

Influence of Digital Security, Digital Literacy, and Financial Literacy on the Intention to Use QRIS with Perceived Ease of Use as a Moderator

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Abstract

This study aims to analyze the influence of digital security, digital literacy, and financial literacy on the intention to use QRIS (Quick Response Code Indonesian Standard), with perceived ease of use as a moderating variable. The study is motivated by the importance of adopting digital payment systems amidst the rapid growth of Indonesia's digital economy. A quantitative method was employed through the distribution of questionnaires to 200 respondents who are users of digital financial services, and the data were analyzed using Partial Least Square Structural Equation Modeling (PLS-SEM). The results indicate that digital security and financial literacy have a positive and significant effect on the intention to use QRIS, whereas digital literacy does not show a significant effect. Additionally, perceived ease of use significantly moderates the relationship between digital security and digital literacy with usage intention, but does not act as a moderator for the relationship between financial literacy and usage intention. This study fills a gap in understanding the integrated roles of digital security, digital literacy, and financial literacy, particularly with respect to the moderating effect of perceived ease of use, which has been underexplored in previous QRIS adoption research. These findings highlight the importance of digital literacy and financial literacy in enhancing the adoption of QRIS. Therefore, it is recommended that the government, financial institutions, and QRIS service providers strengthen education on digital and financial literacy and continuously improve the ease-of-use features to increase public interest in using QRIS widely.

I. INTRODUCTION

Indonesia is experiencing a paradigm shift in its financial system with the emergence of fintech and digital payment phenomena. This development not only facilitates access to financial services but also transforms the way Indonesian society conducts transactions,

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invests, and manages their personal finances (Fitriyani Pakpahan *et al.*, 2020). Fintech has expanded the accessibility of financial services to communities that were previously difficult to reach by conventional banks (Muharni & S. S, 2022). Digital payment, an integral part of fintech, includes the use of e-money, digital wallets, and online payment systems that facilitate daily transactions in an easy, fast, and secure manner (Putri Silvia Somantri, 2024). Digital financial services (DFS) refer to financial service and payment system activities conducted through collaboration with third parties and utilizing technological facilities and devices, such as dynamic mobile and web-based platforms, within the framework of financial inclusion (Seftarita & Azra, 2018). One form of digitalization in the financial sector is QRIS (Quick Response Code Indonesian Standard), introduced by Bank Indonesia as an effort to integrate various non-cash payment methods. QRIS was launched to address the challenges of fragmentation in digital payment systems and to support financial inclusion. With a single QR code that can be used across multiple payment service providers, QRIS simplifies transactions for both consumers and business actors, particularly Micro, Small, and Medium Enterprises (MSMEs).



Figure 1 QRIS Transactions in Indonesia

Source: Indonesian Payment System Association (ASPI)

According to data from the Indonesian Payment System Association (ASPI), from March 2020 to December 2024, it can be concluded that the use of QRIS has experienced rapid growth over the past five years. The volume of transactions increased significantly from 12 million transactions at the beginning of 2020 to 779 million transactions by the end of 2024. In line with this, the transaction value also rose sharply from IDR 581 billion to IDR 82 trillion. This increase reflects the growing adoption of digital payment systems in society and indicates that QRIS has become one of the primary instruments in the transformation of Indonesia's digital financial ecosystem.

Table 1 Total QRIS Transaction Volume in Indonesia

Data Name	QRIS Transaction Volume	QRIS Transaction Value / IDR
2020-03	12 Million	581 Billion
2020-06	8 Million	450 Billion
2020-09	11 Million	838 Billion
2020-12	17 Million	1,2 Trillion
2021-03	18 Million	1,27 Trillion
2021-06	35 Million	2,15 Trillion
2021-09	59 Million	2,92 Trillion

2021-12	59 Million	4,73 Trillion
2022-03	66 Million	5,81 Trillion
2022-06	80 Million	9,57 Trillion
2022-09	112 Million	10,9 Trillion
2022-12	128 Million	12,2 Trillion
2023-03	128 Million	13 Trillion
2023-06	155 Million	17 Trillion
2023-09	201 Million	20 Trillion
2023-12	301 Million	34 Trillion
2024-03	374 Million	42 Trillion
2024-06	494 Million	52 Trillion
2024-09	619 Million	66 Trillion
2024-12	779 Million	82 Trillion

Note: In Indonesian Currency (Rupiah).

According to a report by Bank Indonesia, as of the end of 2023, the number of merchants using QRIS exceeded 30 million. However, the adoption rate among individual users has not kept pace with merchant growth. Many members of the public remain reluctant to use QRIS as a primary payment method. A survey conducted by the Financial Services Authority (OJK) in 2022 indicated that the financial literacy rate among Indonesians stood at 49.68%. This suggests that low financial literacy contributes to the limited use of digital financial services, including QRIS. On the other hand, a 2023 report from the Ministry of Communication and Informatics (Kominfo) recorded a 33% increase in cyberattacks. This indicates that public concern over digital security remains high, which may ultimately affect trust in the use of QRIS. A study by (Wati, 2023) emphasizes that perceptions of digital security have a significant influence on the decision to use digital payment services such as mobile banking, which in principle operates similarly to QRIS.

Although QRIS has emerged as one of the strategic innovations in Indonesia's digital payment system, research examining the factors influencing interest in using QRIS still faces several limitations. Many previous studies have focused on single factors such as financial literacy or ease of use, without considering the integration of more complex variables. For instance, a study conducted by (Wardani *et al.* 2024) examined the role of financial literacy as a moderating variable in influencing students' interest in using QRIS. However, the study did not incorporate digital literacy and digital security as key variables in the model, despite their high relevance in the context of technology-based transactions.

In addition, the study by (Silsilatama, 2024) only examined the influence of financial literacy, perceived usefulness, and ease of use on interest in using QRIS, without considering digital security an increasingly critical concern amid rising cyber threats. In fact, perceptions of digital security can be a determining factor in an individual's decision to use technology-based financial services. On the other hand, (Damayanti *et al.* 2023) discussed perceived ease of use and perceived usefulness in the context of QRIS adoption. However, the variable of perceived ease of use was only positioned as an independent variable. The study did not explore the potential of perceived ease of use as a moderating variable that could strengthen or weaken the influence of other variables on user interest. Furthermore, many previous studies have employed limited populations, such as university students as in the study by (Binsar Berlianta, 2023), which focused on Development Economics students at Universitas Siliwangi. This limits the generalizability of the findings to broader population groups, such as MSME actors or general consumers. Therefore, there

remains a significant research gap in comprehensively examining the combined influence of digital security, digital literacy, and financial literacy on interest in using QRIS, with perceived ease of use as a moderating variable. This study seeks to address that gap by developing a more integrative model and empirically testing the moderating effect of perceived ease of use.

This study has two main distinctive features compared to previous research. First, it comprehensively integrates three key variables digital security, digital literacy, and financial literacy to examine their influence on the intention to use QRIS. This sets it apart from earlier studies, which generally focused on only one or two variables in isolation. For example, the study by (Utami, 2021) highlighted the influence of security, trust, and usefulness on the intention to use LinkAja, without considering the dimensions of digital and financial literacy simultaneously. Meanwhile, the study by (Hidayat & Pamungkas, 2022) focused solely on the impact of financial literacy on investment decisions and did not contextualize it within the national digital payment system, such as QRIS. Thus, this study adopts an integrated approach, positioning QRIS at the center of the discourse on Indonesia's financial digital transformation. The second distinctive feature lies in the use of perceived ease of use as a moderating variable. Unlike most previous studies, which typically positioned perceived ease of use as a mediating or direct variable, this study examines how perceived ease of use can strengthen or weaken the influence of digital security, digital literacy, and financial literacy on the intention to use QRIS. In the context of technology adoption, perceived ease of use plays a crucial role, as emphasized in the Technology Acceptance Model (TAM); however, its role as a moderator has rarely been investigated. Therefore, this study offers novelty through a conceptual model that empirically tests such moderating relationships an approach that has not been widely explored in QRIS-related studies in Indonesia. The selection of perceived ease of use as a moderating variable is based on the premise that high levels of literacy or a strong sense of digital security do not automatically translate into interest in using QRIS if users perceive the system as complicated or impractical. Conversely, the perception that QRIS is easy to use may serve as a reinforcing factor even for individuals with limited literacy. Hence, by incorporating perceived ease of use as a moderating variable, this study provides a more in-depth understanding of the factors that influence QRIS adoption in a holistic manner.

Indonesia is experiencing a paradigm shift in its financial system with the emergence of fintech and digital payment phenomena. This development not only facilitates access to financial services but also transforms the way Indonesian society conducts transactions, invests, and manages their personal finances (Fitriyani Pakpahan *et al.*, 2020). The adoption of digital payment systems, such as QRIS (Quick Response Code Indonesian Standard), plays a critical role in this transformation. Despite the increasing number of QRIS transactions, there is still a gap in understanding the factors influencing individuals' intention to use QRIS, especially in the context of digital security, digital literacy, and financial literacy.

The primary objective of this research is to explore how digital security, digital literacy, and financial literacy affect the intention to use QRIS. Specifically, the study aims to answer the following key questions: How do digital security, digital literacy, and financial literacy influence the intention to use QRIS? Additionally, What role does perceived ease of use play in moderating the relationship between these variables and the intention to use QRIS? These research questions address the gap in previous studies that often focus on isolated

factors, rather than the combined influence of these variables. By examining the moderating role of perceived ease of use, this study provides a more comprehensive understanding of the factors that drive QRIS adoption.

The selection of respondent groups in this study was conducted strategically to ensure alignment with the study's context and objectives. As the research focuses on understanding individual interest in using QRIS as a digital payment method, the most appropriate respondents are those who already have access to digital technology and financial services, such as university students and active users of digital wallets. The study targets individuals who actively use technological devices, exhibit high levels of digital adoption, and are in the process of establishing independent financial habits. This group is highly relevant for assessing digital literacy, financial literacy, and sensitivity to digital security issues. Moreover, they are generally open to technological innovations such as QRIS, yet their decision to adopt is significantly influenced by their perceptions of ease of use and security. Thus, the selection of respondents is based on their level of exposure to digital technology, their relevance to QRIS as a transactional tool, and the diversity in their literacy levels and perceived ease of use. These groups are expected to provide rich data for comprehensively testing the effects of the studied variables.

II. RELATED WORKS/LITERATURE REVIEW

Digital security refers to an individual's ability to protect their devices, personal data, and digital activities from cyber threats. In the context of adopting financial technologies such as QRIS, digital security is a critical factor that can influence users' intention to adopt, as users require a sense of safety when conducting online transactions. In this study, digital security is measured using four indicators adopted from the national digital literacy program: protection of digital devices, protection of digital identity, awareness of digital fraud, and awareness of digital footprints. This measurement framework is based on the study by (Saraswati & Gani, 2024), which assessed the effectiveness of digital security practices among university students. One of the key advantages of strong digital security is its ability to safeguard users' personal and financial data from potential leaks or misuse.

Digital literacy refers to an individual's competence in accessing, evaluating, producing, and effectively using information in a digital environment. In this study, digital literacy is considered essential because the use of QRIS as a digital-based payment system requires adequate understanding of technology and information. The indicators used to measure digital literacy include the ability to access technology, evaluate digital information, communicate digitally, and demonstrate ethics and responsibility in the online environment. This measurement is based on the study by (Januar *et al.* 2022), which showed that improvements in digital literacy contribute to students' readiness to engage with the digital world. Digital literacy has the advantage of representing QRIS users' ability to function as active and responsible digital citizens.

Financial literacy refers to an individual's understanding of fundamental financial concepts and their ability to make informed financial decisions in daily life. In the context of QRIS usage, financial literacy plays a role in shaping user behavior in managing digital financial transactions efficiently and securely. The indicators used to measure financial literacy include knowledge of financial concepts (such as inflation and interest), financial behavior (such as saving habits and expense management), and attitudes toward financial

planning and decision-making. This measurement approach is based on the study by (Hidayat & Pamungkas, 2022), which demonstrated that the level of financial literacy influences both investment decisions and the adoption of digital financial services. These indicators were selected because they encompass cognitive, affective, and behavioral aspects of financial management, all of which are relevant to QRIS usage.

Usage intention is defined as an individual's intention or tendency to use a particular technology in the near future. In the context of QRIS, usage intention serves as a key indicator of public technology adoption. The indicators of QRIS usage intention in this study include the desire to try QRIS, the willingness to use it regularly, the intention to continue using it in the future, and the willingness to recommend QRIS to others. This measurement is based on (Utami, 2021), who examined the factors influencing interest in mobile payment usage. These indicators were selected because they directly reflect individuals' behavioral intention to adopt a national digital payment system such as QRIS.

Perceived ease of use is one of the core constructs in the Technology Acceptance Model (TAM), defined as the degree to which a person believes that using a particular technology will be free from excessive effort. In this study, perceived ease of use functions as a moderating variable that is hypothesized to strengthen the influence of digital security, digital literacy, and financial literacy on the intention to use QRIS. The strengths of perceived ease of use lie in its characteristics: the technology can be used without assistance, requires minimal effort, and is flexible in various situations (Asmara *et al.*, 2023).

Previous studies have explored various factors influencing the adoption of digital payment systems, such as QRIS, including digital security, digital literacy, and financial literacy. However, many of these studies have focused on a limited number of variables or have examined them in isolation, which limits the understanding of how these factors interact to shape usage intention. For instance, some studies have primarily concentrated on the role of financial literacy without considering the impact of digital security or literacy (Utami, 2021); (Hidayat & Pamungkas, 2022), while others have focused on perceived ease of use or perceived usefulness without accounting for the moderating effects of perceived ease of use (Damayanti *et al.* 2023). Furthermore, there is a notable lack of research that comprehensively integrates the combined influences of digital security, digital literacy, and financial literacy in the context of QRIS adoption, especially with respect to how perceived ease of use moderates these relationships.

Moreover, many studies have utilized narrow or homogenous respondent groups, such as university students or specific consumer segments (Binsar Berlianta, 2023), limiting the generalizability of their findings. Additionally, the majority of studies have employed cross-sectional designs, which capture a snapshot of user behavior at a single point in time and do not account for potential changes in usage intentions over the long term (Wati, 2023). These limitations underscore the need for a more integrative approach that examines the multifaceted influences on QRIS adoption and considers longitudinal or diverse population groups.

This study aims to address these gaps by examining the combined impact of digital security, digital literacy, and financial literacy on the intention to use QRIS, while considering the moderating role of perceived ease of use. By addressing these limitations, this research contributes to a broader understanding of QRIS adoption and provides

actionable insights for policymakers, financial institutions, and service providers to promote widespread adoption of QRIS in Indonesia.

III. METHODS

In the era of digital transformation, the enhancement of digital literacy and financial literacy has become a crucial factor in supporting the adoption of financial technologies such as QRIS (Quick Response Code Indonesian Standard). A solid understanding of digital security, technological proficiency, and financial awareness influences users' perceptions of the ease of using digital payment systems. Therefore, this study aims to analyze the influence of digital security, digital literacy, and financial literacy on perceived ease of use, with the intention to use QRIS serving as a mediating variable that may strengthen the relationships among the variables. The following conceptual framework illustrates the relationships tested in this study.

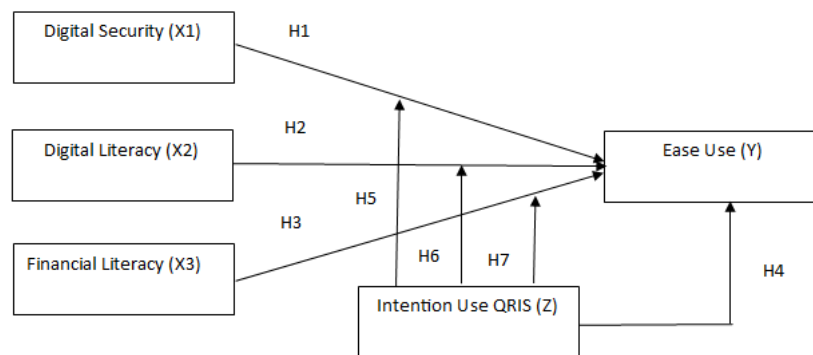


Figure 2 Conceptual Framework

Source: Processed by the Researcher

The conceptual framework illustrates the relationships among the variables in this study: digital security (X1), digital literacy (X2), and financial literacy (X3) are treated as independent variables that are hypothesized to influence the intention to use QRIS (Z) as the dependent variable. Additionally, perceived ease of use (Y) serves a dual role: as an independent variable that directly affects the intention to use QRIS (H4), and as a moderating variable that strengthens the relationships between digital security (H5), digital literacy (H6), and financial literacy (H7) and the intention to use QRIS. This model is designed to demonstrate how a combination of technological, literacy-related, and user perception factors simultaneously influences individuals' decisions to adopt QRIS as a digital payment method.

The population in this study consists of all respondents who own an e-wallet and have previously used QRIS. This population was selected due to its strong relevance to the variables under investigation, namely digital security, digital literacy, financial literacy, and the intention to use QRIS. The sample was determined using purposive sampling, which involves selecting respondents based on specific criteria deemed appropriate for addressing the research objectives. These criteria include: residing in Indonesia, being at least 17 years old, and having experience using QRIS. With an estimated total of 30 indicators, the ideal sample size ranges from 150 to 300 respondents. To ensure the

reliability of the analysis and the accuracy of the results, the researcher set a target sample size of 200 respondents.

Table 2 Variable Operationalization

Variable	Indicator	Scale
Digital Security (Saraswati & Gani, 2024)	1. Uses authentication methods such as PIN or password.	Likert
	2. Well-encrypted.	
	3. Data is utilized and protected appropriately.	
	4. Good platform reputation.	
	5. Resolves complaints related to transactions.	
Digital Literacy (Lonika, 2023)	1. Utilizes technology.	Likert
	2. Supports strategic decision-making in business.	
	3. Regularly updates software and operating systems.	
	4. Understands responsibilities as a digital technology user.	
	5. Applies digital technology effectively.	
Financial Literacy (Binsar Berlianta, 2023)	1. Monitors expenses regularly.	Likert
	2. Understands how credit cards work and how to use them wisely.	
	3. Has long-term financial planning.	
	4. Maintains adequate and appropriate savings.	
	5. Enhances financial capability.	
	6. Manages financial security risks.	
Intention to Use QRIS (Amamilah <i>et al.</i> , 2024)	1. Very easy and does not take much time.	Likert
	2. Very secure and not prone to fraud.	
	3. Quick and easy to use QRIS.	
	4. Prefers shopping at places that accept QRIS.	
	5. Easily links to a bank account.	
	6. Offers promotions or discounts.	
Perceived Ease of Use (April <i>et al.</i> , 2025)	1. Easy to conduct transactions using QRIS.	Likert
	2. Easy to follow instructions and guidelines for using QRIS.	
	3. Easily accessible across various devices.	
	4. Very easy to navigate, with a logical and user-friendly structure.	
	5. Features that help prevent errors.	
	6. Flexible and adaptable to user needs.	

Note: Likert scale ranges from 1 to 6.

The analysis employs Structural Equation Modeling (SEM), starting with validity and reliability tests, followed by the goodness-of-fit test, and concluding with hypothesis testing. The validity test ensures that the questionnaire accurately represents the study's variables, while the reliability test ensures trustworthy responses. The goodness-of-fit test assesses whether the indicators align with the research model, and hypothesis testing determines the acceptance or rejection of each hypothesis.

Perceived ease of use was selected as a moderating variable due to its critical role in technology adoption, as outlined in the Technology Acceptance Model (TAM). In the context of QRIS, ease of use influences users' confidence in adopting the system. A user-friendly interface can encourage adoption, even for those with lower digital literacy or financial expertise. Perceived ease of use has been shown to moderate the relationship between other variables and usage intention, strengthening the effect of digital security and financial literacy on QRIS adoption. This study explores how perceived ease of use influences the adoption of QRIS, providing a deeper understanding of the factors that drive technology acceptance.

IV. RESULTS AND DISCUSSION

This study uses primary data obtained through the distribution of questionnaires to respondents selected based on predetermined research criteria. A total of 200 responses were successfully collected and processed in this study. The sample was determined using purposive sampling, in which respondents were selected according to specific criteria, such as having used or being familiar with QRIS as a digital payment method. The selection of respondents also took into account variations in age, educational background, and experience with digital financial technologies in order to obtain a more representative overview. The collected data were then processed and analyzed using quantitative methods, with the assistance of statistical software to examine the relationships among variables in the research model.

Table 3 Table of Analysis Results and Descriptive Statistics

	Mean	Median	Min	Max	Standard Deviation
KD	3.025	0.566	-5.290	0.566	1.000
LD	-3.197	0.305	-5.631	0.653	1.000
LK	5.940	0.327	-4.298	0.748	1.000
MP	-2.010	0.378	-2.841	0.819	1.000
PK	-2.653	0.248	-5.262	0.737	1.000

Note: KD =Digital Security, LD=Digital Literacy, LK=Financial Literacy, MP=Intention to Use, PK=Perceived Ease.

Descriptive statistics are used to provide a general overview of the data distribution for each variable in this study, including the mean, median, minimum, maximum, and standard deviation values. Based on the results of the descriptive analysis, the Digital Security (KD) variable has a mean value of 3.025, with a minimum of -5.290, a maximum of 0.566, and a standard deviation of 1.000. This indicates that perceptions of digital security vary considerably, with a relatively high level of dispersion among respondents. The Digital Literacy (LD) variable shows a negative mean of -3.197, with a range from -5.631 to 0.653, suggesting that the majority of respondents still have low levels of digital literacy in the context of QRIS usage. The Financial Literacy (LK) variable has the highest positive mean value at 5.940, indicating that most respondents possess a relatively good understanding of financial concepts, although some variation remains, as shown by the minimum value of -4.298 and a maximum of 0.748.

Meanwhile, the Intention to Use (MP) variable shows a mean value of -2.010, reflecting a generally low interest in using QRIS among respondents, despite the presence of a positive maximum value of 0.819. The Perceived Ease of Use (PK) variable has a mean of -2.653, indicating that most respondents do not yet fully perceive QRIS as an easy-to-use system. The fact that the median is lower than the mean for most variables suggests a data distribution skewed toward extreme negative values. This further highlights the need for user education and improved user experience in digital payment systems, particularly in terms of ease of use and security.

Outer model testing, also known as measurement model testing, aims to evaluate the validity and reliability of the indicators or variables used in the study. This ensures that the measurement instruments employed accurately measure the intended constructs and do so consistently. The measurement model is assessed through reliability and validity metrics. For reliability, Cronbach's Alpha is commonly used. This value reflects the internal consistency of all indicators within the model. The minimum acceptable value is 0.7, with

ideal values ranging between 0.8 and 0.9. In addition to Cronbach's Alpha, the composite reliability (ρ_c) value is also used, and it is interpreted similarly to Cronbach's Alpha. Reflective indicators should be removed from the measurement model if they have an outer loading value below 0.4. In the outer model, there are two types of relationships between indicators and their constructs; therefore, the testing approach must align with the indicator type reflective or formative (Latan & Ghozali, 2015).

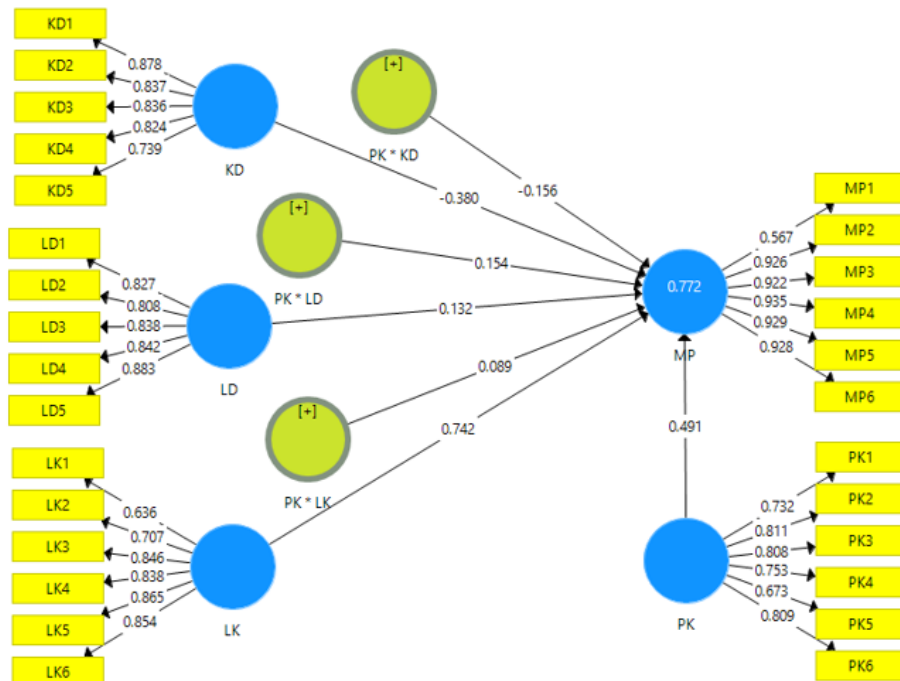


Figure 3 Outer Model Algorithm Results

Source: Data Processed Using SmartPLS 3, 2025.

A loading factor value of ≥ 0.5 is considered acceptable or adequate according to the minimum criteria in Partial Least Squares (PLS) analysis to demonstrate convergent validity. Based on Figure 3, all indicators show loading factor values above 0.5, such as KD1 (0.878), LD3 (0.883), and MP4 (0.955), indicating that these indicators strongly represent their respective constructs. Even the indicators with the lowest values, such as LK2 (0.636) and KD4 (0.739), remain above the minimum threshold and are acceptable within the model. Therefore, the results of the outer model demonstrate that all items in this research instrument have met the requirements for convergent validity, as their loading factor values meet the ≥ 0.5 criterion.

Table 4 Best Model Testing Results (Construct Reliability and Validity)

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)	Description
KD	0.885	0.913	0.913	0.679	Fulfilled
LD	0.897	0.919	0.923	0.706	Fulfilled
LK	0.882	0.897	0.911	0.633	Fulfilled
MP	0.934	0.939	0.952	0.771	Fulfilled
PK	0.865	0.900	0.894	0.587	Fulfilled
PK * KD	1.000	1.000	1.000	1.000	Fulfilled

PK * LD	1.000	1.000	1.000	1.000	Fulfilled
PK * LK	1.000	1.000	1.000	1.000	Fulfilled

Note: Fulfilled with values ranging from 0.5 to 0.7.

The Construct Reliability and Validity test aims to assess the extent to which the research instrument can consistently and validly measure the intended constructs or latent variables. Based on the test results presented in Table 4, all research variables demonstrate high levels of reliability and validity. The Cronbach's Alpha values for all constructs exceed the threshold range of 0.50 to 0.70, indicating that the instrument possesses good internal consistency (Mustika & Irmawati, 2025).

In the model evaluation, significance testing is conducted to assess the influence between variables using the bootstrapping procedure. Hypothesis testing is carried out by examining the t-statistics and p-values. A hypothesis in this study is considered accepted if the results meet the established rule of thumb, namely, if the p-value is below 0.05 and the t-statistic exceeds 1.96. The significance level used in the one-tailed test corresponds to a t-value of 1.96 (significance level = 5%).

Table 5 Hypothesis Testing Result

Relationship Between Variables	Original Sample (O)	T Statistics ((O /STDEV)	P Values	Decision
KD -> MP	-0.379	2.757	0.003	Accepted
LD -> MP	0.104	0.719	0.236	Rejected
LK -> MP	0.726	6.114	0.000	Accepted
PK -> MP	0.486	4.146	0.000	Accepted
PK * KD -> MP	-0.188	2.381	0.009	Accepted
PK * LD -> MP	0.191	2.049	0.020	Accepted
PK * LK->MP	0.082	0.837	0.202	Rejected

Note: The hypothesis is accepted when the p-value is below 0.05.

Based on Table 5, the results of the bootstrapping analysis indicate that several relationships within the research model exhibit significant effects. The variable KD → MP has an original sample value of -0.379, a t-statistic of 2.757, and a p-value of 0.003, indicating a significant effect. Therefore, the hypothesis is accepted. The variable LD → MP shows an original sample of 0.104, a t-statistic of 0.719, and a p-value of 0.236, indicating a non-significant effect; hence, the hypothesis is rejected. The variable LK → MP demonstrates a strong influence, with an original sample value of 0.726, a t-statistic of 6.114, and a p-value of 0.000, leading to the acceptance of the hypothesis.

Regarding the moderating effects, the interaction term PK * KD → MP has an original sample of -0.188, a t-statistic of 2.381, and a p-value of 0.009, indicating a significant effect; thus, the hypothesis is accepted. Similarly, the moderating effect of PK * LD → MP shows a strong influence, with an original sample value of 0.191, a t-statistic of 2.049, and a p-value of 0.020, supporting the acceptance of the hypothesis. However, the moderating effect of PK * LK → MP is not statistically significant, as indicated by an original sample of -0.082, a t-statistic of 0.837, and a p-value of 0.202; consequently, the hypothesis is rejected.

The coefficient of determination is used to assess the extent to which independent variables explain the variance in the dependent variable. This measurement is commonly represented by the R Square (R^2) value. A higher R Square indicates a stronger explanatory power of the independent variables in predicting the dependent variable within the model.

Table 6 Coefficient of Determination

	R Square	R Square Adjusted
MP	0.711	0.700

Note: Data Processed Using SmartPLS 3, 2025.

Based on Table 6, the R-Square value for the variable Intention to Use is 0.711, indicating that the variability in Digital Security, Digital Literacy, and Financial Literacy accounts for approximately 70% of the variance in the intention to use QRIS. The remaining variance is explained by factors outside the proposed model. The adjusted R² value, which is only slightly lower than the R-Square, suggests that the model demonstrates a good level of fit to the sample data.

The findings indicate that digital security has a significant positive effect on the intention to use QRIS. The higher the user's perception that QRIS is secure from risks such as data theft, fraud, and unauthorized access, the stronger their intention to use it for daily transactions. Digital security is seen as a crucial prerequisite for perceived usefulness, as users are unlikely to consider a system beneficial if it lacks security, regardless of its ease of use or advanced features. This supports hypothesis H1, which posits a positive relationship between digital security and the intention to use QRIS. In the context of QRIS, digital security forms the foundation of user trust. When users believe their personal data is protected and transactions are free from risks such as system failures or identity theft, they are more likely to perceive the system as useful, aligning with the Technology Acceptance Model (TAM). This sense of security enhances user confidence and reduces concerns about digital transaction risks, thereby increasing usage intention. These results are consistent with the studies of (Diva, 2024), Lathifah (2023), and (Saraswati & Gani, 2024), but contrast with (Michael Musyaffi *et al.* 2021), who found a negative effect of digital security on QRIS usage intention.

The study reveals that digital literacy has a negative effect on the intention to use QRIS, meaning that higher digital literacy levels are associated with lower usage intention. This finding contradicts hypothesis H2, which proposed a positive relationship. According to the Technology Acceptance Model (TAM), user acceptance of technology is influenced by perceived usefulness and perceived ease of use. Digital literacy, as an external factor in TAM, is expected to enhance understanding of a system's benefits and ease, thereby increasing usage intention. However, the negative relationship may be explained by two factors. First, users with high digital literacy may have higher expectations regarding features, interface, and security. If QRIS lacks advanced functionalities or flexibility compared to other platforms, these users may be less inclined to adopt it. Second, digitally literate users are more capable of objectively comparing platforms and may prefer more sophisticated e-wallets offering loyalty programs, promotions, or advanced financial tools. These results align with (Lestari & Wulandari, 2021) and (Maivalinda *et al.*, 2023), who also found a negative impact. Conversely, the findings differ from those of (Ramaza, 2023) and (Adnyani *et al.* 2023), who reported a positive influence of digital literacy on QRIS usage intention.

The findings of this study indicate that financial literacy has a positive and significant effect on the intention to use QRIS, supporting Hypothesis H3. This implies that individuals with higher levels of financial literacy are more likely to adopt QRIS as a digital payment method. In this context, financial literacy is positioned as an external variable that shapes

users' perceptions of the usefulness and ease of use of financial technologies. It serves as a crucial prerequisite for understanding the benefits, risks, and functions of digital financial services. Individuals with strong financial literacy are better equipped to assess the efficiency, security, and long-term value of QRIS, a system developed by Bank Indonesia to offer fast, easy, and integrated payments. They also recognize QRIS's potential to reduce reliance on cash, improve transaction tracking, and promote financial transparency. Furthermore, such users tend to favor cost-effective, efficient, and measurable payment systems that support personal or small business financial planning. These results are consistent with the findings of (April et al., 2025) and (Binsar Berlianta, 2023), but contradict (Hidayat & Pamungkas, 2022), (Prabhakaran & Mynavathi, 2023), and (Saraswati & Gani, 2024), who found a negative relationship between financial literacy and QRIS adoption.

The results indicate that perceived ease of use has a positive and significant effect on the intention to use QRIS, supporting Hypothesis H4. This means that the easier users perceive QRIS to be, the more likely they are to adopt it for daily transactions. In the Technology Acceptance Model (TAM), perceived ease of use is a core construct that directly influences behavioral intention. When users perceive a system as easy to operate, technical and psychological barriers are reduced, and the perceived usefulness of the system may also increase. QRIS was designed to simplify payments through a single QR code readable by various payment platforms. If users find QRIS easy to understand, activate, and integrate with commonly used apps (e.g., DANA, OVO, GoPay), they are more likely to use it regularly. Ease of use builds user confidence, especially among those less familiar with digital technologies, such as MSME actors in rural areas, the elderly, or first-time users. Features such as intuitive interface design, fast transactions, seamless top-ups, and easy bank integration further enhance this perception. Ultimately, perceived ease of use plays a crucial role in encouraging QRIS adoption and should be emphasized in educational programs, application design, and digital literacy campaigns aimed at promoting financial inclusion. These findings are consistent with (Wati, 2023) and (Saputri, 2022), but contrast with (Amamilah et al., 2024), (Susanti & Dwiana Putra, 2023), (Dwipayana.T.N, 2023), and (Hidayat & Pamungkas, 2022), who reported a negative influence of perceived ease of use on QRIS adoption.

The findings demonstrate that perceived ease of use strengthens the effect of digital security on the intention to use QRIS, supporting Hypothesis H5. When users perceive QRIS as easy to use, the influence of digital security perceptions becomes more significant in shaping their adoption intentions. According to the Technology Acceptance Model (TAM) and its extensions that integrate external variables such as perceived security and trust, perceived ease of use is a core construct that directly affects behavioral intention and indirectly influences perceived usefulness. In this framework, perceived security is considered an essential component of perceived usefulness, especially in financial technologies. While users may view a system as secure, they may still avoid using it if they find it difficult or confusing. This highlights the critical moderating role of perceived ease of use. For example, although QRIS is deemed secure by regulators like Bank Indonesia, users may hesitate to adopt it if they struggle with QR code scanning, app integration, or transaction processes. Conversely, if the system is perceived as user-friendly, the trust in its security is more likely to translate into adoption. Thus, perceived ease of use not only acts as an independent factor but also significantly reinforces the relationship between

digital security and usage intention. These findings align with (Saputri, 2022), (Susanti & Dwiana Putra, 2023), and (Damayanti et al., 2023), but contrast with (Wati, 2023), who found that perceived ease of use weakens the influence of digital security on QRIS adoption.

The study finds that perceived ease of use strengthens the effect of digital literacy on the intention to use QRIS, supporting Hypothesis H6. According to the Technology Acceptance Model (TAM), perceived usefulness and perceived ease of use are key predictors of technology adoption. In this model, perceived ease of use not only directly affects behavioral intention but also indirectly influences perceived usefulness. TAM is adaptable and allows for external variables, such as digital literacy, which serves as a prerequisite for users to evaluate and utilize technology effectively. However, high digital literacy alone does not guarantee adoption if the system is difficult to use. Thus, perceived ease of use is a relevant moderating variable in this relationship. Users with high digital literacy understand the concepts, functions, and risks of digital systems like QRIS, but this knowledge becomes actionable only when the system is user-friendly. If QRIS is complex, even digitally literate users may feel discouraged or hesitant to adopt it. Conversely, when the system is simple, intuitive, and efficient, such users are more likely to apply their knowledge confidently in daily use. This highlights that promoting adoption of financial technologies like QRIS requires not only improving digital literacy but also enhancing system usability. These findings align with (Ramaza, 2023) and (April et al., 2025), but differ from (Lonika, 2023), (Haryani et al., 2020)(Haryani et al., 2020), and (Maivalinda et al., 2023), who found that perceived ease of use weakens the effect of digital literacy on QRIS adoption.

The study finds that perceived ease of use weakens the effect of financial literacy on the intention to use QRIS, contradicting Hypothesis H7, which predicted a strengthening effect. When perceived ease of use is high, the influence of financial literacy on QRIS adoption becomes less significant. In the Technology Acceptance Model (TAM), perceived usefulness and perceived ease of use are the two core constructs that directly affect behavioral intention. Financial literacy, as an external variable, is assumed to influence one's perception of the benefits of financial technologies like QRIS. Individuals with high financial literacy are expected to better assess the efficiency, security, and benefits of using QRIS. However, within the extended TAM framework, these findings suggest that when a system is perceived as easy to use, the need for in-depth financial understanding diminishes. Practically, this implies that enhancing perceived ease of use may be more effective for increasing QRIS adoption than focusing solely on financial literacy. Nonetheless, long-term financial education remains essential to ensure that users not only operate digital systems but also understand the financial implications of their transactions. These findings are consistent with (Nim, 2024), (Pramesti & Graciafernandy, 2024), and (Muharni & S. S, 2022), but contradict (Hidayat & Pamungkas, 2022) and (Pramesti & Graciafernandy, 2024), who found that perceived ease of use strengthens the effect of financial literacy on QRIS adoption.

The negative impact of digital literacy on the intention to use QRIS is surprising, as higher digital literacy is typically associated with greater technology adoption. This result can be explained by the higher expectations of digitally literate users, who may find QRIS too basic compared to more advanced e-wallet platforms. As a result, they may perceive QRIS as lacking in functionality, leading to lower adoption.

This negative relationship is further influenced by more impactful factors, such as financial literacy and digital security. While digital literacy helps users navigate digital platforms, financial literacy plays a stronger role in assessing QRIS's financial benefits, and digital security increases trust in the system. Thus, the influence of digital literacy is overshadowed by the greater value users place on financial security and benefits, suggesting that enhancing QRIS's security features and financial advantages may drive adoption more effectively than increasing digital literacy alone.

V. CONCLUSIONS

This study aims to examine and analyze the influence of digital security, digital literacy, financial literacy, and perceived ease of use on the intention to use QRIS among active digital payment users. Based on data processing and structural model analysis, it can be concluded that digital security and financial literacy have a positive and significant effect on the intention to use QRIS. This suggests that the higher the perceived level of digital security and the better one's ability to manage personal finances, the greater the likelihood of adopting QRIS. Perceived ease of use also shows a positive and significant effect, indicating that the simplicity and efficiency of the system are attractive to users. Conversely, digital literacy demonstrates a negative and insignificant influence on the intention to use QRIS. This finding suggests that understanding digital information alone is insufficient to boost adoption without trust and direct positive experience in using the system.

This study has several limitations that should be noted. First, the sample size of 200 respondents represents only a small portion of the national population of QRIS users, thus limiting the generalizability of the findings. Second, the quantitative approach employed in this research cannot capture qualitative aspects such as user experiences, personal motivations, or socio-cultural factors that may influence QRIS usage. Third, the cross-sectional design used in the study does not allow for the observation of behavioral changes over time or the long-term impact of QRIS adoption.

Based on these findings, it is recommended that QRIS developers and related management teams enhance financial and digital literacy education, improve user interface design, and strengthen system security features. Government bodies and financial institutions should also take a more active role in providing outreach and training to increase public trust and comfort in using QRIS. Future research should consider adopting a mixed-methods approach to gain deeper insights into user behavior. In addition, studies can be expanded geographically and conducted longitudinally to analyze trends in QRIS usage over time.

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