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Determinants of QRIS Adoption among MSMEs: The Role of Financial and Digital Literacy

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ABSTRACT

This study aims to analyze the influence of financial literacy and digital literacy on QRIS usage decisions among MSMEs in Kotabaru Regency. The study also addresses the limited research examining the combined role of financial and digital literacy in QRIS adoption at the regional MSME level. This research used a quantitative causal approach with Structural Equation Modeling Partial Least Squares (SEM-PLS). A total of 400 respondents were selected using a proportionate stratified random sampling method. Data were collected through questionnaires and analyzed to determine the effect of each variable. The results show that financial literacy has a positive and significant effect on QRIS usage decisions. Digital literacy also has a positive and significant effect and is the dominant factor influencing QRIS adoption. This study contributes to the literature on digital financial inclusion and provides practical implications for governments and financial institutions to improve financial and digital literacy programs to accelerate QRIS adoption among MSMEs

Keywords: Financial Literacy, Digital Literacy, Technology Adoption Decision, MSMES, QRIS

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INTRODUCTION

In the era of Industry 4.0 and rapid digitalization, Micro, Small, and Medium Enterprises (MSMEs) in Indonesia play a strategic role in the national economy. According to data from the Ministry of Cooperatives and MSMEs, the number of MSMEs in Indonesia reached approximately 65.5 million business units, contributing more than 60.5% to the national Gross Domestic Product (GDP) and absorbing around 97% of the workforce (Ministry of Cooperatives and MSMEs, 2023). However, despite their significant contribution, MSMEs still face major challenges in adopting digital technologies, including digital payment systems, particularly in regions such as Kotabaru Regency, South Kalimantan Province. The development of digital payment systems has become an important part of accelerating financial inclusion in Indonesia, particularly among MSMEs. One of the government's strategic initiatives is the implementation of the Quick Response Code Indonesian Standard (QRIS), which aims to simplify digital transactions and improve payment efficiency. Although the number of MSMEs in Kotabaru Regency continues to grow, the adoption rate of QRIS remains relatively low. This condition indicates that the transformation toward digital payment systems among MSMEs has not yet been fully optimized.

A significant upward trend in the number of QRIS merchants in Indonesia is observed from 2020 to 2024. In 2020, the number of QRIS merchants was 7.1 million, rising to 13.7 million in 2021. This growth continued, reaching 20.3 million in 2022, 26.1 million in 2023, and peaking at 30.5 million merchants in 2024. This surge indicates an acceleration of digital transformation in the payment

sector, primarily driven by Bank Indonesia's policies promoting cashless transactions through QRIS. The substantial increase also reflects the growing acceptance among the public and business actors of digital payment systems that are more practical, secure, and efficient. One of the key innovations initiated by Bank Indonesia to support digital transformation in the MSME sector is the QRIS. QRIS is designed to expand the adoption of non-cash payments in an easy, fast, and secure manner for both merchants and consumers, thereby promoting economic efficiency and financial inclusion, particularly among MSMEs and traditional markets (Bank Indonesia, 2023). As of March 2024, the number of QRIS merchants in Indonesia had reached 30.5 million, of which approximately 90% were MSMEs (Bank Indonesia, 2024). The majority of QRIS merchants in Indonesia were MSMEs, accounting for 90%, while the remaining 10% were non-MSMEs. This finding reinforces the role of QRIS as a highly relevant financial inclusion solution for MSMEs, which often face limitations in accessing conventional financial services. The high proportion of MSMEs also indicates the success of Bank Indonesia's policies in targeting small business sectors to enhance digitalization, enabling them to compete in the digital economy era. However, the level of QRIS adoption varies across regions. Based on data from Bank Indonesia South Kalimantan Regional Office, as of March 2024, the number of QRIS merchants in Kotabaru Regency was recorded at approximately 5,743 merchants, an increase from 3,212 merchants in 2022, yet still relatively low compared to the region's total MSME potential, which exceeds 25,000 business units (Kotabaru Cooperative and MSME Office, 2024). This condition indicates a significant gap in the utilization of digital technology among MSMEs in Kotabaru Regency.

The number of QRIS merchants in Kotabaru Regency increased notably from 2022 to 2024. In 2022, the number of merchants was recorded at 3,212, rising to 4,379 in 2023, and continuing to grow to 5,743 merchants in 2024. Despite this positive growth trend, the figure remains relatively low when compared to the potential number of MSMEs in Kotabaru Regency. The increasing number of QRIS merchants indicates growing awareness among local business actors of the benefits of digital payment systems; however, greater efforts are still needed to promote wider adoption of QRIS. One factor contributing to the low adoption rate of QRIS is the relatively low levels of financial and digital literacy among MSME actors. Financial literacy refers to an individual's or business actor's understanding of financial management, financial planning, and awareness of the risks and benefits associated with digital financial products (Financial Services Authority/OJK, 2023). According to a study by Mulyani et al (2022), financial literacy plays a crucial role in enhancing MSMEs' understanding of and trust in digital transaction systems, which ultimately influences their decision to adopt QRIS. Previous studies have shown that financial literacy and digital literacy are important factors influencing the adoption of financial technology and digital payment systems. Financial literacy helps business actors understand financial management and the benefits of digital transactions, while digital literacy reflects the ability to access and use digital technology effectively. However, most previous studies focused only on general fintech adoption or e-wallet usage in urban areas and large cities. In addition, prior research often examined financial and digital literacy separately, resulting in a limited understanding of their joint influence on QRIS usage decisions among MSMEs, especially in regional contexts such as Kotabaru Regency.

In addition, digital literacy is also a crucial factor in the adoption of financial technology. A study by Rahmawati and Sari (2023) indicates that digital literacy significantly affects MSMEs' readiness to adopt digital financial services. This finding is consistent with the results of Yuliana et al. (2021), who found that the level of digital literacy among MSME actors in coastal areas of Kalimantan remains relatively low, with only 47% of business owners feeling sufficiently confident in using digital payment applications such as QRIS. Beyond literacy factors, the adoption behavior of digital financial technology is also influenced by the level of trust (e-trust) and user satisfaction (e-customer satisfaction). (Putri and Pratama, 2022) found that digital trust and user satisfaction have a significant impact on the intention to reuse digital services, including e-payment services. Similarly, Lestari et al. (2023) revealed that perceived ease of use and financial literacy are important factors influencing MSME actors' decisions to use QRIS in Semarang City. Meanwhile, a study by Suhendar et al (2022) in Sukabumi Regency demonstrated that the level of financial literacy

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significantly affects the quality of MSMEs' financial management, which in turn influences their readiness to adopt digital payment systems. Furthermore, Hidayat and Azizah (2023) emphasized that financial and technological literacy are fundamental factors in supporting financial inclusion through digital platforms, including e-payment systems such as QRIS. Therefore, this study aims to analyze the influence of financial literacy and digital literacy on the decision to use QRIS among MSMEs. This research contributes to the literature by examining the combined role of financial and digital literacy in the context of regional MSMEs and digital financial inclusion. In addition, the findings are expected to provide practical recommendations for local governments and financial institutions in designing effective literacy and digitalization programs to increase QRIS adoption among MSMEs.

LITERATURE REVIEW

Financial Literacy and QRIS Usage Decision

Financial literacy refers to the ability to understand and manage financial resources in making effective business decisions. Mulyani et al. (2022) state that financial literacy plays an important role in increasing MSMEs' understanding and confidence in using digital transaction systems. Higher financial literacy enables MSME owners to perceive the benefits of digital payments and reduces uncertainty in financial decision-making, thereby positively influencing the adoption of QRIS. According to the Technology Acceptance Model, users tend to adopt a technology when they perceive it as useful and easy to use (Aftab et al., 2025). In the context of QRIS, MSME actors with stronger financial literacy are more likely to understand the benefits of digital payment systems, such as increased transaction efficiency, improved financial recordkeeping, and greater business convenience. Therefore, financial literacy can encourage positive perceptions toward QRIS adoption (Nugraha et al., 2025). In addition, previous studies of Mohapatra et al. (2025) have shown that financial literacy positively influences the adoption of digital financial services among MSMEs. Furthermore, MSME actors with higher financial knowledge tend to be more confident in using digital payment systems and making technology-based financial decisions. The decision to use QRIS reflects MSMEs' willingness to adopt digital payment technology. Fauziah et al. (2022) find that knowledge and understanding of digital payment systems significantly influence MSMEs' decisions to use QRIS. MSMEs with adequate financial and digital literacy tend to perceive QRIS as useful and easy to use, leading to greater acceptance of this digital payment system.
H1: Financial literacy has a positive and significant effect on QRIS usage decision

Digital Literacy and QRIS Usage Decision

Digital literacy is defined as the ability to use digital technologies effectively in business activities. Rahmawati and Sari (2023) explain that digital literacy significantly affects MSMEs' readiness to adopt digital financial services. MSME owners with higher digital literacy are better able to operate digital payment applications and adapt to technological changes, increasing the likelihood of adopting QRIS. Digital literacy is defined as the ability to access, understand, evaluate, and utilize digital technology effectively (Başar et al., 2025). The Unified Theory of Acceptance and Use of Technology explains that users' technological capability and facilitating conditions significantly affect technology adoption behavior. In the QRIS context, MSMEs with higher digital literacy are generally more capable of operating smartphones, mobile banking applications, and digital transaction platforms, which increases their willingness to use QRIS (Aftab et al., 2025). Empirical studies also indicate that digital literacy significantly affects the adoption of digital payment systems and financial technology (Taufiq et al., 2022). MSME actors with strong digital skills are more adaptive to technological changes and more likely to accept cashless transaction systems. Therefore, digital literacy is predicted to positively affect QRIS usage decisions.
H2: Digital literacy has a positive and significant effect on QRIS usage decision

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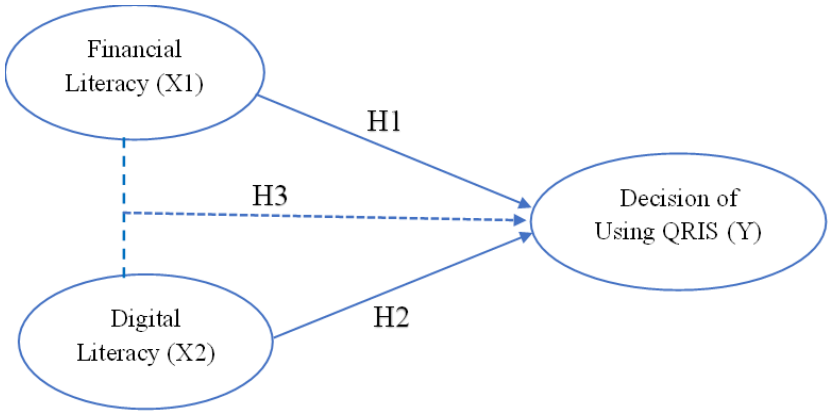

Figure 1. Theoretical Framework
Source: Developed by the author (2026)

METHODS

This study employed a quantitative, causal research design to examine the influence of financial and digital literacy on the decision to use QRIS among MSMEs. The quantitative approach was selected because this study aims to analyze the causal relationship among variables through statistical testing. The study population consisted of MSME actors in Kotabaru Regency, South Kalimantan, Indonesia. The sample was determined using proportionate stratified random sampling to ensure proportional representation of MSME sectors. A total of 400 respondents participated in this study. Data were collected through structured questionnaires distributed directly to MSME actors. The variables in this study consisted of financial literacy as the first independent variable, digital literacy as the second independent variable, and QRIS usage decision as the dependent variable. Financial literacy indicators included financial knowledge, financial behavior, and financial decision-making ability, adapted from previous financial literacy studies. Digital literacy indicators included the ability to access, understand, and utilize digital technology effectively. Meanwhile, the decision indicators for QRIS usage included perceived usefulness, ease of use, and intention to use digital payment systems. All questionnaire items were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. To improve transparency and replicability, the operationalization of variables is presented in Table 1.

Table 1. Variable Operationalization

Variable	Indicators	Measurement Scale	Sources
Financial Literacy	Financial knowledge, financial behavior, and financial decision making	Likert Scale (1–5)	Mohapatra et al. (2025)
Digital Literacy	Ability to access, understand, and utilize digital technology	Likert Scale (1–5)	(Başar et al., 2025)
QRIS Usage Decision	Perceived usefulness, ease of use, intention to use	Likert Scale (1–5)	(Nugraha et al., 2025)

Source: Primary Data Analysis 2025

Data analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software. SEM-PLS was selected because it is suitable for predictive analysis and capable of analyzing complex relationships between latent variables (Hair and Alamer, 2022). The analysis consisted of two stages: evaluation of the measurement model (outer model) and evaluation

of the structural model (inner model). The outer model evaluation was conducted to test the validity and reliability of the constructs through convergent validity, discriminant validity, composite reliability, and Cronbach's alpha. Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE), while discriminant validity was evaluated using cross-loadings and the Fornell-Larcker criterion. Reliability testing was conducted using composite reliability and Cronbach's alpha values with a minimum threshold of 0.70. Furthermore, the inner model evaluation was performed to examine the relationship between variables through path coefficients, coefficient of determination (R^2), and hypothesis testing using bootstrapping procedures. Hypotheses were accepted when the t-statistic value exceeded 1.96, and the p-value was less than 0.05 (Hair and Alamer, 2022). This analysis was conducted to determine both the partial and simultaneous effects of financial literacy and digital literacy on QRIS usage decisions among MSMEs.

RESULTS AND DISCUSSION

Respondent Characteristics

The respondents in this study were MSMEs that use the QRIS, with a total sample of 400 respondents. The characteristics of the respondents were examined across several aspects, and the collected data were subsequently tabulated and analyzed to illustrate the diversity of respondents' characteristics.

Table 2. Distribution of Respondent Characteristics

Category	Subcategory	Frequency	Percentage (%)
Gender	Male	155	38.75
	Female	245	61.25
Age	Below 25 years	87	21.75
	25–34 years	180	45.00
	35–44 years	83	20.75
	Above 45 years	50	12.50
Highest Education Level	Primary School	21	5.25
	Junior High School	38	9.50
	Senior High School	242	60.50
	Diploma (D3)	25	6.25
	Bachelor's Degree (S1)	73	18.25
	Master's Degree (S2)	1	0.25
Length of Business Operation	Less than 1 year	74	18.50
	1–3 years	143	35.75
	4–6 years	78	19.50
	More than 6 years	105	26.25
Type of Business	Fashion	25	6.25
	Furniture	2	0.50
	Services	47	11.75
	Trading	167	41.75
	Culinary	159	39.75
Business Scale	Micro	394	98.50
	Small	2	0.50
	Medium	4	1.00

Category	Subcategory	Frequency	Percentage (%)
Duration of QRIS Usage	Less than 6 months	130	32.50
	6–12 months	113	28.25
	More than 1 year	157	39.25

Source: Primary Data Analysis 2025

Based on Table 2, the respondents in this study exhibit quite diverse characteristics. In terms of gender, the majority of respondents were female (61.25%), while male respondents accounted for 38.75%. With respect to age, most respondents were in the 25–34 age group (45%), followed by those under 25 years old (21.75%), those aged 35–44 years (20.75%), and those aged 45+ (12.5%). In terms of educational background, the majority of respondents were senior high school graduates (60.5%), followed by those holding a bachelor's degree (18.25%), junior high school graduates (9.5%), diploma holders (6.25%), primary school graduates (5.25%), and master's degree holders (0.25%). Regarding business experience, respondents who had operated their businesses for 1–3 years constituted the largest group (35.75%), followed by those with more than 6 years of experience (26.25%), 4–6 years (19.5%), and less than 1 year (18.5%). The types of businesses were dominated by the trading (41.75%) and culinary (39.75%) sectors, while services, fashion, and furniture accounted for smaller proportions. In terms of business scale, nearly all respondents were classified as micro-enterprises (98.5%), with only a small proportion categorized as small and medium enterprises. Regarding QRIS usage, most respondents had been using QRIS for more than one year (39.25%), while the remainder had used it for less than 6 months or between 6 and 12 months. These findings indicate that MSME actors in Kotabaru Regency are predominantly microenterprises, within the productive age group, possess a secondary education level, and are relatively familiar with QRIS.

Validity Test

Validity testing was conducted to assess whether the indicators in the research instrument accurately reflect the latent variables under investigation. In other words, this test is used to assess the instrument's accuracy and precision in representing the research constructs. A valid instrument indicates that the constructs being examined are appropriately represented by the indicators employed.

Table 3. Outer Loading Values of Measurement Indicators

Variables	Indicators	X1	X2	Y
Financial Literacy	**X1.2.1**	0.708		
	X1.3.1	0.767		
	X1.4.1	0.898		
	X1.4.2	0.726		
	X1.5.1	0.900		
Digital Literacy	**X2.1.1**		0.760	
	X2.2.1		0.750	
	X2.2.2		0.713	
	X2.3.1		0.782	
	X2.3.2		0.721	
	X2.4.1		0.770	
	X2.4.2		0.718	
	X2.5.1		0.727	
QRIS Usage Decision	**Y.1.1**			0.800
	Y.1.2			0.756
	Y.2.1			0.814

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Y.2.2	0.799
Y.3.1	0.783
Y.3.2	0.757
Y.4.1	0.815
Y.5.1	0.750

Source: Primary Data Analysis 2025

The results of the validity test indicate that all indicators for the variables financial literacy, digital literacy, and QRIS usage decision have loading factor values above 0.70. For variable financial literacy, the loading factor values range from 0.708 to 0.900, indicating that all indicators adequately reflect the construct. Variable digital literacy shows similar results, with loading factor values ranging from 0.713 to 0.782, confirming that each indicator is valid. Meanwhile, for variable QRIS usage decision, the loading factor values range from 0.750 to 0.815, all of which exceed the threshold value of 0.70 (Table 3). These findings indicate that all indicators in this study meet the criteria for convergent validity, suggesting that the measurement instrument is valid in capturing each latent variable. Therefore, all indicators are appropriate for retention in further analysis, including reliability testing and structural model evaluation.

Table 4. Discriminant Validity Results (Fornell–Larcker Criterion)

Variabel	Financial Literacy	Digital Literacy	QRIS Usage Decision
Financial Literacy			
Digital Literacy	0.859		
QRIS Usage Decision	0.781	0.865	

Source: Primary Data Analysis 2025

The results of the discriminant validity test using the Fornell–Larcker criterion indicate that the square root of the Average Variance Extracted (AVE) for each construct is higher than the correlations with other constructs. For variable financial literacy, the square root of the AVE value is 0.859, which is greater than its correlation with variable QRIS usage intention (0.781). A similar pattern is observed for variable digital literacy, with a square root of the AVE value of 0.865, which is higher than its correlations with other variables. Meanwhile, variable QRIS usage intention also exhibits a square root of the AVE value of 0.865, which exceeds its correlation with financial literacy (0.781) (see Table 4). These findings confirm that each construct in the research model explains its indicators more effectively than the others. Therefore, it can be concluded that all variables in this study satisfy the criteria for discriminant validity, indicating that the measurement instrument is appropriate for further analysis.

Reliability Test

Reliability testing was conducted to determine the consistency of the research instrument in measuring the same variables. Good reliability indicates that the instrument is capable of producing stable and trustworthy results, even when applied under different conditions or at different points in time. Thus, reliability testing ensures that the research instrument possesses an adequate level of dependability in representing the constructs under investigation.

Table 5. Reliability Test Results (Cronbach's Alpha and Composite Reliability)

Variabel	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)

Financial Literacy	0.859	0.864	0.901	0.647
Digital Literacy	0.884	0.885	0.908	0.552
QRIS Usage Decision	0.911	0.912	0.928	0.616

Source: Primary Data Analysis 2025

The results of the reliability assessment are indicated by the values of Cronbach's Alpha, Composite Reliability (rho_a and rho_c), and Average Variance Extracted (AVE). An instrument is considered reliable when the values of Cronbach's Alpha and Composite Reliability exceed 0.70, and the AVE value is greater than 0.50. Based on the analysis presented in Table 4, variable X1 has a Cronbach's Alpha value of 0.859, Composite Reliability (rho_a) of 0.864, and Composite Reliability (rho_c) of 0.901, with an AVE value of 0.647. Variable X2 shows a Cronbach's Alpha value of 0.884, Composite Reliability (rho_a) of 0.885, and Composite Reliability (rho_c) of 0.908, with an AVE value of 0.552. Meanwhile, variable Y has a Cronbach's Alpha of 0.911, Composite Reliability (rho_a) of 0.912, Composite Reliability (rho_c) of 0.928, and an AVE of 0.616. All variables in this study meet the reliability criteria, as they exhibit Cronbach's Alpha and Composite Reliability values above 0.70 and AVE values exceeding 0.50 (see Table 5). Therefore, it can be concluded that the research instrument demonstrates high consistency and reliability and is suitable for further analysis.

Analysis of Structural Model Results

Table 6. Variance Inflation Factor (VIF) Values

Variabel	**VIF**
Financial Literacy	2.252
Digital Literacy	2.252

Source: Primary Data Analysis 2025

Based on Table 6, the results of the multicollinearity test using the Variance Inflation Factor (VIF) indicate that both financial and digital literacy have VIF values of 2.252. These values are below the critical threshold of 5, suggesting no multicollinearity among the independent variables. Therefore, financial and digital literacy variables satisfy the assumption of no multicollinearity and are appropriate for inclusion in the research model.

Table 7. R-Square Values

	Y
R-square	0.622
R-square adjusted	0.620
Durbin-Watson test	1.892

Source: Primary Data Analysis 2025

The results presented in Table 6 indicate that the R-square value is 0.622. This implies that the independent variables in the research model explain 62.2% of the variance in the dependent variable, while the remaining 37.8% is explained by other factors outside the model. Therefore, this R-square value suggests that the model has a relatively strong explanatory power and is appropriate for describing the relationships among the variables examined in this study.

Table 8. Hypothesis Results

Variabel	**Unstandardized coefficients**	**Standardized coefficients**	**SE**	**T value**	**P value**	**2.5 %**	**97.5 %**
X1	0.250	0.260	0.045	5.608	0.000	0.162	0.338
X2	0.608	0.576	0.049	12.447	0.000	0.512	0.704
Intercept	0.598	0.000	0.146	4.104	0.000	0.311	0.884

Source: Primary Data Analysis 2025

The analysis results indicate that financial literacy has a significant effect on the decision to use QRIS, with a coefficient of 0.250, a t-value of 5.608, and a significance level of 0.000, confirming the first hypothesis. This finding suggests that financial literacy has a positive and significant effect on the decision to use QRIS. Therefore, the higher the level of financial literacy of MSME actors, the greater their tendency to use QRIS as a financial transaction tool. The findings of this study reinforce the central role of financial literacy in shaping MSMEs' decisions to adopt QRIS as a digital payment system. Consistent with prior studies, financial literacy enhances MSME actors' ability to evaluate the benefits and risks of financial technologies, thereby reducing decision-making uncertainty. This supports the argument of Mulyani et al. (2022), who emphasize that financial literacy strengthens both understanding and confidence in utilizing digital transaction systems.

From a theoretical perspective, these results align with the Technology Acceptance Model (TAM), which posits that perceived usefulness and perceived ease of use are key determinants of technology adoption. MSMEs with higher financial literacy are better able to recognize the functional advantages of QRIS, such as transaction efficiency, improved financial recording, and operational convenience, thereby fostering more favorable adoption decisions. In this regard, the present findings extend those of Aftab et al. (2025) and Nugraha et al. (2025) by demonstrating that financial literacy not only shapes perception but also translates into actual adoption decisions in the context of QRIS. Moreover, the results corroborate the empirical findings of Mohapatra et al. (2025), who found that financial literacy significantly influences the adoption of digital financial services among MSMEs. However, this study provides a more contextualized contribution by focusing specifically on QRIS as a standardized national payment system, thereby offering more nuanced insights into how financial literacy operates within a regulated digital payment ecosystem.

Despite this alignment, the findings also suggest a need for a more critical interpretation of prior research. While earlier studies tend to treat financial literacy as a direct predictor of technology adoption, the present results indicate that its effect may be more complex and potentially mediated by cognitive and behavioral factors such as trust, perceived risk, or digital readiness. This implies that financial literacy alone may not be sufficient to drive adoption unless it is accompanied by supportive digital competencies and institutional trust. In addition, the findings support Fauziah et al. (2022), who argue that knowledge and understanding of digital payment systems significantly influence MSMEs' decisions to use QRIS. Nevertheless, this study extends the discussion by highlighting that financial literacy interacts with digital literacy in shaping adoption decisions. MSMEs with adequate levels of both literacies are more likely to perceive QRIS as useful and easy to use, leading to stronger acceptance. This indicates that future research should move beyond single-factor explanations and adopt a more integrative approach in examining digital financial adoption among MSMEs.

Hypothesis two shows that digital literacy has a significant effect on the decision to use QRIS. A coefficient of 0.608, with a t-value of 12.447 and a significance level of 0.000. This result indicates that digital literacy also has a positive and significant effect on the decision to use QRIS. In other words, the better MSMEs' digital literacy skills, the higher the likelihood they will adopt QRIS as a payment method. Moreover, the larger coefficient for digital literacy relative to financial literacy suggests that digital literacy has a stronger influence on the decision to use QRIS. The findings of this study highlight the significant role of digital literacy in influencing MSMEs' decisions to adopt QRIS. Consistent with prior research, digital literacy enhances MSME actors' ability to effectively use digital technologies, thereby increasing their readiness to engage with digital financial services. This supports the argument of Rahmawati and Sari (2023), who emphasize that digital literacy is a critical determinant of MSMEs' preparedness for digital transformation. From a theoretical standpoint, these results align with the Unified Theory of Acceptance and Use of Technology (UTAUT), which posits that individual capabilities and facilitating conditions significantly influence technology adoption behavior. MSMEs with higher digital literacy are better equipped to operate smartphones, mobile banking applications, and digital transaction platforms, which, in turn, strengthen their intention and decision to adopt QRIS. In this regard, the present findings extend

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those of Aftab et al. (2025) by demonstrating that technological capability is not merely an enabling factor but also a direct driver of adoption decisions in the context of standardized digital payment systems.

Furthermore, the findings corroborate Taufiq et al.'s (2022) empirical evidence, which indicates that digital literacy significantly affects the adoption of financial technology. MSME actors with strong digital competencies tend to be more adaptive to technological changes and more receptive to cashless transaction systems. However, while prior studies generally conceptualize digital literacy as a direct predictor of adoption, the current findings suggest a more nuanced relationship. Digital literacy may operate through intermediate mechanisms such as perceived ease of use, technological self-efficacy, and reduced perceived complexity. In addition, although Başar et al. (2025) define digital literacy broadly as the ability to access, understand, evaluate, and utilize digital technologies, this study indicates that not all dimensions contribute equally to adoption behavior. For instance, operational skills (e.g., the ability to use mobile applications) may have a more immediate impact on QRIS adoption than evaluative or critical digital skills. This suggests that future research should disaggregate digital literacy into its specific components to better capture its differential effects on technology adoption. Moreover, the findings imply that digital literacy alone may not fully explain MSMEs' adoption of QRIS. External factors such as infrastructure availability, institutional support, and perceived security may also play a crucial role. Therefore, relying solely on individual capability, as suggested by some prior studies, may lead to an oversimplified understanding of adoption behavior.

CONCLUSION

This study examined the influence of financial literacy and digital literacy on MSMEs' decisions to adopt QRIS in Kotabaru Regency. The findings confirm that both variables exert positive, significant effects on QRIS adoption decisions, with digital literacy emerging as the stronger predictor than financial literacy. Furthermore, this study extends existing TAM applications by demonstrating the differential weight of cognitive literacy dimensions: digital literacy, as a proxy for operational readiness, exerts a significantly stronger effect than financial literacy, which functions more as a contextual motivator. In terms of practical implications, the findings are directly relevant to policymakers, financial regulators, and development agencies operating in Kotabaru Regency and comparable peripheral regions of Indonesia. The dominance of digital literacy as a predictor of QRIS adoption suggests that intervention programs should prioritize hands-on digital skills training encompassing smartphone use, app navigation, QR code management, and basic cybersecurity awareness, alongside financial literacy modules on transaction recording, cost management, and the benefits of cashless payments.

This study is subject to several limitations that should be acknowledged. First, the research was conducted exclusively in Kotabaru Regency, Indonesia, limiting the generalizability of findings to other regional contexts with potentially different levels of infrastructure, digital connectivity, and MSME characteristics. Second, the study relies on self-reported questionnaire data, which may be susceptible to social desirability bias, particularly regarding respondents' self-assessment of financial and digital literacy. Third, the cross-sectional design of the study precludes causal inference regarding how changes in literacy levels over time translate into changes in QRIS adoption behavior. Fourth, while the model accounts for 62.2% of the variance in QRIS adoption, the remaining 37.8% indicates the presence of unexplored determinants, such as perceived trust, social influence, network effects, and infrastructure accessibility, which were not included in the present framework.

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