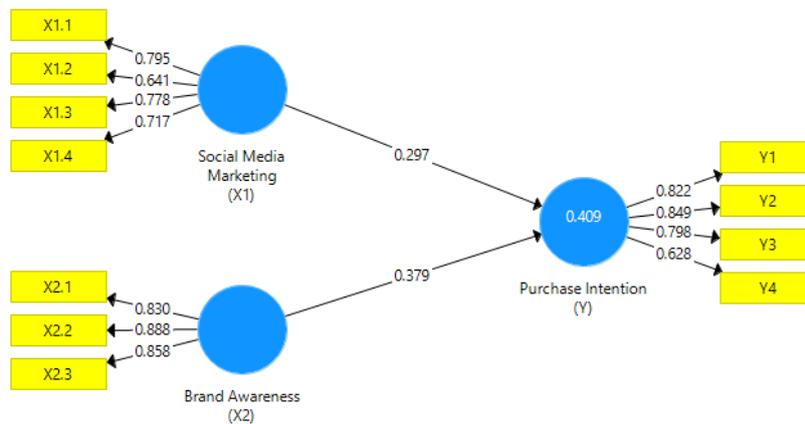


Figure 1 PLS Model Measurement

Source: Researcher's Processed Data (2023)

The intrinsic weight value results in Figure 1 above show that the purchase intent (Y) variable is influenced by the social media marketing (X1) and brand awareness (X2) variables in the structural equation below:

$$Y = 0,297 X1 + 0,379 X2$$

C. Hypothesis Testing

To answer the research question formulation, the following table presents seven t-statistics:

Table 7 Test Hypothesis

Variable Relationships	Original Sample	T Statistics	P Values	Information
Social Media Marketing (X1) -> Purchase Intention (Y)	0,297	2,046	0,041	Significant
Brand Awareness (X2) -> Purchase Intention (Y)	0,379	2,616	0,009	Significant

Source: Researcher's Processed Data (2023)

Based on the results of hypothesis testing shown in the table above states that:

1. Social Media Marketing (X1) has a significant positive effect on Purchase Intention (Y). This is evidenced by a statistical T value of 2.046 (greater than 1.96) and a P value of 0.041 (less than 0.050). In addition, the Original Sample value of positive 0.297 indicates the direction of a positive relationship.

2. *Brand Awareness* (X2) berpengaruh signifikan positif terhadap *Purchase Intention* (Y). This is evidenced by a statistical T value of 2.616 (greater than 1.96) and a P value of 0.009 (less than 0.050). Moreover, the value for the original sample is positive (0.379), indicating a positive association.

D. R Square Testing

When evaluating a model with PLS, start by considering the R-squared of each dependent latent variable. Changes in R-squared values can be used to assess the impact of a particular independent latent variable on whether the dependent latent variable has a significant effect. For endogenous latent variables in structural models, an R2 score of 0.75 indicates a "strong" model, an R2 score of 0.50 indicates a "moderate" model, and an R2 score of 0.25 indicates a "weak" model (Ghozali, 2016). PLS output explained below:

Table 8 R-Square Value

	<i>R Square</i>
<i>Purchase Intention (Y)</i>	<i>0,409</i>

Source: Researcher's Processed Data (2023)

Based on the above R-squared value test results, it can be interpreted as follows. The variables 'Social media marketing' (X1) and 'Brand awareness' (X2) influence the variable 'Purchase intent' (Y) in the structural model. The R2 value is 0.409, indicating that the model is "weak" and can generate 40.9% purchase intention.

III. RESULTS AND DISCUSSION

1. The Influence of Social Media Marketing on the Purchase Intention of Coffee Shop Culinary Customers in Surabaya

As a result, we found that social media marketing has a significant impact on purchase intent. This is also evidenced by the t-statistic of 2.046, which is greater than 1.96, and can be interpreted as social media marketing as a possible factor influencing purchase intent. Based on the direction of the relationship, social media marketing is positively correlated with purchase intent with the original sample value of 0.297, which is positive, so the relationship of these variables is unidirectional, implying that if the social media marketing of Coffee Shop Culinary Surabaya improves, the purchase intent of the customers of Coffee Shop Culinary Surabaya may increase. The findings are consistent with Asnan's (2018) study, which stated that social media marketing has a significant positive impact on purchase intent. A study by Azzahra et al. (2021) corroborate the findings, noting that there is a significant impact on purchase intention among social media marketing variables. However, the results of this study are inconsistent with those of Ellitan et al. (2020) they proved that social media marketing had no significant impact on purchase intent.

2. The Influence of Brand Awareness on the Purchase Intention of Coffee Shop Culinary Customers in Surabaya

As a result, we found that brand awareness has a significant impact on purchase intent. This is also evidenced by the t-statistic of 2.616, which is greater than 1.96, and can be interpreted as brand awareness as a possible factor influencing purchase intent. Based on the direction of the relationship, there is a positive relationship between brand awareness and purchase intent, and the original sample value is positive 0.379, so the relationship between these variables is one-way. This means that increasing the brand awareness of Coffee Shop Culinary Surabaya may increase the purchase intention of customers of Coffee Shop Culinary Surabaya. The findings of this study are consistent with those of Azzahra et al. (2021) stated that there is a significant impact on purchase intention among the brand awareness variables. A 2017 study by Eliasari and Putu found that brand awareness has a significant positive impact on purchase intent. However, the results of this study are inconsistent with the study of Chandra & Keni (2019), which proves that brand awareness does not significantly influence purchase intent.

Companies that have competence in the fields of marketing, manufacturing and innovation can make its as a souch to achieve competitive advantage (Daengs et al., 2022:1419).

The research design is a plan to determine the resources and data that will be used to be processed in order to answer the research question (GS & Soemantri, 2020:5).

Time management skills can facilitate the implementation of the work and plans outlined (Rina Dewi, et al. 2020:14)

IV. CONCLUSION

Based on the results of data analysis and discussion, it can be concluded that *Social Media Marketing* and *Brand Awareness* have a significant positive effect on the *Purchase Intention* of Coffee Shop Culinary Customers in Surabaya. Suggestions to improve *Social Media Marketing* can be made to create Culinary Coffee Shop social media to expand Coffee Shop Culinary promotions and establish relationships with customers or other companies. Meanwhile, to increase *Brand Awareness*, you can provide promotions and discounts on products purchased by consumers and promote with *Influencer Marketing* to attract consumers to Coffee Shop Culinary in Surabaya.

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The Influence of Online Cash Loan Service, Collection Ethics, and Service Integrity Toward the Emotional Condition of User

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ABSTRACT

Purpose: Peer to peer lending financial tech apps are widely available on the internet by 2023. The number of app users is also significantly growing, especially after the epidemic began in late 2019. It is transforming the micro-economy today as new problems and hazards emerge. This study attempts to uncover the truth about the usage of peer-to-peer lending (P2PL), specifically their speedy loan service, as one of the independent factors to be examined, along with other variables such as collection ethics and service integrity, and their influence on the user's emotional condition.

Design/methodology/approach: As of March 2023, the Financial Service Authority (OJK) announced that at least 23 P2PL enterprises were in TWP90 (non-performing loan) and 85 unlawful online cash loan services. This leads to the belief that many users have fled from responsibility due to improper collection methods, and the pressure felt by the user is one of the reasons why the return of the lending is considered a troublesome scenario.

Findings: According to this study, online cash loan service, collection ethics, and service integrity all have an impact on the emotional state of the user.

Paper type: Research Paper.

Keyword: Online Cash Loan Service, Collection Ethics, Service Integrity, Emotional Condition of User

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I. INTRODUCTION

Both official and illegal loans are now available through online financial lending technology (online quick loan) and peer to peer lending (P2PL). Apart from not requiring onerous prerequisites, the distribution process is quicker and simpler. When did financial lending technology arrive in Indonesia?

Financial technology is an innovation introduced by financial service providers in the business through the use of technology. Payment systems, funding (including lending and banking (digital banking), capital market, insurance, and other digital finance services are examples of the products. Peer to Peer (P2P) lending is a prominent financial technology nowadays. P2P Lending/P2PL is a money lending and borrowing service based on information technology, often known as online rapid loan services. This transaction can be completed without the debtor and creditor meeting in person, thanks to an application or website. It simplifies what is frequently regarded to as a difficult administrative process.

Since 2016, this P2PL service has been improving in Indonesian society. Online loans were more commonly employed at the time to assist local Micro, Small, and Medium Enterprises (MSMEs). P2PL cash lending service bridges the financing (loan) demand gap in Indonesia, providing access to people who are unbanked but creditworthy (Andariesta, 2023). Credit card penetration was quite low at the time. According to statistics collected from eighteen credit card companies, Indonesia has only 9 million unique cardholders, which is considered very low (less than 6%). So there was still at least more than 90% of the adult population that could benefit from the facility, but they didn't have one. In the midst of that circumstance, we at long last see that the

P2PL loaning benefit is displayed to put through the moneylenders and the borrowers. As the industry develops altogether, there's too potential hazard to be mindful of, which is the event of ruthless loan specialists.

Predatory lending happens when a bank or financial institution takes advantage of a borrower by demanding above-average interest rates, excessive fees, and other expenses. It can happen with a variety of loans and financial products, and there are numerous warning signs to be aware of that can help you avoid a predatory lending situation by reading the fine print and asking questions before signing the deal so one can do self-safeguard including his/her family members while also saving money. Prepayment penalties, which are loans that demand large costs for paying off the loan early, are symptoms of predatory lending. These fees are greater than typical interest rates and greatly surpass competitive interest rates. According to Rendy Wicaksana of VOA News in the article "In Indonesia, Predatory Loan Apps Boom Amid Pandemic Hardships" published on October 15, 2021, there are few controls and little enforcement. There is no strict law that would limit the operation of unregistered apps, and there is also no law that would limit interest rates. There is no clear legal recourse for consumers, no regulation on collection methods, and no strict sanctions for online loan apps that violate the rules set by regulators over the last two years. The Indonesian government has been cracking down on illicit loan applications, only to learn that the crime has now spread to international services based on a sample of 1 300 unlawful loan apps. It has also been discovered that 22% of them use Indonesian servers, 44 are unknown since they offer their services through social media, and the remaining 44 use servers abroad, some in Latin America such as Mexico and others in Vietnam. Only 114 of the thousands of developing financial technology services are legally listed with the financial services authorities.

The only continuous winners in the microfinance game are the lenders, many of whom demand outrageous interest rates of up to 200% per year (as in the case of Banco Compartamos). Previously known as loan sharks, they are now known as microfinance providers, and they pride themselves on the moral that this phrase carries. Microfinance has become a socially acceptable mechanism for extracting wealth and resources from poor people (Hickel, 2015). Another study by Jason Hickel of the London School of Economics in 2015 showed very clearly that microfinance programs have no net positive effect. It was an experiment-based research which was supported by Jason's latest works. They all essentially mean the same thing. That is, microfinance helps certain people in some way, and here he draws anecdotal evidence in favor of microfinance as an instrument for some kind of general problem on average. It doesn't help anyone and often makes matters worse for people. The reason is basically that in many situations the majority of microfinance borrowers spend their borrowed money on consumption. In South Africa, where Jason Hickel also surveyed, 94% of all microfinance loans are for consumption, leaving borrowers unable to finance their businesses. They may be willing to spend, but because they don't have the money to pay off their loans, they get stuck in this vicious circle, and in some cases their business actually succeeds.

But the fact showing up that displacement, meaning that businesses provide the same products and services that have been existed for long period drives another act. Thus, they essentially push those businesses out of the market, which remains no net increase yield in the job market or incomes. This brings up failure to the businesses which may be caused by the fluctuative trend of market demand resulting the reduction of customer base. Afterward, the trend of aggregate demand then goes low. Another issue in this context is that there is very high interest rates at some of these micro loans for examples is one of the most controversial micro lending firms; Banco Compartamos, in Mexico, which has interest rates in 2013 that reached up 100% which is quite an interesting story because it is a very profitable and successful bank as banking who has one of the highest return on equities around 43% in 2013. But lately the interest rates are very high. So, this is one of the key issues with the micro lenders. But still many people thinks that microfinance is kind of a charitable endeavor. These days a lot of the major microfinance lenders are profit-making banks and rates are extremely high even among sort of more charitable organizations.

An interview in 2019, Stefania Palma, senior editor at *The Banker*, believes that women who take out microfinance loans actually end up in more abusive relationships than before. She said that eventually, you will not be able to repay your debts, and you will fall into a deeper chain of debt, leading to a vicious cycle like domestic violence. The core issue here is that, among other things, microfinance can be seen as a quick-fix economic and even political solution to the problems that cause poverty in the first place, and what they argue is a related, much deeper and structurally complex problem. Norms; structural problems require structural solutions.

In Indonesia, Financial Services Authority has regulated it in POJK number 77 year of 2016 about Information Technology-based Lending Service. Through its publication, Financial Services Authority (OJK) represented by Investment Alert Task-Force has taken quick response and assertively with the Police Department of Republic Indonesia and The Ministry of Communication Informatics to handle illegal cash loan service that potentially violate law. Significant actions has been conducted by doing cyber patrol regularly resulting the blockage and closure to at least 3.516 cash loan apps and websites since 2018. They ask users to raise awareness on the use of online cash loans including the offer through SMS or WhatsApp as they might be predatory and illegal. OJK has called out people to use official cash loan service providers with license only by checking out

their credibility in OJK website <https://www.ojk.go.id/> and report any violations or unethical service to waspadainvestasi@ojk.go.id.

To get clearer picture of how banking industry including financial technology performance, we will take a look at the in infographics below presented by Giovanni et al. (2022).

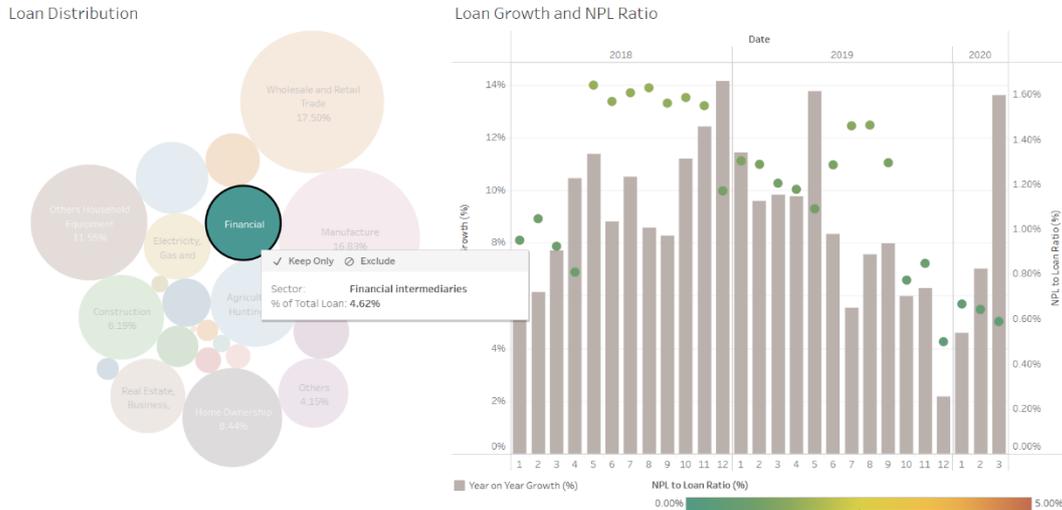


Figure 1. Indonesia Banking Industry Main Indicator

Source: [Indonesia Bank Loan Distribution / Tableau Public](#)

From the figure 1 above we can see that financial sector is one of the most ‘performing’ industry among others in Indonesia during the period of 2018 up to 2020. The NPL ratios are averagely liquid during the period. This shows that from banking point of view the financial industry is potentially profitable. This might be one of the causes that led to the occurrence of financial technology service in Indonesia and where the number of providers went improving since then.

But when it comes to get bigger, one serious problem appears; unethical behavior of debt collectors. In the publication of OJK during the 2019 up to 2021, there are 19,711 user complaints regarding the illegal act of the debt collectors. There are 9,270 (47.03%) which considered as serious violation and 10,441 complaints considered as the mild one.

Most of them are loan disbursement without prior consent of the user, private data sharing threat, collection to all phone contact with terror or intimidation, and the collection using rude words and sexual abuse.

From those description, the writer assumes that cash loan, which is now getting easier to grab as applications are everywhere, is having big issue in the repayment process which may lead to NPL (non-performing loan) company and debt-cycle trap. As it is considered as predatory, the writer gets interested to have deeper study on it. This study will bring data to observe in the context of research. Variables to observe are cash loan service, collection ethics, service integrity, and the influence towards emotional condition of user. There are some issues formulated as basic questions to be explored in this study as the followings:

1. Does online cash loan service influence the emotional condition of user?
2. Does collection ethics influence the emotional condition of user?
3. Does service integrity influence the emotional condition of user?
4. Do online cash loan service, collection ethics, and service integrity influence the emotional condition of user simultaneously?

Research by Arvante (2022) found out that one of the problems arised among the users of online cash loan services, is ethical problems during the payment collection. As it is done aggressively, most of the users don’t feel comfortable, sometimes blackmailed, and further feel terrorized and intimidated with so many of forms. In Aceh as example, during the Covid-19 pandemic for example, in September 2020, data shows that online loans have disbursed at least Rp. 417.6 billion to the users in Aceh. We cannot deny the fact that online loans give positive impact in helping the people to get fund for various needs. But to be simply said, it is also found that online cash loans phenomenon gives negative impacts to be aware of. It includes the rise of illegal online loans, high interest rate that doesn’t make sense, the terror-based acts, and even defamation that annoys users (Savitri et al., 2021). In another view, it tends to be a form of cybercrime. Cybercrime does not discuss about online data theft or acts of harassment only, but also in the scope of crimes regarding the online cash loan service. The increasing number of

online loan crime is due to the government regulations and policies that often get weak. The government already formulates legal regulations about the online cash loans that is expected to protect victims of cash online loan crimes (Maghfirah & Husna, 2022).

Debt collection is a common practice in the financial and credit field. This process typically involves several steps: For example, we may call, mail, or email a debtor to request payment, negotiate a payment plan, or take legal action to recover money owed. However, debt collection is not without controversy and ethical implications, especially when dealing with vulnerable populations such as seniors, low-income families, and people with disabilities. Debt collection can be a stressful and daunting experience for many. The debtor may be suffering from financial hardship, health problems, or other personal problems and may not be able to repay the debt. Therefore, collectors should work with empathy and understanding and strive to communicate openly, respectfully and professionally with their customers. This means avoiding offensive, threatening or humiliating language and instead actively listening to understand the debtor's situation and find mutually beneficial solutions to repay the debt. To do. In addition, collection agencies must be aware of the rights and obligations of debtors and provide clear and accurate information about debts, payment options and legal consequences of non-payment.

Debt collectors have the right to demand payment from customers, but are also bound by legal and ethical standards that limit their actions. For example, the collection agency must not harass, deceive, or mislead the debtor, nor use physical force, intimidation, or coercion to collect the debt. Debt collection is a complex and challenging field that demands a high level of ethical awareness and professionalism. By applying empathy, following legal and ethical standards, working with vulnerable populations, and using reliable data and technology, debt collectors can improve their chances of success and build trust with their clients. As society becomes more diverse and interconnected, the role of debt collection will continue to evolve, requiring debt collectors to adapt to new circumstances and ethical challenges. This has been in line with Indonesian Financial Service Authority's regulation number 6 /POJK.07/2022 clause 4 stating out that financial service provider must proceed the business from goodwill and no discriminative treat to customer/user (OJK regulation about consumer protection and society in financial sector:2022). It has become major foundation of financial and banking industry in Indonesia as the code of conduct.

Theoretically, there are four keys of a successful debt collection strategy; Customer-Oriented Operations, Up-To-Date Communications, Applied Analytics, and Centralized Debt Collection System (Hartman, 2020). In another research, the way that the debt collector handles the collection process must be ethical. In truth, when the debt collection process follows the ethical path of fairness, compassion, and honesty, the likelihood of successfully collecting goes up. Interesting that when people feel they are being treated fairly and ethically, they are more willing to negotiate and do the right thing themselves (Dean Kaplan; 2023). It has been also researched those illegal online loans have severe consequences, such as the emergence victims who suffer from material loss, psychological and emotional distress, physical harm, and social consequence. Unfortunately, the current state of law enforcement fails to deliver justice to the victims, as seen, for example, by the leniency of sentences imposed on the offenders (Angkasa et al., 2023).

Most of online cash loan services only require ID card with no warrant. So it improves the ease of finding loans for everyone regardless their background. As long as they hold ID card, they can get the loan. In 2021, a research done by Riva Hazmul to check the online loans among students in Jakarta during 2020 over an 'X' app, shows that the application received is increasing in the first week of October from 72 up to 481 with the highest rate of applicants comes from tech school. It has 2,000 applicants in total with 1,308 distributions, 417 pending applications, 195 rejected applications, and the total loan that reaches out the value of USD 220,250,000,000 or IDR 32,993,450,000,000. As seen on the figure 2 below.

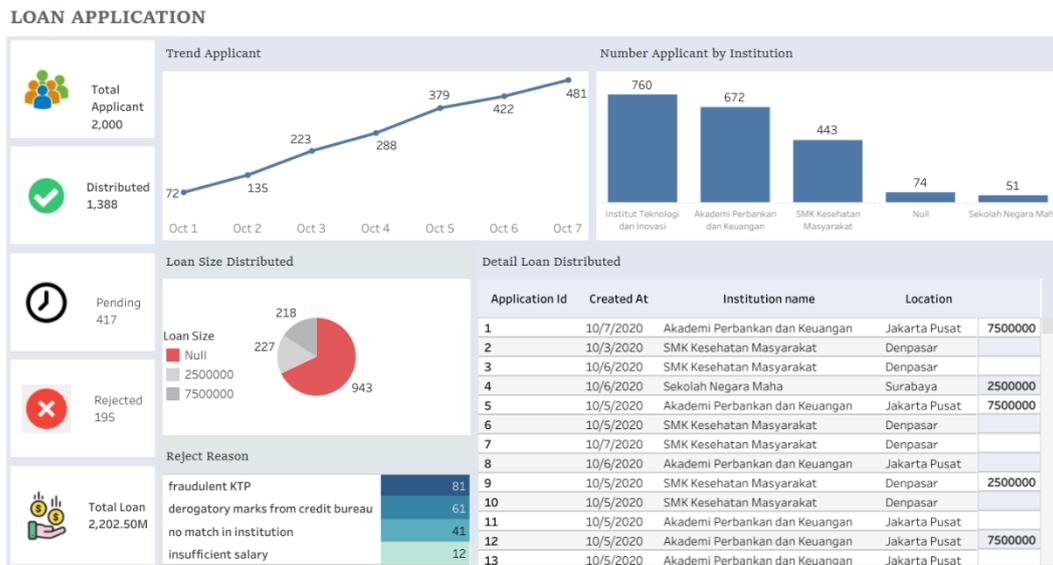


Figure 2. 'X' application statistics in October 2020

Source: Tableau Public ([Loan App / Tableau Public](#))

Based on those findings, the writer will construct several indicators to support the variables. The research of this study is to measure the correlation and to see influence between the online cash loan, its collection ethics, and the service integrity toward the emotional condition of the users in Surabaya. From the various sources in the previous section, the writer decides to use the following indicators for the observed variables. Online cash loan service: Approval rate, net charge-off rate, interest rate, UI/UX, mortgage policy, penalty, data security, official licenses and certifications, public survey. Collection ethics: Fairness, communication style, notification, no threat, phone call, internet presence. Service integrity: Contract, customer service center, collection communication, complaint & response center, and business ethics. Those indicators then will be derived and performed as questions in a questionnaire to be given to respondents as the base of the research.

II. METHODS

The data analysis method uses quantitative and statistical descriptive analyses, data collection uses observational method, questionnaire, and documentation. The instrument of measure utilizes questionnaire with purposive sampling technique and descriptive analysis including classical assumption tests, hypothesis tests, and also multiple linear regression test. The writer uses SPSS v.23 as the analytical tool. Respondents are the selected based on purposive-random sampling approach to get the broader views on the observation.

To map the respondent's background, the writer will present the demographical information of the respondents on several aspects; gender, age, education, and job. We will also check the diversity and variability of the data set, based on the standard of deviation of each aspect. A low standard deviation indicates that data points are generally close to the mean or the average value while a high standard deviation indicates greater variability in data points, or higher dispersion from the mean. Variance value will also be provided to to measure the data dispersion from the mean, while its coefficient shows the ratio of the standard deviation to the mean. The writer has collected 300 returned questionnaires from respondents with the following details.

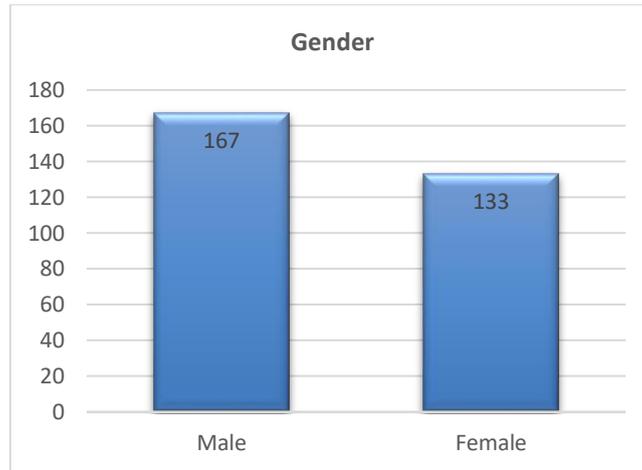


Chart 1. Respondent's background based on gender

Source: Data processed

From chart 1 we can see that there are 167 male respondents and 133 female respondents. From the descriptive stats check, it shows that the standard deviation is 24.04, with variance at 578, and coefficient of variation as much as 0.16. This means that the data is measurable and can be processed further.

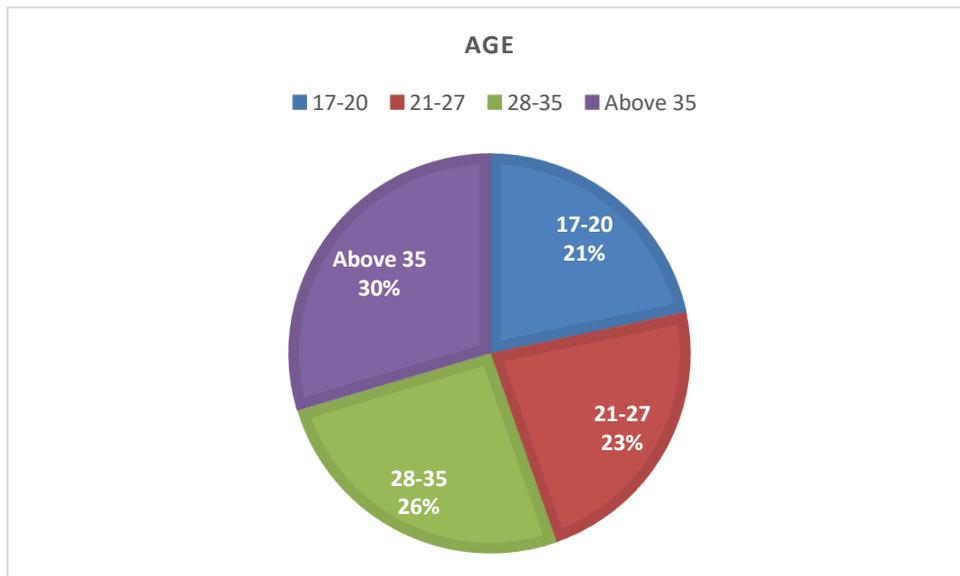


Chart 2. Respondent's background based on age

Source: Data processed

Chart 2 shows that there are at least 21% respondents with age of 17 up to 20, 23% respondents aged 21 up to 27, 26% respondents aged 28 up to 35, and 30% for those who are above 35-year-old. Descriptive stats shows that its standard deviation is 3.91, with variance at 15.33, and coefficient of variation valued at 0.15. This means that the data is measurable and can be processed further.

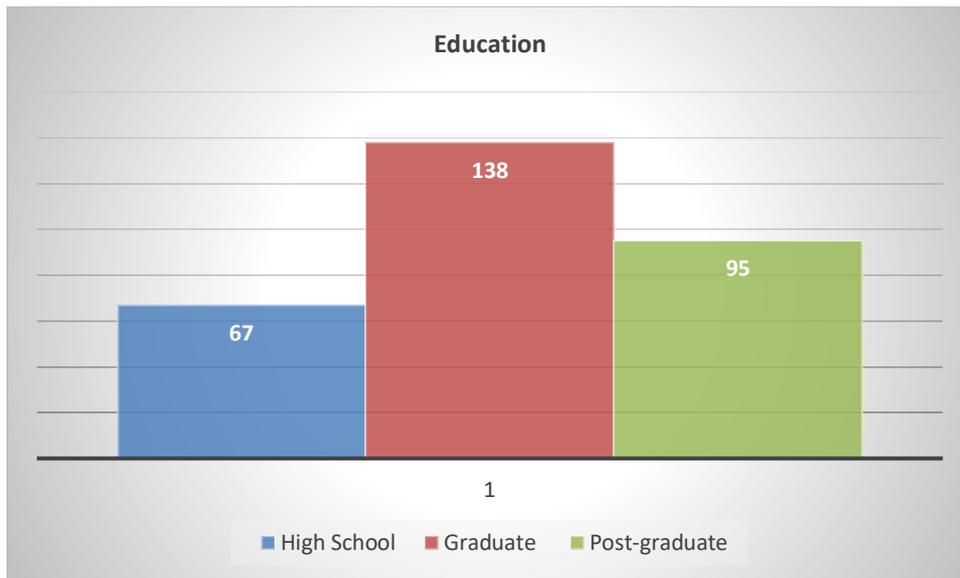


Chart 3. Respondent's background based on education

Source: Data processed

According to chart 3 we can see that there 67 respondents who comes from high-school background, 138 respondents who hold graduate degree, and 95 respondents with post-graduate degree. Descriptive stats shows that it has standard deviation valued at 35.76, variance as much as 1279, and coefficient of variation valued at 0.35. This means that the data is measureable and can be processed further.



Chart 4. Respondent's background based on job

Source: Data processed

From the chart 4 above, we can see that the repondents based on the current job shows that there are 43 high schoolers, 85 college students, 102 employees, and 70 self-employed ones that we can see portion in the chart 4. Descriptive stats shows that it has standard deviation valued at 25.01, variance as much as 626, and coefficient of variation valued at 0.33. This means that the data is measureable and can be processed further.

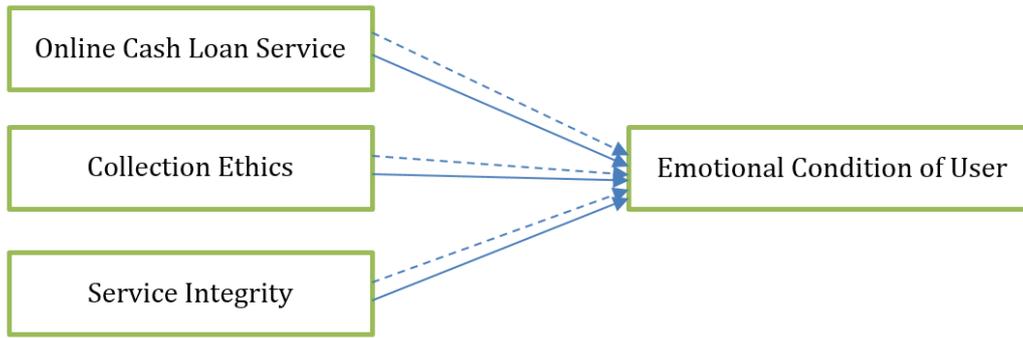


Figure 3. Correlational Map of Hypotheses

Source: Created by the writer

From the map above, the statements of hypothesis are as follows:

H1: Online cash loan service influences emotional condition of user.

H0: Online cash loan service does not influence emotional condition of user.

H2: Collection ethics influences emotional condition of user.

H0: Collection ethics does not influence emotional condition of user.

H3: Service integrity influences emotional condition of user.

H0: Service integrity does not influence emotional condition of user.

H4: Online cash loan service, collection ethics, and service integrity influence the emotional condition of user.

H0: Online cash loan service, collection ethics, and service integrity do not influence the emotional condition of user.

III. RESULTS AND DISCUSSION

A. Results

During the observation, result shows the following output.

Table 1. Linear Regression Output

Coefficients ^a						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.591	2.390		3.177	.013
	X1	.024	.036	-.117	7.231	.002
	X2	.015	.037	.023	8.638	.004
	X3	.005	.040	.014	5.127	.001

a. Dependent Variable: Absolut_Residual

Source: Data processed

The P value of partial t is 0.02 which is lesser than 0.05, so H0 is rejected meaning that online cash loan is partially influences the emotional condition of the user. The partial t value is 7.231 meaning that the online cash loan positively influences as stated in the hypothesis (H1 accepted). The P Value of partial t is 0.04 which is lesser than 0.05, so H0 is rejected meaning that collection ethics is partially influences the emotional condition of the user. The partial t value is 8.638 meaning that the collection ethics positively influences as stated in the hypothesis (H2 accepted). The P value of partial t is 0.01 which is lesser than 0.05, so H0 is rejected meaning that service integrity partially influences the emotional condition of the user. The partial t is 5.127 meaning that the service integrity positively influences as stated in the hypothesis (H3 accepted).

Table 2. Analysis of Variance (F test measure)

ANOVA ^a						
	<i>Model</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
<i>1</i>	<i>Regression</i>	<i>16.975</i>	<i>2</i>	<i>5.658</i>	<i>.268</i>	<i>.001^b</i>
	<i>Residual</i>	<i>2030.412</i>	<i>298</i>	<i>21.150</i>		
	<i>Total</i>	<i>2047.386</i>	<i>298</i>			

a. Dependent Variable: Absolute_Residual

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

Source: Data processed

As the P value of the F test is 0,001 then H0 is rejected (H1 accepted) which means that there is influence of online cash loan, collection ethics, and service integrity toward the emotional condition of user simultaneously. Determination coefficient as much as 24% of the user's emotional condition is affected by online cash loan, 15% by collection ethics, and 5% by service integrity.

Table 3. Simultaneous Correlation Test

Model Summary ^b										
Change Statistics										
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>	<i>R Square Change</i>	<i>F Change</i>	<i>df1</i>	<i>df2</i>	<i>Sig. F Change</i>	<i>Durbin-Watson</i>
<i>1</i>	<i>.684^a</i>	<i>.615</i>	<i>.603</i>	<i>7.68876</i>	<i>.615</i>	<i>51.172</i>	<i>3</i>	<i>96</i>	<i>.000</i>	<i>1.788</i>

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

b. Dependent Variable: Y

Source: Data processed

From the table we can see that all independent variables can influence the dependent variable as much as 68.4%. While the rest of 31.6% is influenced by other variables excluded in this study.

1. Classical Assumption Test Table*Table 4. Classical Assumption Test*

<i>Var.</i>	<i>Dist.</i>	<i>Validity</i>	<i>Heteroscedasticity</i>	<i>Reliability</i>	<i>Multicollinearity</i>
<i>X1</i>	<i>0.17</i>	<i>0.73</i>	<i>0.12</i>	<i>0.81</i>	<i>0.21</i>
<i>X2</i>	<i>0.12</i>	<i>0.65</i>	<i>0.09</i>	<i>0.76</i>	<i>0.14</i>
<i>X3</i>	<i>0.14</i>	<i>0.75</i>	<i>0.22</i>	<i>0.80</i>	<i>0.09</i>
<i>Y</i>	<i>0.16</i>	<i>0.70</i>	<i>0.14</i>	<i>0.75</i>	<i>0.12</i>

Source: Data processed

As we have got the result of multiple linear regression test, we now then step in onto the classical assumption tests. According to table 4, we can see that the value of data distribution on the research instrument (questionnaire) shows that all the data is normally distributed based on the normality test using Kolmogorov-Smirnov method for which all the values is lesser than the KS table (0.19). Validity test is carried out using product moment approach for which the result shows that all the values are higher than r value on the Pearson table. It means that all items in the questionnaire is valid. Heteroscedasticity is then carried out to confirm whether or not variance difference based on residual values emerges using Glejser test. All the values on table 4 shows that they are higher than 0.05 meaning that there is no heteroscedasticity symptom in the research instrument. In reliability test, we've got set of values which is derived using Cronbach's alpha approach. The values are higher than Cronbach's alpha which is 0.70, meaning that the instrument is reliable. Multicollinearity test as the last test in this sequence, is aimed to test and checking out whether or not strong correlation among independent variables is found in the regression model. This can be done by looking at variance inflation factor (VIF) value over the test. From the table 4, it is found out that the values are higher than 0.01 meaning that the instrument is free from multicollinearity symptom.

B. Discussion

The result shows clear result for which all the variables observed in this study influences the user's emotional condition both partially and simultaneously. It means that this study is relevant with the previous studies done by Arvante (2022) entitled Impact of Online Loan Issue and Law Protection towards The Consumers and also the study done by Wati & Syahfitri (2022) entitled The Impact of Online Loan for The Society. Both studies present that the variable of online cash loan service influences the variable of emotional condition of the user, and either with collection ethics, and service integrity. Statistics show that they have strong correlation both partially and simultaneously.

IV. CONCLUSION

From this result, it is strongly recommended that government with its respective departments and units shall review the existing policies and release the new ones if needed to prevent the repeating risks on online cash loan service to happen in the future.

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The Effect of Creativity and Social Capital on Business Sustainability in SMEs Sulam Tapis East Lampung

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ABSTRACT

Purpose: This study aims to examine the effect of creativity and social capital on the sustainability of Sulam Tapis business in Labuhan Maringgai District, East Lampung.

Design/methodology/approach: Using research method Multiple Regression Linear, there are a total of 28 micro-entrepreneurs in the field of tapis embroidery in Labuhan Maringgai District, East Lampung for sampling study.

Research limitations/implications: This study uses a few samples of SMEs due to the limitations of SMEs in the East Lampung area. However, this result has improved the efforts in promoting local wisdom with SMEs Sulam Tapis Lampung.

Practical implications: Based on multiple regression analysis, the result of the level of relationship between creativity (X1) and social capital (X2) with business sustainability (Y) is strong enough. Main finding reveals that creativity and social capital have significant effect business sustainability at Labuhan Maringgai District, East Lampung.

Originality/value: This research proves the critical factors which effected creativity and social capital on SMEs Sulam Tapis Lampung

Keyword: *Creativity, Social Capital, Business Sustainability, SMEs.*

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I. INTRODUCTION

Micro enterprises are an important sector in a country's economy because they are able to absorb labor and have the potential to be developed. However, SMEs often face problems such as competition in producing quality products, limited marketing locations, and lack of business capital. Therefore, it is necessary to solve problems and opportunities so that SMEs can develop properly. Business sustainability is important in maintaining operations and increasing profit achievement in a sustainable manner. To achieve business sustainability, several aspects need to be considered. *First*, a conducive and stable business climate needs to be maintained so that business actors can operate properly. *Second*, efficient and effective processing and production must be maintained so that the business continues to run smoothly. *Third*, qualified and skilled human resources are an important factor in maintaining business sustainability. Fourth, innovation in business needs to be continuously developed to remain relevant and competitive in the market. Fifth, the use of existing technology can help SMEs compete in a rapidly growing business world. In this context, the researcher is interested in examining the influence of creativity and social capital on the sustainability of the tapis embroidery business in Labuhan Maringgai District, East Lampung. This research was motivated by a decrease in the income of tapis embroidery MSMEs during the 2019-2021 period as well as the obstacles and difficulties faced by tapis embroidery entrepreneurs in maintaining the sustainability of their business.

Through a pre-survey conducted on 10 tapis embroidery MSMEs, several factors and difficulties were found that affected business sustainability. The majority of tapis embroidery entrepreneurs (66%) find it difficult to deal with factors such as knowing the latest models, being creative according to the latest trends, finding relationships with quality materials at affordable prices, being up-to-date in marketing the latest models, and marketing through online media. Therefore, researchers are interested in examining the effect of creativity and social capital on the

sustainability of tapis embroidery business. Creativity is the ability to generate new ideas uniquely and differently, while social capital is a network of human cooperation that builds trust and cooperation. Previous research has shown that creativity and social capital have a significant effect on business sustainability. Ambarwati (2018) Title: Sources of Social Capital in Maintaining Business Sustainability Research results: This study shows that P4K (Friendship Potential, Kinship Potential, and Relationship Potential) as social capital has an important role for street traders in dealing with times difficult post-revitalization. These roles are divided into two types, namely inclusive and exclusive roles. In an inclusive role, P4K is able to connect street vendors with members outside their group, while in an exclusive role, P4K is able to increase solidarity between fellow traders. Rismaningtyas and Slamet (2018) examined the influence of social capital on business sustainability research. The results show that social capital has a weak effect on the viability of the herbal medicine business with a level of 1.1%. However, social capital has a strong indirect influence on the viability of the herbal medicine business with current usage of -6.4%. The development of social capital has an influence of -13.3% on business sustainability. The total influence of social capital, ability, and use of commodities on business sustainability is explained by 30.5% through the coefficient of determination or variance.

This study purposes to examine the effect of creativity and social capital also affect the sustainability of the tapis embroidery business in Labuhan Maringgai District, East Lampung. It is hoped that the results of this study can provide a better understanding of the factors that influence the sustainability of the tapis embroidery business and provide recommendations for improve the sustainability of the business. Through a deeper understanding of creativity and social capital, it is hoped that tapis embroidery SMEs in Labuhan Maringgai District can continue to exist and compete in an ever-growing market. Based on the early observation, several problems can be identified at SMEs Labuhan Maringgai District, East Lampung. There is limited knowledge of the latest models, lack of creativity in creating according to trends, the difficulty of finding quality materials at affordable prices, in marketing the latest models, lack of access and utilization of social capital

According to Rosyad and Wiguna (2017) business sustainability is a form of consistency from the conditions of a business, where this sustainability is a process of ongoing good business including growth, development, strategies to maintain business sustainability and business development where all of this leads to business sustainability and existence. According to Sari (2018) business sustainability is defined as an important concept in determining decisions in conducting annual reports regarding the sustainability of operations of conventional accounting companies.

According to Jardine (2014) states that business sustainability is an effort to make whatever is needed can be fulfilled without the ability of future generations to be sacrificed, and sustainability aims to secure equity between generation. Business sustainability refers to the consistency of the condition of a business, which includes growth, development, strategies for maintaining sustainability, and business development. This is related to efforts to ensure the sustainability and existence of a business that focuses on the process of continuing the business on an ongoing basis.

There are several factors that influence business sustainability. According to Lightelm in Marwati et al (2017) there are several factors that influence business sustainability. First, natural production factors, which involve the use of natural resources to carry out business activities. Second, human or labor production factors, which are needed to carry out various business activities. Third, the capital production factor, which is the funds or capital used in the business cycle. Fourth, management production factor or processing expertise, which involves management activities in planning, organizing, actuating, coordinating, and supervising all necessary business factors. By taking into account the elements of business sustainability and the factors that influence it, it is hoped that micro-enterprises can achieve good sustainability and be able to compete in an increasingly developing market.

A. Creativity

Mc. Pherson in Hubeis (2012) states that creativity is connecting and rearranging knowledge in the human mind which allows itself to think more freely in generating new things, or producing ideas that surprise others in producing things that are useful. Another definition is that creativity is the pooling of knowledge from different areas of experience to produce better ideas. The definition of creativity according to Suryana (2011) is: "Thinking of something new. Creativity is the ability to develop new ideas and to find new ways to solve problems in the face of opportunities. Suherman (2012) defines creativity as creativity that has a higher and positive value in creating or producing a new product that is more pragmatic. More value can be interpreted as newer, better, better, truer, more modifiable, more effective. and more efficient. Meanwhile, more 'pragmatic' implies more useful, more useful for the wider community, and easier to obtain.

B. Characteristics of Creative People

According to Winardi (2013) The characteristics and character of a creative person include: 1. Observing situations and problems that were not previously noticed by others. 2. Generate ideas and problems from various

sources.3. Having many alternatives in dealing with a particular problem or subject.4. Unbound by clichés and unhindered by habits that hinder creative thinking.5. Harnessing the emotional power of the subconscious.6. Have high flexibility in thinking, acting, and formulating suggestions. There are four indicators of creativity according to Rhodes in Sugihartono et al (2012) which are referred to as the "Four P's Creativity" or the four P's, there are Person (Individu): Is the uniqueness of the individual in thoughts and expressions. Process: Involves fluency, flexibility, and originality in thinking. Press (Pressure): It is a life situation and social environment that provides convenience and encouragement to perform creative actions. Product: Refers to an individual's ability to produce work that is new, original, and meaningful to oneself and the environment.

C. Social capital

According to Syahyuti (2018) social capital is a society in which there are relationships of various kinds of behavior and values that govern interactions between one person and another and contribute to economic and social development. Social capital acts as the glue that binds all people in society, Syahyuti (2018). In order for social capital to grow properly, it requires "shared values" and organizing roles (rules) which are expressed in personal relationships, trust, and a common sense of shared responsibility. So that society becomes more than just a collection of individuals. Social capital emerges from the results of interactions within society with a long process. Although interactions occur for various reasons in establishing cooperation. Basically, influenced by the desire in various ways to achieve common goals that are different from their own goals. This kind of interaction will give birth to social capital in the form of emotional bonds that unite people to achieve common goals. Then growing trust and security is created from the existence of a relatively long relationship. Fukuyama (2012) defines social capital as a set of formal values or norms that are shared among members of a group that allows collaboration between them. Whereas Cox in Hasbullah (2016) defines social capital as a series of processes of human relations that are supported by networks, norms and social trust that enable efficient and effective coordination and cooperation for mutual benefits and policies. Suherman (2012) defines creativity as creativity that has a higher and positive value in creating or producing a new product that is more pragmatic. More value can be interpreted as newer, better, better, more correct, more modifiable, more effective. and more efficient. Meanwhile, more 'pragmatic' means more useful, more useful for the wider community, and easier to obtain. Based on the literature review and the results of previous research, the hypothesis in this study is as follows:

H1: There is an effect of creativity on business sustainability in SMEs Sulam Tapis East Lampung

H2: There is an effect of social capital on business sustainability in SMEs Sulam Tapis East Lampung

H3: There is an effect of creativity and social capital on business sustainability in SMEs Sulam Tapis East Lampung

II. METHODS

According to Sugiyono (2013), the notion of a research method is a scientific way to obtain data with specific purposes and uses. This research is an explanatory research which will prove the causal relationship and influence between the independent variables, namely creativity (x1) social capital (x2) and the dependent variable, namely business sustainability (y). Validity and Reliability Test. Validity is the accuracy of measuring instruments that can reveal data on the variable to be measured. An instrument is said to be valid if it is able to measure what is desired. A valid or valid instrument has high validity.

$$r_{xy} = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{\{n\sum x^2 - (\sum x)^2\} \{n\sum y^2 - (\sum y)^2\}}}$$

1. Instrument Reliability

According to Umar (2010) that: instrument reliability testing was carried out with internal consistency of the Cronbach technique. The number of item variances is searched first by finding the variance value of each item using the variance formula as follows:

$$\sigma^2 = \frac{\sum X^2 \frac{(\sum X)^2}{n}}{n}$$

Where :

n = number of respondents

X = selected score (total value of question item numbers)

After obtaining the results then calculated using Cronbach.

$$\left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right)$$

Information :

*r*₁₁ = instrument correlation

k = number of questions

σ_t^2 = total variance

$\sum \sigma_b^2$ = sum of item variances

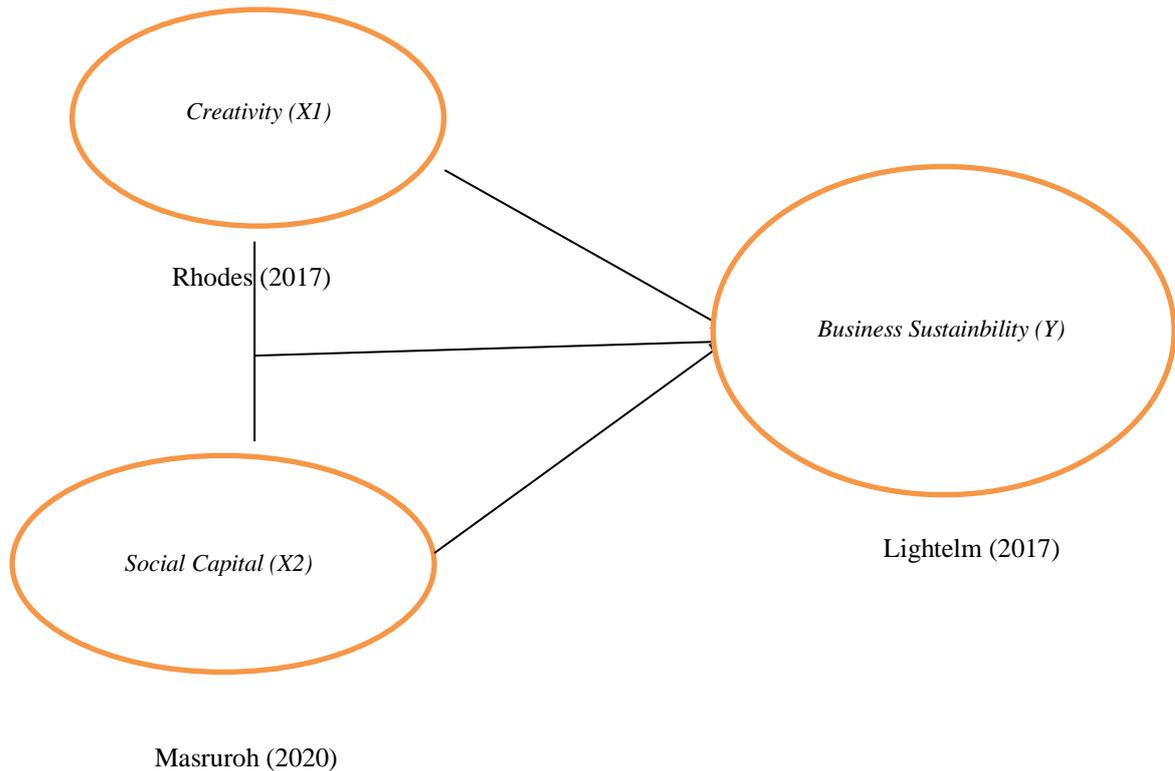


Figure 1. Framewok Research

A. Analysis Method

Based on the results of the acquisition of the distribution of the questionnaire trials above, the researcher continued the validity and reliability test analysis using the SPSS 16.0 program. According to result validity and reliability, therefore continue to hypothesis testing using *Multiple Linear Regression*.

According to Sugiyono (2013), multiple linear regression analysis intends to predict how the condition (rise and fall) of the dependent variable, if two or more independent variables as predictor factors are manipulated (the value is increased or decreased). So, multiple regression analysis will be carried out if the number of independent variables is at least 2. Sugiyono, (2013). This hypothesis test is carried out to test a research problem formulation,

the truth of the problem formulation must be proven through the data collected. To test the hypothesis using a significance level with $\alpha = 5\%$. The method used to test the hypothesis is using the partial T test and the simultaneous F test.

a. Partial Significance Test (T Test)

The basis for decision making is to use a significance probability number, that is, if the significance probability number is 0.05, the hypothesis is accepted and vice versa if the significance probability number is 0.05, the hypothesis is rejected (Ghozali, 2011).

b. Simultaneous Significance Test (F Test)

This test was conducted to see whether all the independent variables included in the model had a joint effect on the dependent variable. The formula is:

$$F_{hitung} = \frac{R^2 / K}{(1 - R^2)(N - K - 1)}$$

by using a significance probability number, that is, if the significance probability number is <0.05 , the hypothesis is accepted and vice versa if the significance probability number is 0.05, the hypothesis is rejected Ghozali, (2011).

III. RESULTS AND DISCUSSION

A. Data and Sample

The population in this study was selected based on the total number of tapis embroidery business actors totaling 28 tailors in Labuhan Maringgai sub-district, East Lampung. Arikunto (2012) what is meant by a sample is a portion or representative of the population studied. In this study, samples were taken randomly from the total population, namely a portion of the total number of employees. According to Arikunto (2012) said "if the subject is less than 100, then all of them must be taken, whereas if the number is large or more than 100, then 10% can be taken." - 15% or 20% - 25%. So based on this opinion the researcher took the whole of the total population of 28 sample respondents.

1. Result the Test of Multicollinearity

Table 1. Result of Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	3.542	6.892		.514	.612		
X1	.451	.176	.410	2.565	.017	.981	1.019
X2	.381	.152	.400	2.505	.019	.981	1.019

a. Dependent Variable: Y

Based on the given data, the obtained tolerance value is 0.981, which indicates that there is no multicollinearity among the independent variables in this study ($0.981 > 0.10$). Additionally, the VIF value is 1.019, and if the VIF value is less than 10.00, it indicates the absence of multicollinearity among the independent variables. Therefore, in this study, there is no multicollinearity among the independent variables.

Table 2. Result of Simultan Hypothesis Test

<i>ANOVA^b</i>						
	<i>Model</i>	<i>Sum of Squares</i>	<i>Df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
<i>1</i>	<i>Regression</i>	<i>435.748</i>	<i>2</i>	<i>217.874</i>	<i>7.437</i>	<i>.003a</i>
	<i>Residual</i>	<i>732.359</i>	<i>25</i>	<i>29.294</i>		
	<i>Total</i>	<i>1168.107</i>	<i>27</i>			

a. Predictors: (Constant), X2, X1

Based on the given data, the obtained significance result of 0.003 is smaller than 0.05, which means there is a significant effect of creativity and social capital on the business sustainability of Sulam Tapis in Labuhan Maringgai Subdistrict, East Lampung. Based on the result also show that there is a significant effect collectively or together, between creativity and social capital on the business sustainability of Sulam Tapis in Labuhan Maringgai Subdistrict, East Lampung. After distributing the questionnaire to all respondents, the researcher analyzed the data through the spss.16.0 program and obtained the following results:

Table 3. The test of R Square

<i>Model Summary^b</i>				
<i>Model</i>	<i>R</i>	<i>R Square</i>	<i>Adjusted R Square</i>	<i>Std. Error of the Estimate</i>
<i>1</i>	<i>.611a</i>	<i>.373</i>	<i>.323</i>	<i>5.412</i>

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

According to Table 3. The coefficient of determination (R square) of 0.373 implies that 37.3% of the variation in business sustainability can be explained by creativity and social capital, while the remaining percentage is influenced by other factors.

Table 4. The Result of Hypothesis Test

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		<i>Collinearity Statistics</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>T</i>	<i>Sig.</i>	<i>Tolerance</i>	<i>VIF</i>
<i>1 (Constant)</i>	<i>3.542</i>	<i>6.892</i>		<i>.514</i>	<i>.612</i>		
<i>X1</i>	<i>.451</i>	<i>.176</i>	<i>.410</i>	<i>2.565</i>	<i>.017</i>	<i>.981</i>	<i>1.019</i>
<i>X2</i>	<i>.381</i>	<i>.152</i>	<i>.400</i>	<i>2.505</i>	<i>.019</i>	<i>.981</i>	<i>1.019</i>

a. Dependent Variable: Y

Based on the table 4 above shows that the significance values (Sig) for both creativity and social capital are less than 0.05 (0.017 and 0.019, respectively). Therefore, it can be concluded that creativity and social capital have a significant partial effect on business sustainability. This means that there is a significant influence of creativity and social capital individually on the business sustainability of Sulam Tapis in Labuhan Maringgai, East Lampung. The regression equation can be derived as follows:

$$Y = 3.542 + 0.451X1 + 0.381 X2$$

Interpreting the equation, the constant term of 3.542 indicates that if there is no creativity and social capital, the obtained business sustainability will be 3.542. The regression coefficient of 0.451 X1 means that creativity has a positive influence of 0.451. This implies that if creativity is increased, the business sustainability will increase by 0.451 in the respective unit of measurement. Similarly, the coefficient of 0.381 X2 indicates that social capital has a positive influence on business sustainability. This means that if social capital is increased, there will be an increase in business sustainability by 0.381 in the respective unit of measurement.

B. Discussion

Based on the provided analysis of multiple linear regression, the following conclusions can be drawn that relationship strength The correlation coefficient (R) value of 0.611 indicates a moderately strong relationship between creativity (X1) and social capital (X2) with business sustainability (Y). c. d. Simultaneous Test (F-test): The significance value (Sig) for the simultaneous effect of creativity and social capital on business sustainability is 0.003, which is smaller than 0.05. Hence, it can be concluded that there is a significant simultaneous effect of creativity and social capital on the business sustainability of Sulam Tapis in Labuhan Maringgai, East Lampung. In conclusion, based on the statistical analysis, it can be inferred that both creativity and social capital have significant individual effects, as well as a significant combined effect, on the business sustainability of Sulam Tapis in Labuhan Maringgai, East Lampung. This research consistent with Subambang and Darmawan (2016), creativity and innovation affect the sustainability of small and medium enterprises in Langkat Regency. Suherman (2012) defines creativity as creativity that has a higher and positive value in creating or producing a new product that is more pragmatic. More value can be interpreted as newer, better, better, more correct, more modifiable, more effective. and more efficient. Meanwhile, more 'pragmatic' means more useful, more useful for the wider community, and easier to obtain.

IV. CONCLUSION

This research aims to examine the effect of working capital and sales during Covid 19 Pandemic Era. Based on the results of hypothesis test, concluded that working capital and sales partially have a significant effect on net income at Sably frozen food SMEs in Bandar Negeri West Lampung. Likewise, simultaneously, working capital

and sales have a significant effect on net income at the Sabily frozen food SMEs in Bandar Negeri. This has implications so that in the future the SMEs Sabily frozen food Bandar Negeri will give more attention to working capital and increase sales in order to increase net profit at the Sabily Frozen Food Bandar Negeri SMEs.

This research has been attempted and carried out in accordance with scientific procedures, however, it still has limitations such as the factors that affect net profit in this study only consist of two variables, working capital and sales, while there are many other factors that affect net profit. In addition, there are limitations to research using bookkeeping samples, namely that sometimes the results of sales and expenses between periods/years of accounting experience significant differences. Based on the above conclusions, SMEs should be able to manage their working capital properly so that there is no waste that causes losses for SMEs and continue to increase sales figures consistently so that they can provide significant benefits for SMEs. Then this research is also expected to be an additional source of knowledge and information about financial accounting regarding working capital, sales and net income as well as input and additional references for readers. For further research will be able to add other variables or look for any factors that can affect net income besides the variables involved in this study. It is expected to use different industrial sectors and use a longer period span and more samples so that it is expected to obtain better results and be more useful for the wider community.

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Factors Influencing Job Performance in the Mining Industry: An Empirical Study at PT Pamapersada Nusantara

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ABSTRACT

Purpose: This research proposes to examine the relationship between job performance and empathic leadership, job satisfaction, and work engagement.

Design/methodology/approach: The quantitative research technique is referred to as the research method. The target of this research is PT. Pamapersada Nusantara, and the research sample, which consists of 386 respondents, refers to the structural equation modelling model.

Findings: The findings demonstrated that the respondents believed that each and every hypothesis had been confirmed.

Research limitations/implications: The study only focused on a specific set of factors that may influence job performance, such as individual crafting, supervisory support, and work engagement. Other factors, such as organisational culture or job demands, were not explored in depth. It is important for future research to investigate these additional factors and their potential impact on job performance at PT. Pamapersada Nusantara. Despite these limitations, this study contributes to the understanding of the factors that influence job performance in the mining industry and provides insights for practitioners to develop effective interventions to enhance job performance among employees.

Practical implications: The managerial implication of this research is that the company can enhance job satisfaction and work engagement, boost employee performance, achieve their objectives, and acquire a competitive edge. To ensure they meet organisational goals and improve safety, technical and non-technical training programmes must be evaluated. This assessment should assess teacher preparedness, classroom, simulator, and field practise efficacy, training material content, and employee benefits. Companies may boost employee engagement, performance, and safety by strengthening training programmes and meeting employee requirements.

Originality/value: This report originates from research conducted inside a single mining business.

Paper type: Research Paper.

Keyword: Mining, Job Performance, Individual Crafting, Work Engagement, Job Satisfaction, Empathetic Leadership

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I. INTRODUCTION

Mining is a high-risk business that is highly crucial to the world's economy (Mansyah, 2013). 41% of the world's power is produced from coal. Almost 70% of the world's steel is made using coal, according to the International Coal Association and Mine Safety. Mining may have a hugely beneficial impact on a nation's progress. The economic success of mining firms is influenced by a variety of factors in addition to the economic

laws of reproduction. Indonesia's coal business has evolved over the past 20 years from being an obscure, tiny participant in Asia's coal markets to the largest steam coal exporter in the world (Lucarelli, 2010). According to the Indonesian Directorate of Mineral, Mining, and Geothermal Business (2020), because Indonesia, which was previously an oil exporter, has now become an oil importer, coal is becoming increasingly important to replace oil in the composition of energy use in Indonesia.

The conditions in the local and global coal markets have been highly favourable, with a high price level. Recently, there have been several businesses doing coal exploration and production. The main difficulty is severe competition from private firms operating mines locally and overseas and protecting export markets (Pancasila et al., 2020). Among the companies involved in the coal mining sector in Indonesia, PT Pamapersada Nusantara (PAMA) is one of the companies that has the greatest market share. PAMA has 16 different work sites spanning Kalimantan and Sumatra, contributing to the company's total coal production of 85 million tonnes and its overburden material production of 864.27 million cubic metres. One of the many efforts that PT Pamapersada Nusantara has made towards the implementation of a workplace safety management system is to provide training to all of its employees. This is especially important for heavy equipment operators, who have the highest risk of being involved in an accident. PT Pamapersada Nusantara has made a number of other efforts towards this goal. PT Pamapersada Nusantara is responsible for managing 9400 heavy equipment operators, which accounts for close to 42.7% of all of its staff members. The mining industry uses a 24-hour workday to stimulate economic activity. (Handoko, 2022).

To increase productivity and cut expenses, a mining business invests more in tools than in core production (Mansyah, 2013). In coal mining, it is especially important to guarantee safe and affordable working conditions (Petrov, 2019). In truth, the business has had a number of challenges over the past ten years, including a demand-supply mismatch, a lack of new technologies, issues with site acquisition, low worker productivity, a lack of safety infrastructure, and environmental concerns (Vembu, 2012). The bulk of the time, mining productivity has decreased globally. Concern about this phenomenon has been heightened by the severity of the decrease and the fact that it comes after about two decades of increased productivity. A significant amount of work, money, energy, and other inputs are required to mine and process a large number of products as a result of declining productivity (Tilton, 2014). In a similar vein, CEOs have started admitting to investors that bad job performance has to be addressed (AusIMM Bulletin, 2015).

A performance is a completed act or piece of work. Performance evaluations look at how an individual has worked rather than whether they have met predefined goals for themselves or the company as a whole. Performance evaluation is carried out inside the firm or scope of the organisation to ascertain the degree to which operational or financial variables contribute to the achievement of set goals (Cushway, 2002). When it comes to luring, keeping, and performing workers, sustainability is a crucial component and a commercial dilemma in the context of human resource management in mining organisations (Janovac et al., 2021). Sustainable HRM may enhance mining businesses in finding and keeping talented employees while also enhancing staff management (Strenitzerová, 2019).

A. Problem Statement

Regarding Workplace Testing, workplace environment elements, such as physically demanding duties, employee morale, stress levels, and long hours, affect job performance. Bad working circumstances and high levels of stress may result in poor health behaviours, including smoking, drug use, and a poor diet, which have increasingly negative consequences for job performance. If the person performs well, the company's performance is likely to be excellent as well. If a person has excellent ability, is driven to work because he is rewarded, and has a good view of the future, his performance will be extraordinary. (Pancasila et al., 2020).

Organisations in the mining sector have the unique challenge of a low rate of employee engagement and satisfaction. The job in mining sector organisations is challenging, the workplace is often hazardous and unhealthy, and workers are exposed to industry-specific dangers (Kuranchie-Mensah, 2016). In addition to bad working situations, an unjust incentive system is a typical demotivator for workers. The absence of employee motivation and satisfaction results in diminished productivity (Janovac et al., 2021). The results of research conducted by Rose et al. (2011) also found that employee performance has a positive relationship with job satisfaction. The topic of whether or not the alterations in work practises and industrial relations arrangements have led to an improvement in the bottom-line performance of businesses is an important one. There is a general understanding that flexible working methods have aided coal businesses in better responding to production needs, and that flexible working time arrangements have enhanced job satisfaction as well as job performance. (Zheng et al., 2007).

Furthermore, before workers can execute their tasks, they must understand what their occupations involve, since the actions and behaviors connected with a given job are mainly determined by the expectations and demands of other individuals, both inside and outside the business. (Kouzes, 2013). It's called empathy. Empathy is an emotion in which people try to understand what other people are thinking and try to see things from a different

point of view to understand each other's actions (Stein & Book, 2001). This encouraged us to suggest empathy with intended targets, the emotional and cognitive identification and understanding of targets' issues and emotions, as a relationship-specific second-stage mediator that modifies the positive link between work engagement and job performance. This moderating function of empathy with planned objectives is referred to as direction, since it directs the employee's motivation. In conclusion, we argue that employee engagement has good effects on work performance only when an engaged employee has high (rather than low) empathy for their intended impact objectives. (Chong, 2020).

PT Pamapersada Nusantara, as a mining company in Indonesia, faces several challenges related to the performance of its operators. First, the company has a wide operational zone coverage of mining activity that spans around three kilometres, from front loading to disposal zone. This creates a challenge for operators to maintain their focus and perform their duties effectively across such a large area. Second, due to the high mobility of operators and the large number of operators working in the field, it can be difficult for supervisors to monitor their performance and provide feedback in a timely manner. Finally, the limited number of supervisors in the field results in operators not being able to meet with their supervisors all the time, which can hinder their ability to improve their job performance (Handoko, 2022). These challenges highlight the need for effective strategies to improve operator performance, such as individual crafting, which can help operators proactively align their working conditions with their own needs and abilities, and ultimately improve their job performance.

According to the above description, the objective of this research is to examine the link between individual crafting, job satisfaction, and work engagement as it relates to the job performance of heavy equipment operators working for PT. Pamapersada Nusantara.

B. Literature Review

1. Individual Crafting

Individual job crafting is the process of proactively altering one's work responsibilities and the resources available to them. Individual job crafting entails raising work demands that are both hard and inhibiting, expanding job resources that are structural, increasing job resources that are social, and increasing job resources overall. (Llorente-Alonso & Topa, 2019). In previous conceptualizations of work-making, the activity was always seen as an Individual endeavour. Leana, Appelbaum, and Shevchuk (2009) elaborated on the concept, proving that team job crafting had more impact than individual job crafting. Workers may collectively choose how to change the job to suit their shared objectives, according to these researchers, since they all take part in comparable working processes and connect to and experience similar occurrences. (Leana et al., 2009). According to the findings of their research, job crafting is made up of two distinct constructs: Individual and collaborative crafting. Cheng, Chen, Teng, and Yen (2016) state that in individual crafting, workers deliberately shift the boundaries of their responsibilities.

2. Job Satisfaction

Job satisfaction may be described as an individual's overall feelings about their employment and their attitudes towards different areas or components of their job. Additionally, an attitude and viewpoint that might impact the degree of compatibility between the employee and the company can be regarded as a component of job satisfaction. (Ivancevich & Matteson, 2002). Job satisfaction is a measure of organisational success and is directly related to organisational and individual characteristics. The majority of workers are aware that their level of job satisfaction influences the success of their firm. This is the origin of the commonly held management adage that "happy workers are productive workers." (Lumley et al., 2011).

3. Work Engagement

Work engagement is "a pleasant, satisfying, work-related state of mind that is marked by vigor, dedication, and absorption." Work engagement essentially describes how employees feel about their jobs: energising, stimulating, and something they want to invest time and effort in (the vigour component); significant and meaningful (the dedication component); and absorbing and something they are fully focused on. (absorption). Engaged personnel are passionate about their job, exhibit high levels of energy in pursuit of their professional objectives, and take pleasure in their work. (Schaufeli et al., 2002). The beneficial acts that result are a direct result of this delight. Employees that are engaged are more likely to exhibit behaviours and put in performances of higher quality (Hsieh and Wang, 2015).

4. Empathetic Leadership

The theory of empathic leadership posits that leaders demonstrate enhanced effectiveness by exhibiting an awareness and acknowledgment of their followers' emotions, hence assisting them in effectively regulating said emotions. Consequently, due to this positive reinforcement, individuals who adhere to such encouragement will experience an enhanced sense of job satisfaction, leading to improved work performance. While simply testing the results of empathic leadership in this article to see whether the model makes accurate predictions (Lynham, 2002). Empathetic leadership focuses on the emotional interaction between a leader and follower—how well a leader comprehends the work circumstances of a follower, engages in emotional

understanding, and offers emotional stability for the follower. The necessity for such a model has risen as employee cognitive and emotional labour plays a larger role in job success (Kock et al., 2018).

5. Job Performance

The main objective in human resource management is job performance. (Organ & Paine, 1999). Its evaluation and analysis are important for several organisational activities, including human selection, remuneration and benefits, and training. Regardless of the goal of the review, companies need reliable evaluations of performance, and it is preferable if these ratings deliver the same outcomes while saving time and resources. (DeNisi & Murphy, 2017). Accomplish organisational objectives such as quality, cost reduction, and other successful criteria (Gibson, Ivancevich, and Donnelly, 2012). The performance of workers is evaluated not just based on the product they produce but also on the amount and quality of the work they do. It is not sufficient for organisations to implement unilateral policies such as upgrading work techniques, pay, disciplinary rules, co-workers, supervision, and promotion to increase employee job performance (Luthans, 2012).

C. Review Hypotheses

1. The relationship between Job Satisfaction mediates Individual Crafting and Job Performance

According to the findings of previous research, there is a connection between job crafting and its dimensions (individual crafting) and a person's level of happiness as well as other organisational outcomes. Nonetheless, various theoretical methods have resulted in a variety of distinctive findings. Consequently, Leana et al. (2009) investigated the connection between job crafting and organisational results. Individual crafting did not predict these outcomes, while collaborative crafting predicted higher-quality care, more work satisfaction, and greater organisational commitment. Cheng and O-Yang (2018) also suggested that there may be a connection between job crafting and job satisfaction. Ghitulescu (2006) demonstrated that people who designed their jobs were more devoted to their responsibilities and work-related choices, resulting in better levels of job satisfaction.

Job satisfaction also appears to mediate the relationship between emotional Individual crafting and job performance (Lee, 2016). The study highlights the importance of creating a work environment that emphasises work-life harmony. Zhang et al. (2012) concluded that job crafting can lead to positive outcomes such as job satisfaction, work meaning, work engagement, job performance, and organisational commitment. Previous research has established a correlation between the various elements of job crafting and employee engagement and job satisfaction. Villajos, García- Ael, and Topa (2019) discovered that the factors related to an increase in structural and social resources as well as demanding tasks were related to participation. Job satisfaction was shown to be correlated with increasing structural and social resources alone. Nielsen and Abildgaard (2012) discovered relationships between certain work-crafting activities or characteristics and wellbeing indicators like job satisfaction and engagement.

Hypothesis 1 (H1) Job Satisfaction mediates the positive effect of Individual Crafting and Job Performance.

2. The relationship between Work Engagement mediates Individual Crafting and Job Performance

Bakker and Oerlemans (2018) looked at the correlation between individual crafting and employee engagement and found that it was beneficial because it helped people meet fundamental psychological requirements. Nevertheless, they also discovered that individual crafting might have unexpected consequences since it requires effort and drains people's energies. While the article stated that the majority of data indicates a causal influence of individual crafting on engagement, they also noted that the link between individual crafting and engagement may be mutual. Chen et al. (2014) discovered that both forms of individual crafting increase dedication, since they allow workers to shape the parameters and expectations of their work. Bakker, Tims, and Derks (2012) theorised that involvement served as a "mediator" between various individual crafting and actual job performance.

It should be highlighted that the connection between job crafting and employee engagement at work is most likely a dynamic one (Bakker, 2011). Employees that actively alter their workplace to make it more resourceful and demanding (i.e., engage in job crafting behaviours) will thus be more engaged. (Hakanen et al., 2008). People who practise job crafting do so because they want to make sure their jobs match their skills and interests. The goal of proactive workers is to achieve harmony with their surroundings. (Parker & Collins, 2010). They make effective use of the resources available to them on the job and cultivate a demanding working environment that encourages the excitement and concentration that are defining characteristics of engagement.

Hypothesis 2 (H2) Work Engagement mediates the positive effects of Individual Crafting and Job Performance.

3. The relationship between Work Engagement mediates Empathetic Leadership and Job Performance

Through an inclusive atmosphere, empathetic leadership behaviour may affect the engagement of followers in the workplace. Leadership quality is an essential element in fostering an inclusive environment. Specifically,

great leadership affects not just the performance of followers but also their perceptions of the workplace (Aarons & Sommerfeld, 2012). A major predictor of subordinates' engagement in their jobs is the leader's social support. Employees feel more engaged in their jobs when their leaders actively listen with empathy to their perspectives. Therefore, businesses must equip their leaders with the skills of active empathy if they want to inspire their employees (Jonsdottir & Kristinsson, 2020). As a result, it is beneficial for studying the relationship between mediated leaders and followers (Kock et al., 2018). In addition, a positive correlation was shown between experience and performance, although a clear correlation could not be established between education and performance. (Kahya, 2007).

On the other hand, according to Bakker, Demerouti, and Verbeke (2004), job-oriented workers score higher than their colleagues in both main and secondary responsibilities, showing that they do tasks effectively and are eager to grow in their careers. In addition, Harter, Schmidt, and Hayes (2002) found a correlation between high levels of employee engagement and successful business outcomes, Employee performance on the job is impacted as a result of this employee engagement (Saks, 2006).

Hypothesis 3 (H3) Work Engagement mediates the positive effects of Empathetic Leadership and Job Performance.

4. Relationship between empathetic leadership and job performance

Relationships are the foundation of leadership in its most fundamental form. (Bennis, 2007). A successful leader-follower dynamic has the potential to promote happiness and out-of-character actions (Geertshuis et al., 2015). Kock et al. (2018) studied the relationship based on a preliminary assessment demonstrating substantial evidence for the relationship between empathic leadership and performance and presenting proof of the model's causation (Goldthorpe, 2001). However, other significant workplace outcomes, such as employee turnover, absenteeism, and organisational civic behaviour, need to be investigated. Positive impact of empathic leadership on follower performance. Improved job satisfaction and engagement should increase intrinsic motivation and the drive to perform well, leading to more efficient and effective performance behaviours. In addition, The study discovered that leader-level motivating language significantly and positively affects follower performance, whereas dyadic-level motivating language significantly and positively affects both employee performance and job satisfaction. (Mayfield & Mayfield, 2010).

Hypothesis 4 (H4) Empathetic leadership has a positive effect on Job Performance.

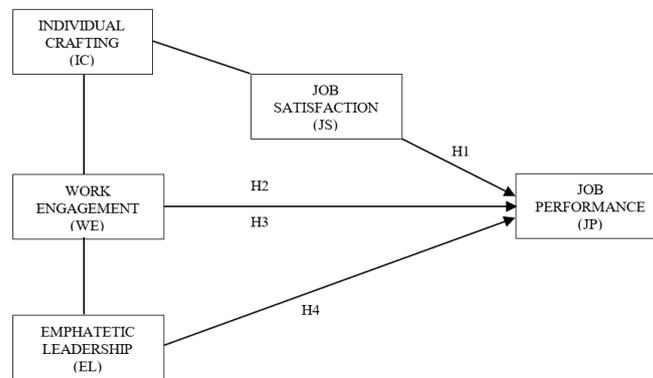


Figure 1. Theoretical Framework

II. METHODS

In this study, quantitative methods are employed. Using these methods, it is possible to determine from the information gathered from each individual unit of analysis, how their job performance is related to their Individual crafting, work engagement, job satisfaction, and empathic leadership. In comparison to other methodologies, the use of questionnaires presents a more expedient approach for assessing the behaviour, attitudes, preferences, perspectives, and intentions of a substantial cohort of persons (Sekaran & Bougie, 2019). Our research was included in a cross-sectional study due to the fact that information was gathered just once every few weeks or months by researchers. Our research design is a natural environment. Our research design is a non-contrived setting.

In this study, researchers used all heavy equipment operators as the population in this study's individual unit of analysis to represent behaviours and categories of work areas in PT Pamapersada Nusantara. According to data

from the business's Operation and Human Capital Department, there are 10,716 operators employed in the area at the time of writing. From a population of 386 operators, we constructed a sample frame using our research frame based on Slovin's formula. Purposive sampling is used in the sampling process, and it is based on the ratio of operators in one district to all operators in the target population. The researcher selects the sampling that is considered the most representative or relevant to meet the research objective. Selection was carried out on the operator, namely the operator who had unit versatility (active licence) has more than one year experience.

Using a questionnaire, primary data were gathered. Respondents filled out a variety of questionnaires, which were subsequently gathered and collated for data analysis. One of the researchers circulated the online survey using social media channels, including email, WhatsApp, and LinkedIn. The Google Form software will be used to create the online survey, which will be used as the questionnaire. Each sentence is evaluated using one of five options on the Likert model's attitude scale. Items on the scale are scored from 1 (strongly disagree) to 5 on a five-point scale (strongly agree). All of the variables' measures utilised in this investigation were taken from earlier studies, and all of them had excellent measurement validity.

In the process of analysing the data, a statistical test will be carried out using the Structural Equation Modelling (SEM) approach and the SmartPLS programme. The data collecting question-statements are given in the appendix. Researchers used structural equation modelling (SEM) using the partial least squares (PLS) methodology, or PLS-SEM, since PLS-SEM is based on methodologies that do not presuppose that the data follow normal distributions. (Kock, 2016). Researchers selected this model for three reasons: 1) According to Chin (2010), It is a method that may be used in a circumstance where theory is being developed, such as in this research; 2) It provides the simultaneous evaluation of the reliability and validity of theoretical construct measurements (external or measurement model) and estimation of the links between these constructs (internal or structural model); and 3) It allows for the integration and testing of a priori knowledge and assumptions with actual data (Barroso et al., 2010). Furthermore, this programme facilitates the modelling of both mediating and quadratic connections between latent variables.

The statistical analysis programme SmartPLS, version 3.2.9, was used to do the analysis on the collected data. (Ringle, Wende, & Becker, 2015). Following the recommendation made by Dijkstra and Henseler (2015), The method utilised was a relatively recent one termed consistent PLS (partial least squares route modelling). Researchers should use consistent PLS or covariance-based SEM instead of standard PLS as long as the common factor model is preserved, as proposed by this method.

Furthermore, the validity and reliability tests performed to ensure the validity and usability of the questionnaire measuring tool (As a metric for the examination, regression analysis was utilised) were deemed adequate. To determine validity and reliability, there are two analyses available, including the Measurement Shape. To test the hypothesis, the Structural Shape (Multiple Regression) is utilised. The programme is used to test multiple dependence relationships within a model, such as Individual crafting, work engagement, job satisfaction, emphatic leadership, and on the job performance, as well as to observe any previously unforeseen relationships and potential measurement errors during the process estimation process. The questionnaires used and the definitions for each variable are presented in the table attached.

III. RESULTS AND DISCUSSION

The sampel comprised 386 people as previously targeted. Researchers encourage respondent participation by including a cover letter at the top of the online questionnaire page that serves as an introduction to the researcher and communicates the goals and objectives of the research. In addition, we determined the demographics of the research study participants, which are listed in Table 1, who were all men and had positions as operators, with most ages (51.8%) being between 30 and 39, less than 30 were 42.0%, and others were more than 40 (6.2%). Most participants (58.8%) had more than 10 years' experience, and 41.2% had less than 10 years' experience. As a site cluster participant category, 12.2% were from Sumatra, Central Kalimantan was 12.2%, South Kalimantan was 16.6%, and East Kalimantan was 59.2%.

The demographic data collected in this study, represented in Table 1, are length of service, jobsite, department, age, and location of residence.

Table 1. Demographic Data

	<i>N</i>	<i>%</i>
<i>Age</i>		
<i>Less than 30 years old</i>	<i>162</i>	<i>41.97%</i>
<i>30 to 39 years old</i>	<i>200</i>	<i>51.81%</i>
<i>40 to 49 years old</i>	<i>18</i>	<i>4.66%</i>
<i>more than 50 years old</i>	<i>6</i>	<i>1.55%</i>
<i>Working Period</i>		
<i>1 to 2 years old</i>	<i>79</i>	<i>20.47%</i>
<i>2 to 5 years old</i>	<i>40</i>	<i>10.36%</i>
<i>5 to 10 years old</i>	<i>40</i>	<i>10.36%</i>
<i>more than 10 years old</i>	<i>227</i>	<i>58.81%</i>
<i>Site Cluster</i>		
<i>Sumatera</i>	<i>47</i>	<i>12.18%</i>
<i>East Kalimantan</i>	<i>228</i>	<i>59.07%</i>
<i>South Kalimantan</i>	<i>64</i>	<i>16.58%</i>
<i>Central Kalimantan</i>	<i>47</i>	<i>12.18%</i>
<i>Department</i>		
<i>Overburden Process</i>	<i>260</i>	<i>67.36%</i>
<i>Coal Process</i>	<i>85</i>	<i>22.02%</i>
<i>Operational Support</i>	<i>41</i>	<i>10.62%</i>

Location of Residence

<i>Mess</i>	172	44.56%
<i>Non Mess</i>	214	55.44%

Next, researchers validate the statement items that will be utilised for measuring the study variables of the subject of the study. Using SmartPLS, the researchers process each component of the statement as a whole. The PLS model was decoded in three stages: the measurement model (the outside model), the structural model (the inside model), and the global model assessment.

The results of the research variables are summarised in Table 2, together with their respective means, standard deviations, and correlations.

Table 2. Correlations, Means, and Standard Deviations of Study Variables

<i>Variables</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Individual Crafting</i>	4.326	0.624	.914a				
<i>Job Satisfaction</i>	4.275	0.594	-0.046	.906a			
<i>Work Engagement</i>	4.362	0.579	-0.269	-0.267	.902a		
<i>Empathetic Leadership</i>	4.137	0.670	-0.245	-0.405	-0.001	.920a	
<i>Job Performance</i>	4.325	0.610	-0.375	-0.260	-0.422	-0.076	.886a

The measurement model (external model), structural model, and model interpretation were used to interpret the PLS model. (Internal model). Initially, the researchers assessed the individual dependability of the items by examining the basic loadings or correlations of the measures or indicators with their particular concept. The indicators' external loadings must be greater than .707 (Hair, Hult, Ringle, & Sarstedt, 2014). Secondly, to signify a suitable match, Cronbach's alpha, composite reliability, and the rho_A value were then used to assess the construct's consistency. All constructions were determined to have reliability values greater than .70, meeting the minimum threshold for construct dependability. (Nunnally & Bernstein, 1994). Thirdly, convergent validity was assessed by calculating the average variance that was taken out of the data. (AVE).

The result of the earliest process is Convergent Validity, which is deemed significant if its value is greater than 0.5. Based on the understanding, a loading factor > 0.5 is necessary. As the opinion of states that the loading factor > 0.5 is significant. Also, according to Hair, Ringle, and Sarstedt (2011), The minimal loading factor in SEM is 0.7, thus the researchers excluded items having a value of <0.7, such as JS4 for Job Satisfaction items. (Information: for the attached loading factor table). Only remove indicators with loadings among .40 and .70 if it improves constructed reliability.

After taking out the items that don't comply with the requirements, the next researcher looks at the results in Table 3, which show the Composite Reliability and Average Variance Extracted.

Table 3. Measurement Model: Loadings, Construct Reliability, and Convergent Validity

<i>Latent Variables</i>	<i>Cronbach's Alpha</i>	<i>rho_A</i>	<i>Composite Reliability</i>	<i>AVE</i>
<i>Individual Crafting</i>	0.967	0.967	0.974	0.883
<i>Job Satisfaction</i>	0.942	0.943	0.959	0.852
<i>Work Engagement</i>	0.966	0.966	0.974	0.882
<i>Empathetic Leadership</i>	0.922	0.923	0.941	0.762
<i>Job Performance</i>	0.969	0.969	0.973	0.800

Based on the test findings in Table 1, all items (excluding JS4) can be continued for the next test, namely, the validity test. Table 4 shows the discriminant validity analysis findings used to test validity. In the discriminant validity table, the researcher checked AVE roots to each construct's AVE roots, ideally greater than the correlation between the constructs they are based on.

Table 4. Discriminant Validity

<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Individual Crafting</i>	0.940				
<i>Job Satisfaction</i>	0.815	0.923			
<i>Work Engagement</i>	0.811	0.892	0.939		
<i>Empathetic Leadership</i>	0.850	0.840	0.880	0.873	
<i>Job Performance</i>	0.790	0.874	0.905	0.869	0.894

Based on Table 4, the results of the Validity and Reliability test show that all constructs in the research model have a good Outer Loading value, that is, there is no value below 0.5, so it can be said that the construct already meets the Convergent Validity requirements. In addition, all constructs also have an Average Variance Extracted (AVE) value above 0.5, which means that they have fairly good convergent validity. Furthermore, Cronbach's Alpha and Composite Reliability values also meet good reliability standards, which are above 0.7. This shows that the constructs in the research model have a good and consistent level of reliability. Thus, the results of the Validity and Reliability test show that the proposed research model is of good quality and qualified in terms of validity and reliability. Therefore, the research model can proceed to the next stage in the data analysis process.

The path coefficient, mathematical sign, scale, and statistical significance were assessed to test the structural model. The significance-level route coefficients were positive and supported the study's assumptions. The path coefficient's statistical significance was assessed using consistent PLS bootstrapping (5,000 subsamples). Individual t-values above the significance threshold are crucial t-value (1.645).05 differed considerably from 0. (Figure 2).

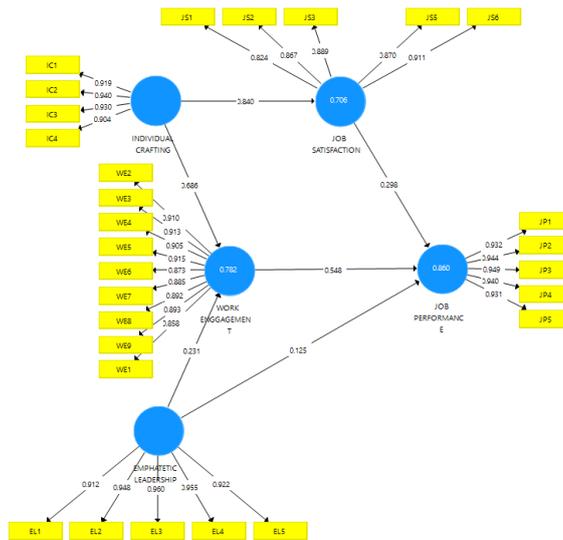


Figure 2. Structural Model: Standardized Regression Coefficients (Values of *t*).

p* < .05, *p* < .01, ****p* < .001.

Table 5. R Square

Variables	R Square	R Square Adjusted
Job Satisfaction	0.705	0.705
Work Engagement	0.782	0.781
Job Performance	0.859	0.858

Table 5 depicts the impact of the independent variable on job performance; according to the findings, job performance is affected by 78.2% of a combination of job satisfaction, work engagement, and empathetic leadership. This research provides a model that includes both non-technical and technical skills as dependent variables and yields the following findings: According to Figure 1, individual crafting will affect job satisfaction by 86.0%, while empathetic leadership will influence work engagement by 70.6%.

Table 6. Hypothesis Testing

Hypothesis	<i>t</i> -statistic	<i>p</i> Values	Decision(s)
H1	3.743	0.000	Supported
H2	6.398	0.000	Supported
H3	4.173	0.000	Supported
H4	2.355	0.019	Supported

PLS-SEM hypothesis testing concludes research data testing. Bootstrapping provides consistent factor number estimates for testing this concept. The bootstrap uses several subsamples from the original sample with replacements to assess the stability of the computed coefficients. The SmartPLS programme presents the T-statistics and P-values for the bootstrap-derived structural model. The t-statistic illustrates how much the independent variable affects the dependent variable. The connection is significant at 95% with a t value higher than 1.96 ($p < 0.005$; $\alpha = 0.05$) (Hair et al., 2011).

According to the information provided in Table 6, each of the four hypotheses possesses a positive t-statistical value and a p value that is less than 0.005. This indicates that the supposition is correct and that there is a connection between the variables.

In testing, the first hypothesis was accepted, which means that Job Satisfaction positively mediates the relationship between Individual Crafting and Job Performance. The results of this study confirm the research of Dinc (2017), which defines Job performance refers to the level of quality and quantity attained by an individual or a group upon the completion of a given assignment. In the contemporary landscape of business, organisations are compelled to acquire and retain high-performing personnel in order to effectively accomplish their objectives and gain a competitive edge, which is influenced by the level of work satisfaction experienced by those people. In the conditions of the mining business, the results of this study show that individual crafting can be an effective strategy to improve job performance. In other words, personal crafting increases job satisfaction, which ultimately enhances employee performance.

In the second hypothesis test, it is accepted, which means that Work Engagement positively mediates the relationship between Individual Crafting and Job Performance. This is consistent with individuals who actively attempt to match their working environment to their own needs and capabilities. Employees actively work to fit into their immediate environment. (Parker and Collins, 2010; Tims and Bakker, 2010). They engage in extra effort to boost productivity in the workplace by encouraging employees to use their initiative and take on more difficult tasks. Halbesleben and Wheeler (2008) show, in their study among American employees, their superiors, and their closest co-workers from different industries and jobs, that work involvement uniquely contributes to explaining the variance in job performance, having controlled to instill work.

In testing, the third hypothesis was accepted, which means work engagement positively mediates the relationship between Empathetic Leadership and Job Performance. According to Chong's research (2020), the target's needs, worries, and sentiments must be understood. We propose that employee empathy with planned effects impacts how much proactive personality and work engagement positively influence job performance. In testing, the fourth hypothesis, accepted and Empathetic Leadership, had a significant positive effect on Job Performance. In accordance with Kock's research (2018), where Empathetic Leadership affects employee performance at work.

IV. CONCLUSION

Based on the results of the study, the results showed that individual crafting has a significant influence on job satisfaction and work engagement. In other words, employees who do individual crafting on their tasks and roles tend to feel more satisfied and motivated with their work. In addition, the analysis results show that both job satisfaction and work engagement significantly influence job performance. In the context of this study, job satisfaction can be explained as a positive perception of employees about their work and the work environment that surrounds them. While work engagement refers to the level of employee involvement in their work, including the sense of enthusiasm and energy they feel. Therefore, individual crafting can be an effective strategy to improve employee performance. So, the company needs to improve individual crafting and empathy leadership in order to significantly help the performance of the company.

The research findings suggest that individual crafting and empathetic leadership positively impact job performance in the mining industry, mediated by job satisfaction and work engagement. The results indicate that mining companies can use individual crafting to improve job performance by increasing employee job satisfaction, which ultimately leads to improved performance. Additionally, empathetic leadership is found to be an effective tool for improving job performance, as it positively influences work engagement, which is a crucial determinant of job performance.

It is important to take note of these findings and consider how to incorporate individual crafting and empathetic leadership into the company's management practises. By improving job satisfaction and work engagement, companies can enhance their employees' performance, which can contribute to achieving the organisation's goals and gaining a competitive advantage in the industry. It is also essential to assess the current training programmes in place, both technical and non-technical, to ensure that they align with the company's

objectives and have a positive impact on safety performance. This evaluation should focus on the readiness of instructors, the effectiveness of classroom, simulator, and field practise activities, the content of the training materials, and the benefits that employees perceive from attending training sessions. By improving training programmes and ensuring they meet employees' needs, companies can create a more engaged and motivated workforce that performs better and contributes to a safer working environment.

Very few studies have concentrated on this theory approach to individual crafting, according to the literature examined here. A future study could look into the causes and effects of solo and joint job crafting, as well as particular work groups and the validation of the measure in other languages. Furthermore, research in occupations where employees are highly reliant would be fascinating because degrees of individual and joint work creation can vary significantly from one professional area to the next.

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Effectiveness of Social Media Marketing and E-Service Quality on Repurchase Intention through Brand Loyalty

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ABSTRACT

Purpose: This study aims to analyze and explain (1) determine the influence of Social Media Marketing on Brand Loyalty; (2) determine the effect of Social Media Marketing on Repurchase Intention; (3) determine the effect of E-Service Quality on Brand Loyalty; (4) determine the effect of E-Service Quality on Repurchase Intention; (5) determine the effect of Brand Loyalty on Repurchase Intention; (6) determine the influence, Social Media Marketing and e-Service Quality on Repurchase Intention through Brand Loyalty.

Design/methodology/approach: This study used a data collection method with questionnaires with a quantitative approach. The population that is the object of research is OVO application users, with as many as 165 respondents—analysis testing using SEM with Smart PLS software.

Findings: Based on the analysis of the research results, the following conclusions were obtained, Social media marketing has a significant effect on brand loyalty, Social media marketing has a significant impact on repurchase intention, E-Service quality has a considerable effect on brand loyalty, E-service Quality does not have a significant impact on repurchase intention, Brand loyalty has a significant effect on repurchase intention, Social media marketing and electronic service quality has a significant impact on purchase intent through brand loyalty.

Research limitations/implications: Because of the distribution of questionnaires through google forms, the results obtained are less in-depth; it is recommended that further research can add other variables and use more in-depth measuring devices so that results are close to the real thing.

Practical implications: The results of this research can be used by digital wallet service providers to improve e-service quality further if they want to get loyal consumers and continue to use it repeatedly.

Originality/value: This Paper is Original.

Paper type: Research paper

Keywords: Social Media Marketing, E-Service Quality, Brand Loyalty, Repurchase Intention.

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I. INTRODUCTION

In the ever-evolving digital age, social media marketing and electronic services have become essential elements of a company's marketing strategy. The development of increasingly advanced technology currently impacts the use of digital technology. Activities carried out digitally based or using technology. This changed behavior changeable is observed in daily activities, one of which is in the payment system. Cashless payment systems have been widely used. Social media has influenced many aspects of consumer behavior in the 21st century, including awareness, acquisition an a sha, a ring of information, opinions, attitudes purchases,s, and post-purchase behavior. Social media marketing leverages online platforms such as Facebook, Instagram, and Twitter to promote products and services to consumers. With the availability of social media, companies can now communicate with their customers and get feedback from them; also, customers can communicate with other customers and share information about products and services (Mangold & Faulds, 2009).

Meanwhile, electronic services involve interactions and transactions through online platforms, including websites and applications. This communication platform is perfect for sharing information and opinions. Social

media is considered more sincere to consumers because it communicates a brand. An essential factor in increasing repurchase interest is to make consumers recall a brand or product with the help of promotional media on social media. Trust in the brand is one of the factors to improve relationships with a brand and can be used to create a relationship with consumers in the future. In transacting, social media marketing is a new medium for exchanging information and offering products from a company. Social media is a new tool because this marketing strategy can potentially launch a company's goal by creating brand trust (Rachmawati, 2018).

Many researchers have proposed different attributes and dimensions to measure the quality of e-services. (Yogatama, 2019) conducted a study on e-service quality that examined how customers shape expectations of technology-based self-service quality and suggested five critical attributes of e-service quality: speed of delivery, ease of use, reliability, enjoyment, and control. The results showed that control and enjoyment were significant determinants of service quality; ease of use was also a key determinant in service quality, but only for high lead times and control groups, while delivery speed and reliability did not impact service quality. The most common approach to measuring service quality is the SERVQUAL Model (Parasuraman et al., 1988). This Model is still popular and is currently used in many studies among them (Budiarani et al., 2021; Khayatmoghadam, 2021; Siddiqui et al., 2020; Tarigan, 2021; Tien et al., 2021). In online business, many researchers modify SERVQUAL into several models. The most famous adaptation model is Web Qual, developed by Barnes and Vidgen and Loiacono, which was later adapted by research conducted by (Ali et al., 2017; Amponsah & Antwi, 2021; Jin et al., 2023; Li, 2018; Stringam & Gerdes, 2019; Zhong, 2022), e TailQ compiled y Wolf-inbarger and Gilly and then researched (Pramudito, 2021; Shukor & Harizan, 2021).

Studies show that the effectiveness of social media marketing and the quality of e-services can positively impact consumers' intent to repurchase through brand loyalty. The point of social media marketing can be measured through the level of interaction, engagement, and influence achieved through online marketing campaigns. The more effective social media marketing is, consumers will likely be engaged and interested in considering repeat purchases. Accepting payments via mobile depends on the ability of service providers to build a network of part rs and customers simultaneously ((Hadi et al., 2016). Mobile payment service providers and business partners must be made so that every effort can improve the consumer experience (Dinh, 2019). A survey conducted by Pricewaterhouse-Coopers (PWC, 2019) stated that Indonesians experienced an increase in online transactions using mobile payments. Mobile payments are also increasing rapidly with the increasing use of mobile applications (Nugroho & Fajar, 2018). With this phenomenon, many companies are using mobile payment systems in Indonesia.

In addition, the quality of electronic services is also an essential factor in influencing consumers' intention to repurchase through brand loyalty. The quality of electronic services covers various aspects, such as reliability, responsiveness, ease of use, and speed in processing transactions. Consumers tend to be more loyal to brands like PT that provide a satisfying e-service experience and meet their expectations. Visionet Internasional (OVO) is one of Indonesia's financial applications and services. The collaboration between OVO, Grab, and Tokopedia makes OVO a digital delivery platform in Indonesia that can be accepted in retail networks, food stalls, stores, e-commerce, to online services with more than 500,000 offline outlets. This shows that evolving business models generally adopt and mimic mobile banking business models. Mobile payments need to be developed so that there is innovation and fill existing opportunities (Mawarrini et al., 2017)

This study aims to explain and test how the influence of social media marketing and e-service Quality on repurchase intention through brand love in OVO Application users in MalaThe study aimed to provide a better understanding of how social media marketing and e-services can influence consumer buying behaviour and shape brand loyalty. It is hoped that the results of this study will provide valuable insights for companies in developing effective marketing strategies and improving the quality of their electronic services. By understanding the interrelationships between social media marketing, e-service quality, and brand loyalty, companies can optimize their efforts to increase customer retention, build brand loyalty, and increase consumer intent to repurchase.

A. Theoretical Foundation

1. Social Media Marketing

Simply put, social media marketing is a marketing process carried out through social media. Usually, the social media used is Facebook, Instagram, or Twitter. However, its meaning can be broader. According to (Tuten & Solomon, 2018), social media marketing is the use of technology, channels, and software from social media that aims to create communication, delivery, exchange, and offer value to an organization's stakeholders. In today's era, business people need to experiment and adjust to market conditions using social media marketing tactics to achieve the company's goals (Rangkuti, 2002).

1. Micro Theories Related to Social Media:

Several micro-theories associated with social media marketing help explain how individuals interact, engage, and exchange information in a digital environment. Some of these micro-theories include (*Social Media Marketing Theory: Know Everything Now!*, 2021):

- a. **Word of Mouth/Psychological Ownership and Perceived Control Theory:** In the context of the tourism and hospitality industry, advice from friends and relatives is the most frequently obtained and influential source of information consumers use in travel decision-making. This advice is often considered more credible and trustworthy than information from marketers. This theory emphasizes the influence of social relationships in purchasing decision-making and the importance of user-generated content and recommendations from friends.
 - b. **Social Exchange Theory:** This theory deals with the motives behind individual participation in social media. This theory uses cost-benefit frameworks and alternative comparisons to explain how humans communicate with each other, form relationships and bonds, and how communities are formed through communication exchanges.
 - c. **Social Penetration Theory:** Similar to social exchange theory, social penetration theory explains how human exchange forms relationships. However, this theory focuses more on the individual and dyadic levels, whereas social exchange theory can explain behavior at the aggregate and organizational levels. Social exchange theory states that humans form close relationships through self-disclosure. Using the analogy of peeling off the layers of an onion, one must reveal oneself through an ongoing process of revealing oneself and one's identity.
2. **Chaffey's Theory of Social Media Marketing:** This theory is defined by David Chaffey as the oversight and facilitation of customer interaction, participation, and sharing through digital media to encourage positive engagement with a company and its brand, leading to commercial value. Interactions may occur on company sites, social networks, and third-party websites. This theory emphasizes the importance of participating in customer conversations and understanding their needs to improve brand perception and customer relationships (Sokolska, 2017).
 3. **Maslow's Hierarchy of Needs in Social Media Marketing:** Maslow's Hierarchy of Needs Theory classifies human needs into five levels, from basic needs for survival to higher psychological needs. In social media marketing, understanding the level of hierarchy that customers might reach when interacting with your brand is essential. The demands that people want to meet in using social media can differ depending on the platform used, and you must adjust your content according to these needs (Bari & Hidayat, 2022)
 4. **The 7 P's in Marketing Mix:** The concept of marketing mix has existed since 1960, when the original four P's-product, place, price, and promotion, were first used to analyze and create marketing campaigns. This marketing theory was later expanded to the seven Ps, adding elements of people, processes, and physical evidence. This expanded version allows marketers to use this theory to create campaigns for services. Some digital marketing specialists even add an eighth P, productivity, and quality, to reflect how businesses deliver productivity and value to their customers (Paul & Mas, 2019).

2. E-Service Quality

E-Service Quality is a service provided on the Internet network as an extension of a site's ability to facilitate shopping, purchasing, and distribution activities effectively and efficiently (Rita et al., 2019). E-Service Quality, or e-serve-qual, is part of service quality (serve-qual) or service quality. E-service quality is one of the most researched topics in the field of marketing because of its relationship with cost, satisfaction, retention, and loyalty (Deif et al., 2019; Kaur et al., 2020; Paul & Mas, 2019; Singh, 2019) e-service quality is defined as the extent to which websites facilitate shopping in the efficient and effective purchase and delivery of products and services.

E-S-Qual:

1. **Efficiency:** ease and speed in accessing the site.
2. **Fulfillment:** all kinds of transactions made can complete as expected.
3. **System Availability:** all available engineering functions can run smoothly.
4. **Privacy (privacy policy):** provides security and guarantees for individual/personal data.

E-RecS-Qual:

1. **Responsiveness:** respond quickly to the site.
2. **Compensation:** the level of compensation that the customer can receive in case of problems
3. **Contact:** customer service availability by telephone or representative in online support facilities.

3. Brand Loyalty

The book Marketing Basics (Sahir et al., 2021) defines brand loyalty as a measure of consumer closeness or connection to a brand. Brand loyalty describes the likelihood of a consumer switching to another brand. Especially when the brand changes, such as price increases or other modifications. Generally, consumers loyal to that brand will continue to use the brand even though faced with many superior alternative competing product brands. Managing Techniques Brand Equity and Brand Development Strategies Brand loyalty represents a strategic asset that, if appropriately managed, will provide value to the company. This value, namely reducing marketing costs,

and increasing trade, can bind new consumers and quickly respond to company products—indicators of consumer loyalty to brands (Rangkuti, 2002b). As quoted from the book *Brand Marketing* (Putri & Dkk, 2021) et al., Nancy Giddens describes six indicators of consumer loyalty to brands: Commit to the brand. Dare to pay more for one brand than another. Get others to buy. If you repurchase the product, you will not consider it. Always follow news related to the brand. Consumers can become spokespersons for the brand, and it is a free promotion.

Meanwhile, according to Jill Griffin, indicators of consumer loyalty to brands are: Making repeat purchases. Demonstrate immunity to the attractiveness of competitors or competitors of the product brand. They were referencing product brands to consumers. Talk positively about the product brand to others. And this is contained in research (Bernarto et al., 2020; Bilgin, 2018; Chao, 2018; Parris & Intelligence, 2023)

4. Repurchase Intention

Repurchase Intention will appeal to consumers because consumers have made previous and repeated purchases. Consumers intending to make a repurchase will show their desire in the future (Nurdiansah & Widyastuti, 2022; Tjiptono, Fandy & Chandra, 2016). That is, the repurchase intention depends on the consumer rating obtained from transactions made in the past (Yanti et al., 2023). Buying interest is also influenced by changes in people's behavior; consumers are currently more oriented to instant behavior and hedonic tendencies (Juanda et al., 2019; Nst, 2015). Buying behavior arises because it is preceded by buying interest, buying interest arises, one of which is caused by the perception obtained that the product has good quality. So buying interest arises from customers. According to (Hasan, 2014)) repurchase intention can be identified through the following dimensions: 1. Transactional interest, which is a person's tendency to buy products. 2. Referential Interest, which is a person's tendency to refer to others. 3. Preferential Interest, which is an interest that describes the behavior of a person who has the primary preference for the product. This preference can be replaced when something happens to the product of his preference.

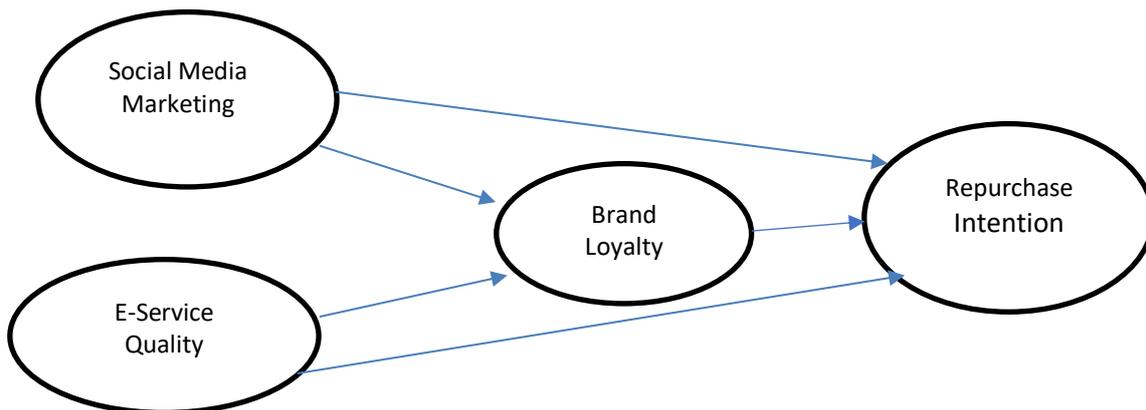


Figure 1. Research Conceptual Framework

B. Research Hypothesis

H1: Social media marketing significantly affects brand loyalty

H2: Social media marketing significantly affects repurchase intention

H3: E-Service quality significantly affects brand loyalty

H4: E-service Quality significantly affects repurchase intention

H5: Brand loyalty significantly affects repurchase intention

H6: Social media marketing and E-service quality significantly affect repurchase intention through brand loyalty

II. METHODS

The approach used in this study is quantitative. According to Sugiyono, quantitative research uses statistical analysis and data in the form of numbers—this approach is an empirical, objective, measurable, rational, and systematic scientific method. According to the nature of this type of research, data is included in empirical research (Empirical Research), which is research on empirical facts obtained based on observation or experience. The location of this research is in Malang City. The population in this study is Malang residents who use the OVO digital wallet application. This study uses sampling in searching for data, namely by non-probability sampling, because the total number of users is unknown. The sampling method in this study was by purposive sampling

technique, and 165 samples of respondents were obtained. Using the formula Heirs Significance level 5% and a minimum path coefficient of 0.2. From the calculation results, a minimum sample is obtained, namely:

$$5\%: \min > \left(\frac{2.486}{\rho_{min}}\right)^2 \quad n_{min} > \left(\frac{2.486}{0.2}\right)^2 = 154.505$$

So the minimum sample used was 155 people, and in this study, a sample of 165 questionnaires was obtained. Data collection techniques using questionnaires. The Likert scale guides the preparation of questionnaires or questionnaires with several alternative answers weighted with assessment. The data analysis used in this study uses SEM Pls, while data processing uses the Smart-Pls program.

III. RESULTS AND DISCUSSION

A. Result

1. Validity and Reliability Test

Table 1. Convergent Validity Test Results Show

	<i>Sosial Media Marketing</i>	<i>E-Service Quality</i>	<i>Brand Loyalty</i>	<i>Repurchase Intention</i>
<i>SMM2</i>	0.908	<i>ESQ2</i>	0.746	<i>BL1</i> 0.757
<i>SMM3</i>	0.772	<i>ESQ3</i>	0.792	<i>BL3</i> 0.855
<i>SMM4</i>	0.736	<i>ESQ4</i>	0.820	<i>BL4</i> 0.833
<i>SMM5</i>	0.783	<i>ESQ5</i>	0.859	<i>BL5</i> 0.872
<i>SMM1</i>	0.860	<i>ESQ6</i>	0.856	<i>BL6</i> 0.817
	0.908	<i>ESQ7</i>	0.731	<i>BL7</i> 0.810
				<i>BL8</i> 0.795
				<i>BL9</i> 0.868
				<i>BL10</i> 0.825
				<i>BL11</i> 0.859
				<i>BL12</i> 0.873
				<i>BL13</i> 0.820

Source: Primary Data processed 2023

From the table above, it can conclude that the Model has excellent convergent validity because it has a > value of 0.7, and the higher the value of the loading factor on each construct, indicating if the higher the contribution of the indicator to the construct.

After conducting the validity test, a reliability test will be performed. The reliability test results are in the following table:

Table 2 Reliability Test Result

	<i>Cronbach's Alpha</i>	<i>Composite Reliability</i>	<i>Average Variance Extracted (AVE)</i>
<i>SMM</i>	0.872	0.907	0.663
<i>ESQ</i>	0.890	0.915	0.643
<i>BL</i>	0.960	0.964	0.693
<i>RI</i>	0.884	0.915	0.684

Source: Primary Data processed 2023

Based on table 2 above shows that the Typical Difference Extricated (AVE) on each variable SMM, ESQ, BL, and RI > 0.50 implies that all builds are reliable. Thus, it tends to be stated or resolved, assuming each variable has a high discriminant legitimacy. Meanwhile, it tends to be found in the table above that the Composite reliability value of each variable shows a value of > 0.60. These results indicate that each variable has been met, so it can be assumed that all factors have high reliability. In addition, in the table above, it can also be seen that the Cronbach alpha value of each variable indicates a build value of > 0.70. As a result, the consequences of this study show that each exploration variable has met the prerequisites of Cronbach's alpha value, so it is perfect to be able to reason that each of the above factors has a severe and unshakable quality. So it is ideal to suppose that the markers used in this study have high discriminant legitimacy in regulating their separate aspects. The author uses SmartPLS Software to test the hypothesis through an inner model evaluation and t-test to answer the whole hypothesis.

Table 3. Model Fit

	<i>Saturated Model</i>	<i>Estimated Model</i>	<i>Model</i>
<i>SRMR</i>	0.085	0.085	<i>Fit</i>
<i>d_ ULS</i>	2.943	2.943	<i>Fit</i>
<i>d_ G</i>	1.357	1.357	<i>Fit</i>
<i>Chi-Square</i>	1105.026	1105.026	<i>Fit</i>
<i>NFI</i>	0.749	0.749	<i>Fit</i>

Source: Primary Data processed 2023

The goodness of fit test of the Model can be seen from the NFI value of ≥ 0.662 declared fit. From Table 3, an NFI value of 0.749 indicates the corresponding Model. Therefore, from these results, it can be concluded that the Model in this study has a relatively high degree of agreement, and it is worth using it to test the exploratory hypothesis.

2. Hypothesis Test

To perform the hypothesis test, I used Smart PLS software. The test evaluates the inner Model and the t-test to answer four predetermined hypotheses. The following are the results of the hypothesis test through the evaluation of the inner Model:

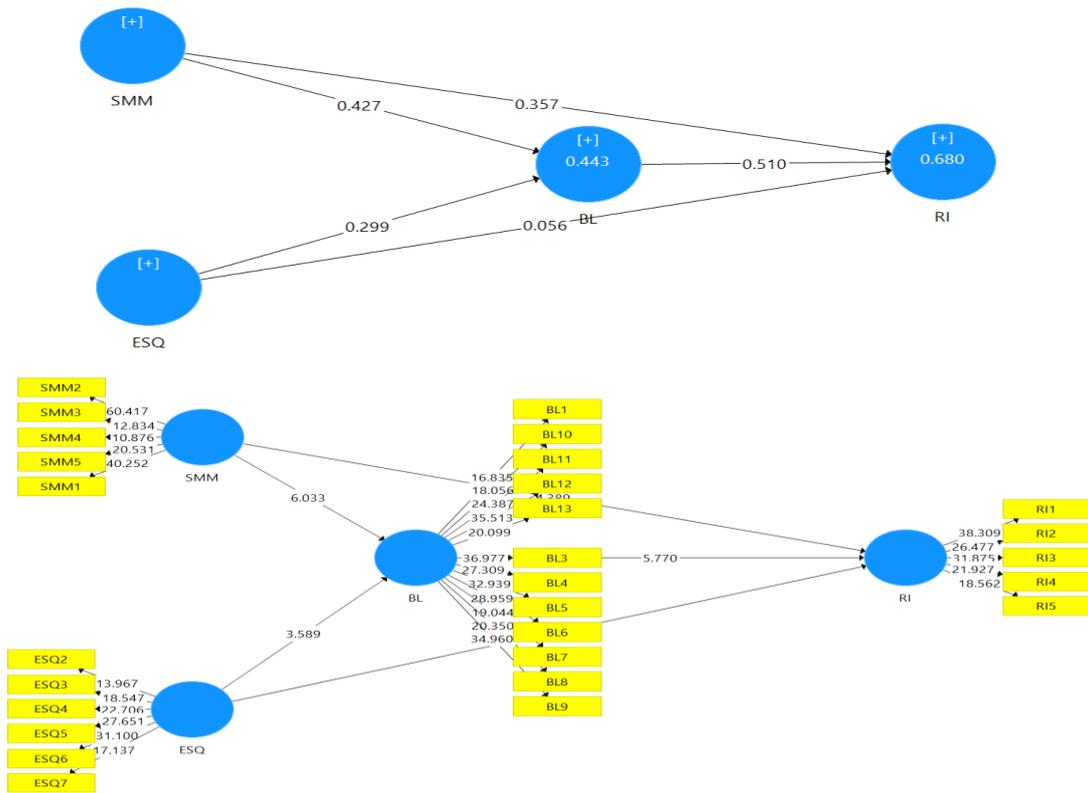


Figure 2. Output of Smart-PLS Analysis Results

Source: Primary data processed 2023

From the results of the inner model evaluation, the R square value is obtained as follows:

Table 4. Coefficient of Determination

	R Square	R Square Adjusted
BL	0.443	0.436
RI	0.680	0.674

Source: Primary data processed 2023

Table 4 shows that the R Square value for the brand loyalty variable is 0.443. The statement explained that the percentage of brand loyalty is 44.3%, which means that social media marketing and e-service quality variables affect brand loyalty by 44.3%, while other variables affect 55.7%. For the variable repurchase intention, the Adjusted R-Square value is 0.674. The results explain that the percentage increase in repurchase intention is 67.4%. Social media marketing, e-service quality and brand loyalty affect repurchase intention by 67.4%, and other variables affect the rest by 32.6%.

Table 5. Path Coefficients

	<i>Original Sample (O)</i>	<i>T Statistics (O/STDEV)</i>	<i>P Values</i>	<i>Information</i>
<i>Direct Effect</i>				
<i>BL -> RI</i>	<i>0.510</i>	<i>5.770</i>	<i>0.000</i>	<i>Accepted</i>
<i>ESQ -> BL</i>	<i>0.299</i>	<i>3.589</i>	<i>0.000</i>	<i>Accepted</i>
<i>ESQ -> RI</i>	<i>0.056</i>	<i>0.735</i>	<i>0.463</i>	<i>Rejected</i>
<i>SMM -> BL</i>	<i>0.427</i>	<i>6.033</i>	<i>0.000</i>	<i>Accepted</i>
<i>SMM -> RI</i>	<i>0.357</i>	<i>4.389</i>	<i>0.000</i>	<i>Accepted</i>
<i>Indirect Effect</i>				
<i>ESQ -> BL -> RI</i>	<i>0.153</i>	<i>3.225</i>	<i>0.001</i>	<i>Accepted</i>
<i>SMM -> BL -> RI</i>	<i>0.218</i>	<i>4.032</i>	<i>0.000</i>	<i>Accepted</i>
<i>Total Effect</i>				
<i>BL -> RI</i>	<i>0.510</i>	<i>5.770</i>	<i>0.000</i>	<i>Accepted</i>
<i>ESQ -> BL</i>	<i>0.299</i>	<i>3.589</i>	<i>0.000</i>	<i>Accepted</i>
<i>ESQ -> RI</i>	<i>0.209</i>	<i>2.846</i>	<i>0.005</i>	<i>Accepted</i>
<i>SMM -> BL</i>	<i>0.427</i>	<i>6.033</i>	<i>0.000</i>	<i>Accepted</i>
<i>SMM -> RI</i>	<i>0.575</i>	<i>9.507</i>	<i>0.000</i>	<i>Accepted</i>

Source: Primary data processed 2023

Table 5 above shows that from the direct relationship, one relationship is rejected, namely E-service quality to repurchase intention because t-calculate < 1.96 and P-Value > 0.05. At the same time, the other four relationships are accepted because the statistical value of t-count > 1.96 and the P-value < 0.05. From the table, two indirect relationships appear to be acceptable because the statistical value of t-count > 1.96 and P-value < 0.05.

B. Discussion

1. Social Media Marketing Significantly Affects Brand Loyalty.

Based on the analysis results, it was found that social media marketing significantly affects brand loyalty, in line with the results of research from (Hendra et al., n.d.; Hidayah, 2018; Radhitama, 2018) which states that in the current era of development social media marketing can be used as an effective and efficient marketing medium.

2. Social Media Marketing Significantly Affects Repurchase Intention.

Based on the analysis, it was found that social media marketing has a significant effect on repurchase intention, in line with the results of research conducted by (Kevin et al., 2018; Subawa et al., 2020), who stated

that in the era of the onslaught of the digital era, social media marketing is quite effective and efficient in increasing the repurchase intention of users, especially OVO digital wallet users.

3. E-Service Quality Significantly Affects Brand Loyalty.

Based on the results of the analysis, it was found that e-service quality has a significant effect on brand loyalty; this states that in the progress of digitalization in the community, good e-service quality can increase brand loyalty in the community in line with research from (Parris &; Intelligence, 2023; Zehir & Narc, 2016).

4. E-Service Quality Significantly Affects Repurchase Intention.

Based on analysts' results, the direct effect of e-service quality on repurchase intention has no significant impact. It can be understood that repurchase intention will not occur only because of e-service quality but requires other things, including different variables; increasing e-service quality must improve repurchase intention.

5. Brand Loyalty Significantly Affects Repurchase Intention.

Based on the analysis of research results, when viewed from the direct influence between variables, it was found that brand loyalty had a significant effect on repurchase intention; this is in line with research from (Parris &; Intelligence, 2023; Pranata &; Permana, 2021; Rita et al., 2019).

6. Social Media Marketing and E-Service Quality Significantly Affect Repurchase Intention Through Brand Loyalty.

Based on the analysis results, it was found that brand loyalty increases the value of the influence of social media marketing on repurchase intention and e-service quality on repurchase intention; this shows an increase in the total value of impact. This shows that brand loyalty will increase the value of repurchase intention and consumer loyalty to a particular brand to benefit the company. Loyal customers will not switch to other brands easily, so this can increase repurchase intention. This result shows that the brand loyalty variable is an intervening variable that can improve media marketing, social, and e-service quality toward repurchase intention.

IV. CONCLUSION

Based on the analysis of research results, the following conclusions were obtained, Social media marketing has a significant effect on brand loyalty, Social media marketing has a substantial impact on repurchase intention, E-Service quality has a considerable effect on brand loyalty, E-service Quality does not have a significant impact on repurchase intention, Brand loyalty has a significant effect on repurchase intention, Social media marketing and E-service quality has an impact Significant to purchase intent through brand loyalty.

We recommend that the manager further improve E-Service Quality to attract users to continue using the OVO digital wallet application amid the increasing number of other digital wallet competitor brands. And further researchers can examine other related variables to determine in more detail what can cause consumers to continue using one digital wallet service.

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