

The Effect of Financial Literacy on Msme Performance Through the Adoption of Digital Payment in Pangkalpinang City

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Abstract

One of such digital payment methods, which is becoming more commonly using Micro, Small and Medium Enterprises (MSME) in Pangkalpinang City, is Quick Response Code Indonesian Standard (QRIS). Business actors have convenience in receiving payments made faster through a single integrated code in the service. It does not only shorten the time of the transaction, but also makes it easier to minimize the risk of oversights in terms of cash management, as well as enables more frequent financial documentation. Nevertheless, digital payment systems have not offered complete assistance in business administration, since the information produced with regard to its transactions is not yet much employed as an evidence of payment, instead of financial documentation. This paper is a quantitative research with an explanatory research design. The size of the research samples was 210 MSME actors calculated according to the Krejcie table. Questionnaires were used to gather data which was further examined with Structural Equation modeling-Partial Least Squares (SEM-PLS) approach with the assistance of SmartPLS 4.0. The study findings indicate that financial literacy positively and significantly impacts the performance of MSMEs and the uptake of Digital Payment. In the meantime, the use of digital payments, on the one hand, does not critically impact the performance of MSMEs, and has failed to mediate the impact of financial literacy on the two relationships.

Keywords: Financial literacy, Digital Payment Adoption, MSME Performance

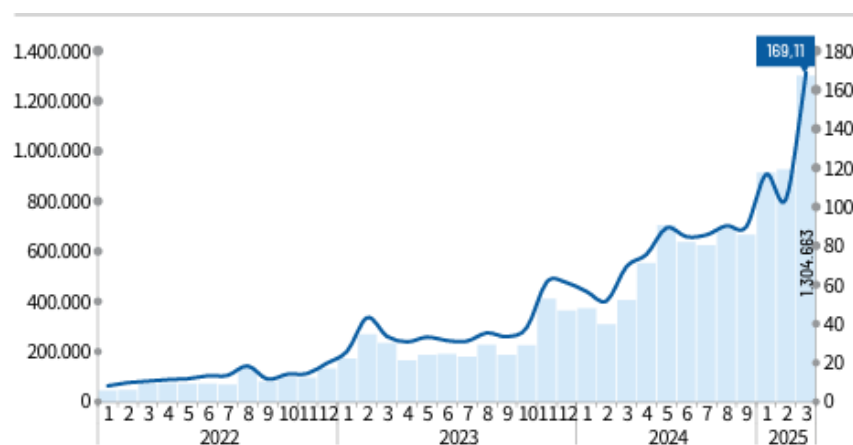
1. Introduction

Evolution of digital technology has led to the introduction of the use of cashless methods of payment using Quick Response Code Indonesian Standard (QRIS), OVP, GoPay, DANA, ShopeePay, and Mobile Banking (Musadad et al., 2023). The availability of these different services brings about convenience to the Business Actors to accept payments more quickly using a single-code system hence Business actors can handle better the cash flow. Advantages Usage Digital payment tools not only accelerate the process of transferring funds, but also minimise the number of mistakes in financial regulation, contribute to marketing and performance analysis, and simplify even more frequent registration and (Agustian, 2025). This situation demonstrates

that the digital payment system ceases to be a system of transactions, but information in decision-making in business operations.

MSMEs have been identified to be one of the developmental sectors of the economy due to its contribution in the Gross Domestic Product (GDP) and employments (Wahjono, 2025). According to the Law of the Republic of Indonesia (RI) Number 20 of 2008, the definition of MSMEs under article 1 is a productive business owned by individuals or business that fulfill specific criter (Masriah & Ispriyahadi, 2025). The presence of the MSMEs does not only contribute by being a source of some of the necessities required, but also sources of employment, (Manalu et al., 2025). This contribution cannot go without all sorts of difficulties, including dedicated shortage of capital, and incapacity in financial management (Putu et al., 2026). The change in the transaction patterns of people towards non-cash method also prompts MSME actors to adopt the digital technology as the way of enhancement of competitiveness and accessing more markets (Harahap et al., 2026). One of them is by adopting an electronic payment system.

Among the various services available, Quick Response Code Indonesian Standard (QRIS) is one of the payment methods that is widely adopted by MSME actors. The development of QRIS transactions in the Bangka Belitung Islands area can be seen in the following figure:



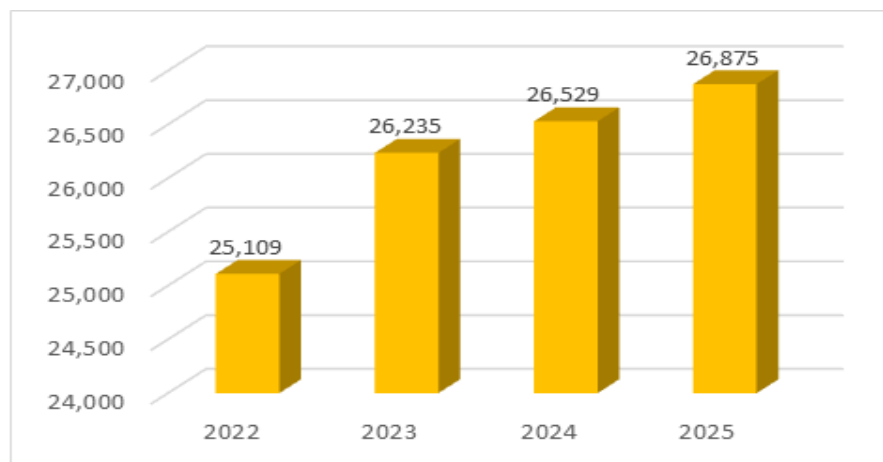


Figure 1. 2 Number of Micro, Small, and Medium Enterprises (MSME) in Pangkalpinang City in 2022-2025

Figure 1. 2, shows that the number of Micro, Small, and Medium Enterprises (MSMEs) has increased significantly from the year **2021-2025** with a percentage of reaching **7.03 percent**. The increase was influenced by the improvement in economic conditions after the Covid-19 pandemic which boosted people's economic activities. This condition provides opportunities for people to start new businesses or develop existing businesses as one of their sources of income. In line with the increase in community business activities, the government also continues to strengthen the empowerment of MSMEs through financial management training, marketing, the use of technology and ease of access to capital (Wardhani et al., 2025.). The program plays a role in increasing the capacity of MSME actors in managing their businesses, improving product quality, and expanding access to capital so that business actors have more adequate capabilities and resources to maintain and develop their businesses.

Along with the growth of MSMEs and their adaptation to technological developments, the ability of business actors to manage finances and use digital payment systems has become increasingly important. Previous studies have shown that financial literacy is relate to the performance of MSMEs and the adoption of digital payments. Other studies have also discussed the role of digital payments in supporting business transactions and MSME activities. However, this relationship has not been extensively researched in one research model, especially by analyze the adoption of digital payments as an intermediary variable between financial literacy and MSME performance. This gap provides an opportunity to further analyze whether the adoption of digital payments can be a link between financial literacy and MSME performance, especially for MSMEs in the culinary sector in Pangkalpinang City.

Building on this research gap, the novelty of this research lies in integrating financial literacy, digital payment adoption, and MSME performance into a single research model, with digital payment adoption positioned as a mediating variable. The research specifically focuses on culinary MSMEs in Pangkalpinang City, providing a more specific context for analyze the

relationship between variables. Thus, this research not only analyze the relationship between financial literacy and MSME performance but also the role of digital payment adoption in mediating this the two variables.

2. Review of Related Literature

2.1. Relevant Theory

2.1.1. Resource-Based View (RBV) Theory

According to (Barney & Ketchen, 2021), *the Resource-Based View (RBV)* explains that an organization's competitive advantage is determined by the company's ability to manage and utilize resources and capabilities it has effectively. These resources can be tangible assets, such as physical and financial assets, or intangible assets, such as knowledge, human resource competencies, and technological capabilities. In order to be able to create a sustainable competitive advantage, these resources and capabilities must meet the characteristics of VRIN, namely valuable, rare, *inimitable*, and *non-substitutable*. (J. B. Barney & Hesterly, 2019) then refined the theory through the VRIO (*Valuable, Rare, Inimitable, Organized*) framework which emphasizes that resources and capabilities must not only be valuable, scarce, and difficult to replicate, but also need to be supported by the right organizational structure and management in order to be able to produce optimal competitive advantages. Organizational strategies should be prepared based on the use of internal resources so that they can create better performance.

2.2.2. Financial Literacy Theory

(Lusardi & Mitchell, 2023) explained that financial *literacy* is an individual's ability to understand financial concepts and information and use it as a basis for decision-making related to savings, investments, debt, and financial planning. Understanding these financial aspects affects an individual's financial behavior, because the better a person's level of financial literacy, the better his ability to manage his financial resources. Financial literacy is not only limited to the ability to understand financial concepts, but also includes the ability to apply this knowledge to financial management activities. The Financial Services Authority (2021) explains that financial literacy consists of 4 (four) aspects, namely knowledge, skills, *confidence*, attitude, and behavior in managing finances optimally. Financial literacy can show the extent to which a person is able to understand financial information and use it in determining financial decision-making that suits their needs.

MSME actors utilize financial literacy in managing business finances, such as recording transactions, managing cash flow, preparing financial planning, managing business capital, and understanding the use of digital financial services. The financial literacy owned by MSME actors also supports their ability to adapt to the development of financial technology, one of which is through the use of **digital payments** as a method of business transactions. A good understanding of digital financial services helps MSME actors in utilizing this technology effectively so that it can improve the efficiency of business management and the performance of MSMEs. This is in

line with research (Judijanto & Hernat, 2025) which states that financial literacy plays a role in increasing the use of digital financial services by business actors.

2.2.3. Digital Payment Adoption Concept

Digital payment adoption is the process of accepting and using digital technology-based payment systems by business actors in supporting financial transaction activities. The digital payment system is in the form of digital wallets such as mobile banking, Dana, GoPay, ShopeePay and QRIS. The technology adoption process does not occur directly, but through several stages, such as awareness of the existence of technology, understanding of its benefits and how to use it, to the decision to use technology in business activities in a sustainable manner.

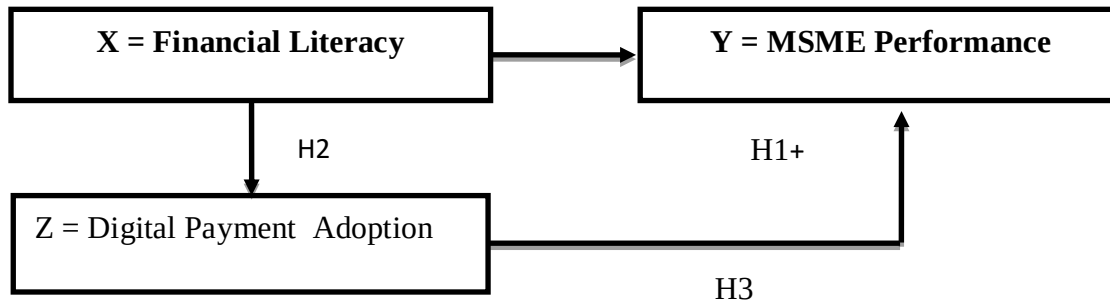
(Lee et al., 2025) through the Technology Acceptance Model (TAM) approach, explains that the acceptance of a technology is influenced by two main factors, namely perceived usefulness and perceived ease of use. Perception of usefulness describes the user's belief that the technology used can provide benefits and improve performance, while the perception of ease of use describes the level of ease of understanding and operating the technology. Both factors affect a person's intention to use technology, because the easier a technology is to use and the greater the benefits felt, the higher the technology is accepted and applied.

2.2. Empirical Studies

The results of the study show that financial literacy has a positive and significant effect on the performance of MSMEs in Pangkalpinang City. Then, financial literacy has also been proven to significantly increase the adoption of digital payments, this is due to a person's good understanding of financial management, recording, and planning, so that the better the development of the business. However, the adoption of digital payments does not have a significant effect on the performance of MSMEs and has not been able to mediate the two relationships. This condition is due to the fact that business actors still use digital payments as a means of payment, so they have not been integrated with recording, cost control, marketing, and work evaluation.

2.3. Frame of Mind

This research focuses on the influence of financial literacy and digital payment adoption on the performance of MSMEs in Pangkalpinang City. Adequate financial literacy encourages business actors to integrate digital payment technology, which in turn improves operational efficiency and business performance. This conceptual framework is built based on the Resource-Based View (RBV), Technology Acceptance Model (TAM), and Unified Theory of Acceptance and Use of Technology (UTAUT) approach.



Source: Author's

Figure 1.2 Research Framework

Based on Figure 2.3, the relationship between variables explains that Financial Literacy (X) has an influence on the Performance of MSMEs (Y) as formulated in H1. This relationship shows that the better the understanding and ability of MSME actors in managing finances, the better the business performance achieved. Then, Financial Literacy (X) also affects the Adoption of *Digital Payment* (Z) as formulated in H2. This relationship shows that the better the level of financial literacy possessed by MSME actors, the greater their tendency to adopt digital payment systems in their business activities. The next relationship shows that the adoption of *Digital Payment* (Z) has an effect on the Performance of MSMEs (Y) as formulated in H3. The implementation of a digital payment system helps MSME actors in increasing the ease of transactions and operational efficiency, so that it can support the improvement of MSME performance more optimally.

2.4. Hypothesis Development

This study uses several theoretical perspectives to explain the relationship between financial literacy, digital payment adoption, and MSME performance. Each hypothesis is developed based on relevant empirical theories and findings.

2.4.1. The Influence of Financial Literacy on the Performance of MSMEs in Pangkalpinang City

The two relationships are explained through the *Resource-Based View* (RBV) theory, which uses internal resources as an important factor in supporting business performance (J. Barney, 1991). Financial literacy is a knowledge resource that helps MSME actors in managing cash flow, controlling costs, and making appropriate financial decisions. This finding is strengthened by researchers (Atikah & Wardani, 2025) and (Farantika, 2026) who explain that financial literacy has a positive and significant effect on the performance of MSMEs, the higher the level of financial literacy of MSME actors in Pangkalpinang City, the higher the performance of MSMEs. Based on these theories and findings, the hypotheses obtained are as follows:

H1: Financial literacy has a positive and significant effect on the performance of MSMEs.

2.4.2. The Influence of Financial Literacy on the Adoption of Digital Payments in Pangkalpinang City

The relationship between financial literacy and digital payment adoption is explained through *the Technology Acceptance Model* (TAM) theory, which explains the perception of benefits and ease of use in technology acceptance (Kripanont, 2006). Financial literacy helps MSME actors to understand the costs and risks of digital payments so that they can determine their use according to business needs. (Damayanti, 2025) found that financial literacy has a significant effect on the decision to use QRIS in MSMEs. Therefore, the hypotheses obtained are as follows:

H2: Financial literacy has a positive and significant effect on the adoption of digital payments.

2.4.3. The Influence of Digital Payment Adoption on MSME Performance in Pangkalpinang City

The relationship between digital payment adoption and MSME performance is explained through *the Unified Theory of Acceptance and Use of Technology* (UTAUT), especially *performance expectancy*, which is the expected benefits of using technology. Digital payments can facilitate transactions and provide transaction records that can be used in business management. (Lasut et al., 2026) found a positive influence of digital payments on MSME performance, while (Cynthia & Muslimin, 2025) found a non-significant influence. These differences in results show that the relationship between digital payments and MSME performance still needs to be tested. Therefore, the hypotheses proposed are:

H3: The adoption of digital payments has a positive and significant effect on the performance of MSMEs.

2.4.4. The Effect of Financial Literacy on MSME Performance through the Adoption of Digital Payments in Pangkalpinang City

Financial literacy helps MSME actors in managing finances and making business decisions, including in utilizing digital payments. Business actors with good financial literacy tend to be better able to understand the benefits, costs, security, and risks of using digital payments. Digital payments are not just a payment tool, but also produce transaction records that can be used to monitor income, cash flow, and sales progress. However, the use of digital payments does not automatically improve the performance of MSMEs. If transaction records are not used to evaluate sales, control costs, and make business decisions, the benefits of digital payments tend to be limited to the ease and speed of transactions. This condition can cause digital payments to not be able to continue the influence of financial literacy on improving MSME performance, so that its role as a mediating variable becomes weak.

Research by (Condro et al., 2026) shows that the adoption of digital payments does not have a significant effect on the performance of MSMEs. These findings show that there is a difference between the potential benefits of digital payments and their impact on business performance.

This difference is one of the research gaps to re-examine the role of digital payment adoption as a mediating variable between financial literacy and MSME performance in Pangkalpinang City. Therefore, the hypotheses obtained are:

H4: Financial literacy does not have a significant effect on the performance of MSMEs through the adoption of digital payments in Pangkalpinang City.

3. Method

The current study uses a quantitative model (explanatory study) to investigate the relationship between the level of financial literacy and the output of culinary MSME in Pangkalpinang City, considering the digital payment adoption as intermediate variables. To conduct the study on the cause-and-effect relationships between the variables presented in the hypotheses, the explanatory design was considered due to the unwillingness just to describe the conditions within the field (Bentouhami et al., 2021). Data was collected using a questionnaire that had a structured questionnaire and the processed using statistics in order to get a picture of the phenomenon being studied objectively and generalizable.

3.1. Research Location and Period

The research was carried out in the Pangkalpinang City. In addition to being the economic hub of the Bangka Belitung Islands Province, the city has experienced a consistent rise in MSME and an increasing proportion of business owners have also become accustomed to digital payment systems like QRIS, e-wallets, and mobile bank in their businesses enterprises. The study operation lasted four months, June to October 2026, which included preparing the proposals and data gathering instruments, then went to the field to collect the data, data analysis, and completion of the report.

3.2. Population, Sample, and Participant Characteristics

The target participants were non-permanent culinary MSME operators mobile food and beverage vendors and similar stalls who already had a basic understanding of business financial management and had used at least one form of digital payment. Settled culinary businesses such as stalls, restaurants, and meatball stalls were deliberately excluded, as their business characteristics differ from the phenomenon this study seeks to capture. According to the Department of Cooperatives, Trade, and MSMEs of Pangkalpinang City, the city recorded a total of 26,875 registered MSME across all sectors as of July 2026, while the cumulative population of culinary MSMEs for the 2022–2025 period reached 2,263 business actors. After applying the criteria above, this number narrowed to 414 business actors, consisting of 109 mobile food vendors, 23 mobile beverage vendors, 166 food stalls, and 116 beverage stalls.

From this population of 414, the sample size was calculated using the Krejcie and Morgan (1970) formula at a 5% margin of error:

$$s = (X^2 \times N \times P \times (1 - P)) / (d^2 \times (N - 1) + X^2 \times P \times (1 - P)) \dots \dots \dots (1)$$

$N = 414$, $X^2 = 3.841$, $P = 0.5$, and $d = 0.05$, the calculation yielded a minimum requirement of 200 respondents. This figure was rounded up to 210 respondents to simplify data processing and to allow for questionnaires that might be unreturned or unusable. Respondents were selected through *purposive sampling* (Etikan et al., 2016), evenly distributed with 30 respondents in each of the seven districts of Pangkalpinang City Bukit Intan, Gabek, Gerunggang, Girimaya, Pangkal Balam, Rangkui, and Taman Sari.

3.3. Instrument and Data Collection Technique

Data collection combined three techniques questionnaires, documentation, and a literature review intended to complement one another and strengthen the validity of the findings. The questionnaire served as the primary instrument, built around empirical indicators for the three variables under study financial literacy, *digital payment* adoption, and MSME performance, each represented by five indicators, with responses measured on a five-point Likert scale ranging from strongly disagree to strongly agree (Jebb et al., 2021). Documentation involved reviewing supporting records such as reports and archives (Rifa'i, 2023), while the literature review drew on relevant national and international journals to reinforce the theoretical framework and to serve as a point of comparison when discussing the findings.

The adoption of digital payments in this study refers to the use of digital payment facilities in MSME business transactions in the culinary sector. The digital payment facilities used in this study include QRIS, e-wallets, and mobile banking. The measurement is focused on the use of digital payments in terms of transaction speed, business efficiency, transaction monitoring, practicality, and use of digital payments compared to cash payments.

Digital payment adoption is measured using five indicators. These indicators measure whether digital payments speed up the transaction process compared to cash, improve business operational efficiency, facilitate transaction history monitoring, make business transactions faster and more practical, and provide a faster payment process compared to cash payments. Each indicator is measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.4. Research Design

The design applied here is quantitative, non-experimental, and *cross-sectional*, meaning no treatment or intervention of any kind was administered to participants. Data were collected at a single point in time to capture respondents' perceptions of their financial literacy, *digital payment* adoption, and MSME performance at that moment.

3.5. Data Analysis Technique

This study uses *Partial Least Squares Structural Equation Modeling* (PLS-SEM) with the help of SmartPLS 4.0. The use of PLS-SEM in this study is not only based on technical considerations, but also on the methodological needs of the research. The research model tests a fairly complex relationship because it involves direct and indirect influences with the adoption of

digital payment as a mediating variable. PLS-SEM was chosen because it is able to test relationships between latent constructs simultaneously, is prediction-oriented, and allows testing of mediating effects through *bootstrapping procedures* without requiring strict multivariate normality. This approach is also suitable to test whether the adoption of *digital payments* is able to be a link between financial literacy and MSME performance. Thus, PLS-SEM is used to assess the direction, magnitude of influence, and significance of direct and indirect relationships in the research model (Hair et al., 2022).

This was done in phases. It started with a descriptive statistics to get a rough picture of the answers of respondents on indicators. The second step involved test of the measurement model (outer model), and included convergent validity (loading factor value more than 0.70), discriminant validity (Fornell Larcker criterion value more than 0.70) and reliability (CronbachAlpha and Composite Reliability value more than 0.70). After the measurement model was found to be sufficient, the testing was performed on the structural model (inner model), that is comprised of the coefficient of determination or R-Square (more than 0.75 was considered high, more than 0.50 considered weak), the effect size or F-Square (0.02 small, 0.15 medium, 0.35 large), and the Goodness of Fit (GOF), measured as the average of AVE and R², which had values that were smaller than 0.11 (small) and larger than 0.36 (large) (Purwanto & Sudargini, 2021). The last phase was the hypothesis testing by bootstrapping which was analyzed using the path coefficient to determine the direction and strength of each relationship and a t-statistic of over 1.96 and a p-value of less than 0.05 as a standard of significance at the 5 percent level. This test was implemented on two direct-effect paths and one indirect-effect path that test the mediating role played by digital payment adoption.

4. Data Screening

This part provides the findings of a data collection and data processing on the culinary-sector MSME actors in Pangkalpinang City. The findings are shown to characterize the state of each research variable financial literacy, the adoption of digital payment as well as MSME performance and describe them with the help of several steps descriptive statistical analysis, measurement model (outer model) evaluation, structural model (inner model) evaluation, and hypothesis testing. These steps were implemented to achieve an image of the correlations between the variables and to get the influence of financial literacy on MSMEs performance, the influence of financial literacy on the digital payment adoption, and the impact of the digital payment adoption on MSMEs performance.

4.1. Respondent Characteristics

The researchers used a purposive sampling method to sample 210 respondents, who were culinary MSME actors (mobile food vendors, mobile beverage vendors, food stalls, and beverage stalls) in Pangkalpinang City and had at least a basic concept of business financial management and had made use of at least one type of digital payment (QRIS, e-wallet, or mobile banking) in their operations. Since the seven districts of Pangkalpinan City (Bukit Intan, Gabek, Gerunggang, Girimaya, Pangkal Balam, Rangku and Taman Sari) had an equal number of 30

respondents each, the features of culinary MSMEs in different sections of the city are included in this research paper as illustrated in Table 4.1.

4.2. Descriptive Statistics Results

Descriptive analysis was conducted to describe the characteristics of the research data on each indicator of the variables studied, through the mean, minimum, maximum, median, and standard deviation values. The results of the calculation for each statement are presented in Table 4.1.

Table 4.1. Descriptive Statistical Analysis

Name	Mean	Median	Observed min	Observed max	Standard deviation
I understand how to use QRIS, e-wallet, or mobile banking for business transactions	3.805	4.000	1.000	5.000	0.784
I understand the fees charged on digital payments	3.124	3.000	1.000	5.000	1.232
I can distinguish between official and unofficial digital financial services.	2.867	3.000	1.000	5.000	1.250
I weigh the benefits and risks before using digital payment	3.519	3.000	1.000	5.000	0.982
I utilize digital transaction information for business financial planning	3.652	4.000	1.000	5.000	0.960
Digital payment system speeds up my business transaction process	4.086	4.000	2.000	5.000	0.705
The use of digital payments improves the operational efficiency of my business	3.876	4.000	2.000	5.000	0.801
Digital payment makes it easier for me to monitor my business transaction history	3.952	4.000	2.000	5.000	0.773
Digital payments make business transactions faster and more practical	4.062	4.000	2.000	5.000	0.763
The use of digital payments can speed up the payment process compared to cash payments.	4.186	4.000	2.000	5.000	0.761
My Business Sales Turnover is able to achieve the target that has been set	3.010	3.000	1.000	5.000	1.000
My business is able to make a profit according to the expected target	3.000	3.000	1.000	5.000	1.000

Name	Mean	Median	Observed min	Observed max	Standard deviation
My business capital and cash flow support the smooth operation of the business	3.514	3.000	2.000	5.000	0.812
My efforts were able to increase the number of customers	3.052	3.000	1.000	5.000	1.114
My business showed better development compared to the previous year.	3.100	3.000	1.000	5.000	1.197

The results of descriptive statistics showed that the average value of 15 indicators was in the range of 2,867 to 4,186. In the financial literacy variable, the highest average score was found in the understanding of the use of QRIS, digital wallets, or mobile banking for business transactions, which was 3,805. The lowest value was found in the ability to distinguish official and unofficial digital financial services, which was 2,867. Meanwhile, the understanding of transaction costs obtained an average of 3,124, consideration of benefits and risks 3,519, and the use of transaction information for financial planning 3,652. These results show that respondents are relatively capable of using digital payments, but the understanding of costs and security of services still needs to be strengthened.

In the digital payment adoption variable, all indicators have an average value above 3.8. The highest score of 4.186 is found in the statement that digital payments speed up the payment process compared to cash payments. This shows that respondents feel the benefits of digital payments in terms of speed, practicality, and transaction monitoring. In contrast to these variables, the average MSME performance indicators are in the range of 3,000 to 3,514. This means that the use of digital payments is quite good, but the achievement of sales, profits, and customer growth is still at a moderate level.

4.3. Measurement Model (Outer Model) Evaluation

"The outer model evaluation was conducted to test the convergent validity, discriminant validity, and reliability of the indicators forming each variable. This evaluation was assessed through the outer loading and Fornell-Larcker criterion values, while reliability was assessed through the composite reliability and Cronbach's Alpha values" (Jumardi, 2020).

4.3.1. Convergent Validity

Convergent validity was used to determine the extent to which each indicator was able to measure its corresponding latent variable, assessed through the loading factor and the Average Variance Extracted (AVE). A loading factor above 0.70 and an AVE above 0.50 indicate that the variable is able to explain more than half of the variance in its indicators" (Purwanto & Sudargini, 2021). The results of the convergent validity test are presented in Table 4.2.

Table 4.2. Convergent Validity Test

	Adoption of Digital Payment	MSME Performance	Financial Literacy
Digital payments make business transactions faster and more practical	0.762		
Digital payment makes it easier for me to monitor my business transaction history	0.856		
My business capital and cash flow support the smooth operation of the business		0.650	
My Business Sales Turnover is able to achieve the target that has been set		0.906	
The use of digital payments can speed up the payment process compared to cash payments.	0.570		
The use of digital payments improves the operational efficiency of my business	0.827		
I can distinguish between official and unofficial digital financial services.			0.891
I understand the fees charged on digital payments			0.858
I understand how to use QRIS, e-wallet, or mobile banking for business transactions			0.731
I utilize digital transaction information for business financial planning			0.856
I weigh the benefits and risks before using digital payment			0.894
Digital payment system speeds up my business transaction process	0.840		
My business is able to make a profit according to the expected target		0.907	
My efforts were able to increase the number of customers		0.845	
My business showed better development compared to the previous year.		0.848	

Source: Data processing (2026)

Table 4.2 demonstrates that the loading factor of most indicators is larger than 0.70. Two of them are less than 0.70, i.e., digital payments fastening payments with cash payments, at 0.570 and operating capital and cash flow enhancing smooth operations at 0.650. They both remain above

0.50 hence retained. Overall, the indicators used meet the criteria of convergent validity based on the test results.

4.3.2. Discriminant Validity

The discriminant validity was evaluated in order to understand whether the research variables are distinct to one another and this was done through the Fornell Larcker criterion, where the square root of AVE of a construct is supposed to be greater than the construct is correlated with others. Table 4.3 below gives the results.

Table 4.3. Discriminating Validity Test

	Adoption of Digital Payment	MSME Performance	Financial Literacy
Adoption of Digital Payment	0.778		
MSME Performance	0.463	0.837	
Financial Literacy	0.605	0.695	0.848

Source: Data processing (2026)

Based on Table 4.3, the square root value of AVE is 0.778 for digital payment adoption, 0.837 for MSME performance, and 0.848 for financial literacy. This value is greater than the correlation of each variable with the other. Thus, the three variables meet the criteria of discriminant validity.

4.3.3. Reliability Test

The reliability test was conducted to determine the extent to which the indicators consistently measure their respective variables, assessed through Cronbach's Alpha and Composite Reliability, with a value above 0.70 indicating good reliability. The results are presented in Table 4.4.

Table 4.4. Reliability Test

	Cronbach's alpha	Composite reliability (rho_c)
Adoption of Digital Payment	0.836	0.883
MSME Performance	0.889	0.920
Financial Literacy	0.901	0.927

Source : Data processing (2026)

Table 4.4 results indicate that all the Cronbach Alpha and Composite Reliability are greater than 0.70. The values of Cronbach Alpha is 0.836 on digital payment adoption, 0.889 on MSME performance and financial literacy, respectively. Concurrently, the Composite Reliability scores are 0.883, 0.920 and 0.927 respectively. These results show that the indicators in the three variables have good consistency.

4.4. Evaluation of Structural Models (Inner Models)

The structural model test was expected to confirm how well the model reflects the relationship that exists among the variables, after the outer model test as discussed above was done, by using the coefficient of determination (R-Square) the size of the effect (F-Square) and the Goodness of Fit (GOF) as an overall measure of model adequacy.

4.4.1. Coefficient of Determination (R-Square)

The values of the R-S4 were used to estimate how much variance the exogenous variable (financial literacy) predicts the variance of the endogenous variables (digital payment adoption and MSME performance). The findings are given in Table 4.5.

Table 4.5. Reliability Test

	R-square	R-square adjusted
Adoption of Digital Payment	0.366	0.363
MSME Performance	0.486	0.481

Source: Data processing (2026)

Table 4.5 indicates that financial literacy is the sole factor that explains 36.6 percent of the variance in the adoption of digital payments and the rest 63.4 percent is explained by the rest of the factors, including ease of use, perceived usefulness, security, trust, and transaction cost. The joint contribution of financial literacy and adoption of digital payments in explaining the variation in performance of MSMEs is 48.6 percent. In accordance with the classification (Purwanto & Sudargini, 2021), an R-SQ above 0.75 is considered strong, and one around 0.50 can be considered weak; all the values of R-SQ in this study can be classified as weak, although the value of the performance of MSMEs (0.486) approaches the range of moderate.

4.4.2. Effect Size (F-Square)

Effect size (F-Square) was used to determine the contribution of a given exogenous variable to a specific endogenous variable in the structural model. The results are presented in Table 4.6.

Table 4.6. Effect Size Test (F-Saquare)

	Adoption of Digital Payment	MSME Performance
Adoption of Digital Payment		0.006
Financial Literacy	0.576	0.528

Source: Data processing (2026)

Financial literacy was found to have an F-Square value of 0.576 on digital payment adoption and 0.528 on MSME performance, which are both assigned to large effects. This high impact can be linked to the knowledge of MSME actors towards the advantages and utilization of digital transactions in their business operations and their capacity to manage cash flows, capital and expenditures in a better manner. Conversely, usage of digital payment experienced a low impact on MSME performance (F-Square = 0.006), and therefore, the level of digital payment usage is not yet at the center of the sales the MSMEs carry out hence its contributions are minimal in enhance the performance of a business.

4.4.3. Model Goodness of Fit (GOF)

The final stage of the structural model evaluation was the Goodness of Fit (GOF) test, used to assess the overall adequacy of the research model by combining the average AVE and average R-Square values into a single measure. The results are summarized in Table 4.7.

Table 4.7. Models Goodness Of Fit (GOF)

	Average variance extracted (AVE)	R-square
Adoption of Digital Payment	0.605	0.366
MSME Performance	0.7	0.486
Financial Literacy	0.72	
Average	0.675	0.426

Source: Data processing (2026)

The average AVE value of the three variables was 0.675, while the average R-Square value of the two endogenous variables, namely MSME performance and digital payment adoption, was 0.426. Based on the calculation results, the GOF value obtained was 0.536. This value shows that the research model has a fairly good match in describing the model as a whole. However, the GOF value cannot be used as the only basis for assessing the model's ability to explain the relationship between variables. Therefore, the GOF value is more appropriate to be used as an overview of the model fit and does not directly indicate the strength or weakness of the relationship between variables in the study.

4.5. Hypothesis Testing Results

The test of hypothesis was used to test whether there exists a significant effect between the variables presented in the research model involving bootstrapping procedure and analysing the path coefficient, t statistic and p value. The path coefficient means the direction of the effect of variables, and t-statistic and p-value are applied to ascertain the statistical significance. The 5% significance level was set at which the t-statistic greater than 1.96 was found to accept a hypothesis with a p-value less than 0.05.

4.5.1. Direct Effect

Direct effect refers to the effect of one variable directly on another without passing through an intervening variable. The results of the bootstrapping procedure are presented in Table 4.8.

Table 4.8. Test Direct Influence (Direct Effect)

	Path Coefficients	T statistics (O/STDEV)	P values	Verdict
Adoption of Digital Payment -> MSME Performance	0.067	1.023	0.153	Not Significant Effect
Financial Literacy - > Adoption of Digital Payment	0.605	12.835	0.000	Positive and Significant Effect
Financial Literacy - > MSME Performance	0.654	11.562	0.000	Positive and Significant Effect

Source: Data processing (2026)

The performance of MSMEs is positively and significantly affected by financial literacy with the path coefficient of 0.654 which has a t-test of 11.562 and a p-value of 0.000 (t-test > 1.96; p-value < 0.05), hence the rejection of H1. This observation shows that the higher the financial literacy of the MSME actor, the higher the business performance in terms of sales revenue, profit and business growth attained. It also demonstrates the better increase effect of financial literacy on the digital payment adoption with the path coefficient of 0.605, t-statistic of 12.835, and p-value at 0.000, therefore H2 is accepted. This leads to the conclusion that those MSME actors that are more financially literate tend to adopt and utilize the digital payment systems in their business activity.

Conversely, the adoption of digital payment does not indicate a strong influence on MSME performance with a path coefficient of 0.067, t-statistic of 1.023 and p-value of 0.153 (t-statistic < 1.96; p-value > 0.05), thus H3 is rejected. This observation implies that digital payment utilization by MSME actors, itself, has failed to directly convert into a rise in business performance through higher sales revenue, higher profit, or realization of business objectives.

4.5.2. Indirect Effect (Mediation)

An indirect-effect test was carried out to ascertain the value of adoption of digital payments as an intervening variable in the correlation between financial literacy and MSME performance. Table 4.9. shows the outcomes of the bootstrapping process.

Table 4.9. Test Indirect Influences (Indirect Effect)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Financial Literacy -> Adoption of Digital Payment -> MSME Performance	0.040	0.038	0.040	1.016	0.155

Source: Data processing (2026)

The test results in Table 4.9 show that the indirect influence of financial literacy on the performance of MSMEs through the adoption of digital payments does not have a significant effect. The findings of this insignificant mediation are actually a critical contribution to this study. These results reveal the existence of a digital adoption paradox in MSMEs in Pangkalpinang City, where the adoption of digital payments driven by regulations and market trends is not followed by the readiness of internal capabilities. Theoretically, this condition shows the limitations of the Technology Acceptance Model (TAM) theory which only emphasizes the convenience and usability of technology, but ignores aspects of managerial capabilities such as financial management capabilities and organizational capabilities described in the Resource-Based View (RBV) theory as a source of competitive advantage.

Empirically, there are three explanations. First, the adoption is compliance-driven, not value-driven, MSMEs use QRIS because of consumer demands, not because of efficiency strategies. Second, the implementation of the QRIS Merchant Discount Rate (MDR) set by Bank Indonesia up to 0.7% for the small and medium business category, which has the potential to reduce the margin of micro-scale MSMEs. Third, the low integration of digital transaction data with financial recording causes payment data to not be used for decision-making. Therefore, this failure of mediation is not a weakness of the model, but a reflection of the reality of the MSME digital ecosystem in the archipelago's financial ecosystem.

5. Conclusion and Recommendations

5.1. Conclusion

Based on the results of the research that has been conducted, it can be concluded that empirical conditions in the field show that MSME actors in Pangkalpinang City are quite good at using digital payment tools such as QRIS, *ShopeePay* , *Ovo* and *Mobile Banking*. However, the understanding of service costs, transaction security, and optimal use of digital services is still

limited, so that digital payments are more widely used as a means of receiving payments than as part of business management. This condition is then strengthened by the results of tests that show that financial literacy has a positive and significant effect on the performance of MSMEs and the adoption of *digital payments*. The better the ability of business actors to manage finances, the higher their tendency to use digital payments. On the other hand, the adoption of *digital payments* does not have a significant effect on the performance of MSMEs and has not been able to mediate the influence of financial literacy on the two relationships. This condition shows that digital transactions that have been carried out have not been followed by business recording and the use of transaction data as a basis for decision-making. As a result, digital payments have not made a real contribution to improving the performance of MSMEs.

5.2. Recommendations

Based on the results of the research that has been conducted, the policy recommendations that can be provided are as follows: Strengthening Integrated Financial Literacy: Integrating financial literacy training with the use of QRIS so that MSME actors are able to manage cash flow, record business, and utilize transaction data in decision-making. Transaction Data-Based Assistance: Encourage the use of digital transaction data as a basis for evaluating turnover, costs, and profits so that business decisions are more on target. Strengthening Inter-Institutional Collaboration: Strengthening synergy between the City Government, Bank Indonesia, OJK, and banks in providing education, mentoring, and access to digital financial services for MSMEs. As well as Program Monitoring and Evaluation: Establish indicators that measure the impact of digitalization on turnover, financial record, and transaction data utilization, not just the number of QRIS users.

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