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The Influence of Fintech Literacy and Technology Acceptance on the Intention and Usage Behavior of QRIS in Daily Transactions

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Abstract

The rapid growth of digital payment systems has transformed financial transactions worldwide, with the Quick Response Code Indonesian Standard (QRIS) emerging as a key instrument in Indonesia's transition toward a cashless society. Despite its widespread adoption, disparities in financial technology understanding may influence individuals' willingness to use QRIS. This study investigates the factors influencing QRIS adoption by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) through the inclusion of fintech literacy as an additional construct. Specifically, the study examines the effects of performance expectancy, effort expectancy, social influence, facilitating conditions, and fintech literacy on behavioral intention, as well as the effect of behavioral intention on actual QRIS usage behavior. A quantitative explanatory research design was employed using survey data collected from 138 active QRIS users. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The results reveal that social influence and fintech literacy have significant positive effects on behavioral intention to use QRIS, while behavioral intention significantly influences actual usage behavior. In contrast, performance expectancy, effort expectancy, and facilitating conditions do not significantly affect behavioral intention. These findings suggest that QRIS adoption is increasingly shaped by social dynamics and users' capabilities to understand and utilize digital financial services rather than by technological considerations alone. The study contributes to the technology adoption literature by demonstrating the importance of integrating fintech literacy into the UTAUT framework in the context of digital payment systems. Furthermore, the findings provide practical insights for policymakers, financial institutions, and fintech providers seeking to enhance digital payment adoption through targeted financial literacy programs and community-based engagement strategies.

Introduction

The rapid advancement of digital technology has fundamentally transformed economic activities worldwide, particularly within the financial sector where digital payment systems increasingly replace conventional cash-based transactions. The development of financial technology (fintech) has accelerated the digitalization of payment services by offering faster, more efficient, and more accessible transaction mechanisms for consumers and businesses (AlSuwaidi & Mertzanis, 2024; Costa et al., 2024). In developing economies, digital payment systems are increasingly recognized as strategic instruments for strengthening financial inclusion, enhancing transaction efficiency, and supporting economic modernization (Fomba et al., 2023). Indonesia has emerged as one of the most dynamic digital economies in Southeast Asia, with rapid growth in electronic payment adoption driven by technological innovation, smartphone penetration, and supportive government policies (Gunawan et al., 2023; Bank Indonesia, 2025).

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One of the most significant innovations within Indonesia's digital payment ecosystem is the Quick Response Code Indonesian Standard (QRIS), a national QR code standard developed by Bank Indonesia to integrate various electronic payment platforms into a single interoperable system (Bank Indonesia, 2025). QRIS was introduced to address the fragmentation of digital payment services that previously required merchants to display multiple QR codes from different payment providers. Through QRIS, consumers can make transactions using various banking and electronic wallet applications through a single standardized QR code, thereby simplifying transaction processes and expanding interoperability across payment systems (Waliyuddin, 2023; Prawitasari, 2024). The implementation of QRIS has become a strategic component of Indonesia's digital transformation agenda because it enables broader participation in formal financial systems while reducing transaction barriers for businesses and consumers (Suseno, 2025; Nada et al., 2021).

The importance of QRIS has become increasingly evident following the COVID-19 pandemic, which accelerated the adoption of contactless payment technologies worldwide. Concerns regarding physical interactions encouraged consumers and businesses to shift toward digital payment alternatives that offer convenience and health-related safety advantages (Gunawan et al., 2023; Ahmed, 2024). In Indonesia, QRIS transactions have experienced remarkable growth, reflecting increasing public acceptance of cashless payment systems. The rapid expansion of QRIS usage among consumers, merchants, and micro, small, and medium enterprises (MSMEs) demonstrates the growing integration of digital financial services into everyday economic activities (Ikwanto, 2024; Alfinsyah & Murtani, 2025). The growing adoption of QRIS has also contributed to broader efforts aimed at strengthening financial inclusion and supporting the development of a cashless society (Sartini et al., 2022; Suseno, 2025).

Despite the rapid growth of QRIS adoption, technological availability alone does not guarantee effective and sustainable utilization. The success of digital financial innovations depends not only on infrastructure availability but also on users' ability to understand, evaluate, and utilize technological services appropriately (Yuliawati et al., 2023; AlSuwaidi & Mertzanis, 2024). As digital financial ecosystems become increasingly sophisticated, users are expected to possess sufficient knowledge regarding digital transactions, financial decision-making, cybersecurity risks, and technological functionality (Azizi et al., 2024; Utami, 2025). Consequently, disparities in financial capability and digital competence may limit the effectiveness of digital financial inclusion initiatives, particularly among populations with lower educational attainment and limited technological exposure (OJK & BPS, 2025; Fomba et al., 2023).

Financial literacy has long been recognized as a critical determinant of financial behavior and economic well-being. However, within contemporary digital environments, traditional financial literacy alone is insufficient because individuals increasingly interact with technologically mediated financial products and services (AlSuwaidi & Mertzanis, 2024; Wang et al., 2022). This development has led to growing attention toward fintech literacy, which refers to individuals' knowledge, skills, and competencies related to the understanding and utilization of digital financial technologies (Yuliawati et al., 2023; Permatasari & Tandiayuk, 2023). Fintech literacy encompasses awareness of digital payment systems, electronic wallets, mobile banking applications, security mechanisms, risk management practices, and the evaluation of financial technology products (Utami, 2025; Shu, 2022). Individuals possessing higher levels of fintech literacy are generally more capable of making informed financial decisions and adapting to technological innovations within the digital economy (Costa et al., 2024; Fomba et al., 2023).

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The relevance of fintech literacy is particularly significant in Indonesia, where the expansion of digital financial services has outpaced the development of financial capability among some population groups. Findings from the National Survey of Financial Literacy and Inclusion indicate that although access to financial services continues to increase, substantial gaps remain between financial inclusion and financial literacy levels (OJK & BPS, 2025). These disparities are especially evident among individuals with lower educational backgrounds, rural populations, and workers within informal economic sectors (Harahap & Mahardhani, 2025; Nada et al., 2021). Such conditions create vulnerabilities associated with fraud, cybersecurity threats, misuse of financial products, and low confidence in digital financial services (Yuliawati et al., 2023; AlSuwaidi & Mertzanis, 2024). Therefore, fintech literacy may represent a crucial capability-based factor influencing both the intention to adopt and the actual use of QRIS within diverse socioeconomic contexts.

Previous studies examining digital payment adoption have frequently employed technology acceptance perspectives to explain user behavior. Research consistently demonstrates that perceived usefulness, perceived ease of use, social influence, and facilitating conditions significantly influence individuals' willingness to adopt digital technologies (Venkatesh et al., 2003; Purwanto et al., 2023; Gunawan et al., 2023). In the context of QRIS, users are more likely to adopt the system when they perceive that it enhances transaction efficiency, reduces operational complexity, and provides practical benefits for daily activities (Nasih et al., 2024; Bangsa & Khumaeroh, 2023). Similarly, facilitating conditions such as internet access, smartphone availability, and institutional support contribute positively to digital payment adoption by reducing barriers associated with technology usage (Ramayanti et al., 2025; Bukama et al., 2024).

Nevertheless, emerging evidence suggests that traditional technology acceptance factors may no longer fully explain adoption behavior within increasingly mature digital environments. As digital payment systems become more common and technologically accessible, factors such as usefulness and ease of use gradually evolve into baseline expectations rather than primary determinants of adoption decisions (Arwanto et al., 2025; Wang et al., 2022). Under such circumstances, user capability factors become increasingly important because individuals must possess sufficient literacy and confidence to navigate complex digital financial ecosystems (Shu, 2022; Elrayah, 2022). Consequently, fintech literacy may function as a critical mechanism that strengthens users' ability to evaluate technological benefits, manage perceived risks, and engage confidently with digital financial services (Permatasari & Tandiayuk, 2023; Costa et al., 2024).

The role of social influence also remains highly relevant in understanding QRIS adoption behavior. Individuals frequently develop attitudes toward technological innovations through interactions with family members, peers, colleagues, and broader social networks (Liu & Watson, 2023; Ufuophu-Biri & Ayewumi, 2022). Social environments contribute to the diffusion of technological knowledge, encourage experimentation with digital services, and shape perceptions regarding trust and legitimacy (Hermawan et al., 2024; Hanum & Hermawan, 2024). Within collectivist societies such as Indonesia, social influence may play a particularly important role in encouraging the acceptance of digital financial technologies because adoption decisions are often embedded within social and community relationships (Rachmad et al., 2023; Töre & Uzun, 2024).

Indonesia provides a particularly relevant setting for investigating these relationships because of its large population, diverse socioeconomic characteristics, and rapidly expanding digital payment ecosystem. While previous studies have primarily focused on technological determinants of QRIS adoption, relatively limited attention has been devoted to understanding

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the role of fintech literacy as a capability-based factor influencing both behavioral intention and actual usage behavior (Gunawan et al., 2023; Purwanto et al., 2023; Sastra & Asyari, 2024). Existing research has largely emphasized perceived usefulness, perceived ease of use, trust, and technological readiness, while neglecting users' financial and technological competencies that may shape their ability to utilize digital payment services effectively (Utami, 2025; Yuliawati et al., 2023).

Therefore, this study examines the influence of performance expectancy, effort expectancy, social influence, facilitating conditions, and fintech literacy on QRIS adoption behavior. By integrating technology acceptance perspectives with capability-based approaches, this study seeks to provide a more comprehensive understanding of digital payment adoption within contemporary financial ecosystems. The findings are expected to contribute both theoretically and practically by expanding fintech adoption literature and providing evidence-based insights for policymakers, financial institutions, fintech providers, and regulators seeking to strengthen digital financial inclusion through not only technological expansion but also the enhancement of fintech literacy and digital capability development among Indonesian society.

Method

Research Design

This study employed a quantitative explanatory research design to investigate the factors influencing the intention and actual usage behavior of Quick Response Code Indonesian Standard (QRIS) in daily transactions. The quantitative approach was selected because the study aimed to empirically examine causal relationships among multiple latent variables and to test theoretically derived hypotheses using statistical procedures. Specifically, the study examined the influence of Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), and Fintech Literacy (FL) on Behavioral Intention (BI), which subsequently affects Use Behavior (UB). The conceptual model was developed by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003) through the inclusion of fintech literacy as an additional construct. This extension was considered appropriate because the adoption of digital financial technologies is increasingly influenced not only by technological perceptions but also by users' capability to understand and utilize financial technology effectively. The explanatory design was deemed suitable because it enables the identification and evaluation of direct relationships among variables and provides empirical evidence regarding the determinants of QRIS adoption behavior.

Research Context, Population, and Sample

The study was conducted within the context of Indonesia's rapidly expanding digital payment ecosystem, where QRIS has emerged as one of the most widely adopted cashless payment methods. The target population consisted of individuals who had previously used QRIS for payment transactions and possessed sufficient experience with digital payment services. Since no comprehensive sampling frame of QRIS users was available, a non-probability sampling approach was employed. Specifically, convenience sampling was adopted to facilitate access to respondents who met the study criteria and were willing to participate in the survey. This sampling technique is widely used in technology adoption research, particularly when the population is large, geographically dispersed, and difficult to identify comprehensively.

The minimum sample size was determined using G*Power statistical software to ensure adequate statistical power for structural model estimation. Following recommendations for PLS-SEM analysis, the calculation considered the anticipated effect size, significance level of 0.05, and statistical power of 0.80. The analysis indicated that a minimum of 138 respondents

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was required to achieve sufficient statistical robustness. To improve the reliability and generalizability of the findings, data collection continued until a larger number of valid responses was obtained. Respondents represented various demographic backgrounds, including differences in age, gender, educational attainment, occupation, and frequency of QRIS usage, thereby providing a diverse representation of QRIS users in Indonesia.

Data Collection Procedure

Primary data were collected through a structured online questionnaire distributed using various digital platforms, including social media networks, messaging applications, and online communities. The use of an online survey was considered appropriate because the target respondents were users of digital payment technologies who are generally familiar with internet-based communication platforms. Prior to distribution, the questionnaire was reviewed to ensure clarity, readability, and relevance of the measurement items.

The questionnaire consisted of two major sections. The first section collected respondents' demographic information, including gender, age, educational level, occupation, and experience using QRIS. The second section measured the study constructs using multiple indicators adapted from previously validated instruments in the technology acceptance and financial technology literature. All items were measured using a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The use of an even-numbered scale was intended to minimize neutral responses and encourage respondents to express more definitive opinions regarding each statement. Furthermore, all participants were informed about the academic purpose of the study, and participation was entirely voluntary and anonymous to ensure ethical compliance and reduce response bias.

Measurement of Variables

The measurement model comprised seven latent constructs: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Fintech Literacy, Behavioral Intention, and Use Behavior. Performance Expectancy was measured through indicators reflecting respondents' perceptions regarding the usefulness and benefits of QRIS in improving transaction efficiency and effectiveness. Effort Expectancy assessed the degree to which QRIS was perceived as easy to learn and operate. Social Influence captured the extent to which important individuals or social groups encouraged respondents to use QRIS. Facilitating Conditions evaluated respondents' perceptions of the availability of technological resources, infrastructure, and support necessary for QRIS usage.

Fintech Literacy was measured through indicators assessing respondents' knowledge, understanding, and ability to utilize digital financial services safely and effectively. Behavioral Intention represented the individual's willingness and future plans to continue using QRIS, while Use Behavior measured the frequency and consistency of actual QRIS utilization in daily transactions. All measurement items were adapted from established studies and modified to fit the QRIS context. The adaptation process was conducted carefully to maintain conceptual equivalence while ensuring contextual relevance to Indonesia's digital payment environment.

Data Analysis Technique

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 4 software. PLS-SEM was selected because it is particularly suitable for predictive research, complex causal models, and studies involving latent variables measured through multiple indicators. In addition, PLS-SEM is robust when analyzing models that incorporate newly developed constructs and does not impose strict assumptions regarding data normality.

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The analytical procedure consisted of two sequential stages: measurement model evaluation (outer model) and structural model evaluation (inner model). The measurement model assessment was conducted to examine the validity and reliability of the research instruments. Subsequently, the structural model assessment evaluated the hypothesized relationships among latent variables and determined the predictive capability of the proposed model. The significance of structural relationships was tested using a bootstrapping procedure with 5,000 resamples, which generated standard errors, t-statistics, and p-values for hypothesis testing. This approach enabled a comprehensive evaluation of both measurement quality and theoretical relationships within the proposed framework.

Assessment of Validity and Reliability

Several statistical criteria were applied to ensure the validity and reliability of the measurement instruments. Convergent validity was assessed using indicator loadings and Average Variance Extracted (AVE). Following the recommendations of Hair et al. (2021), indicator loadings exceeding 0.70 were considered ideal, while AVE values above 0.50 indicated that constructs explained more than half of the variance of their respective indicators. Composite Reliability (CR) and Cronbach's Alpha were employed to assess internal consistency reliability, with values above 0.70 indicating satisfactory reliability.

Discriminant validity was evaluated using multiple approaches to ensure that each construct measured a unique concept. First, the Fornell–Larcker criterion was applied by comparing the square root of AVE for each construct with its correlations with other constructs. Second, cross-loading analysis was conducted to verify that each indicator loaded more strongly on its intended construct than on any other construct. In addition, the Heterotrait–Monotrait Ratio (HTMT) was examined, with values below 0.90 indicating adequate discriminant validity. Together, these procedures ensured that the measurement model possessed acceptable psychometric properties and was suitable for subsequent structural model analysis.

Structural Model Evaluation

After establishing the adequacy of the measurement model, the structural model was evaluated to examine the proposed relationships among variables. The evaluation included an assessment of multicollinearity using the Variance Inflation Factor (VIF), where values below 5 indicated the absence of problematic collinearity among predictor constructs. The explanatory power of the model was assessed using the coefficient of determination (R^2), which measures the proportion of variance explained in the endogenous constructs.

Furthermore, effect size (f^2) was examined to determine the relative contribution of each exogenous variable to the endogenous variables. Predictive relevance was assessed using Stone–Geisser's Q^2 obtained through the blindfolding procedure, where values greater than zero indicated predictive capability. Finally, hypothesis testing was conducted by examining path coefficients, t-statistics, and p-values generated through bootstrapping. Relationships were considered statistically significant when the t-statistic exceeded 1.96 and the p-value was less than 0.05. These procedures enabled a comprehensive assessment of the explanatory and predictive performance of the proposed research model.

Result and Discussion

Measurement Model Assessment (Outer Model)

Convergent Validity

Convergent validity was evaluated using outer loading values and Average Variance Extracted (AVE). Outer loading assesses the extent to which each indicator reflects its corresponding latent construct, whereas AVE measures the amount of variance captured by a construct

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relative to measurement error. Following Hair et al. (2017), indicators with loading values above 0.70 are considered highly satisfactory, while indicators with values between 0.50 and 0.70 may be retained if the AVE exceeds 0.50.

Table 1. Outer Loadings and Average Variance Extracted (AVE)

Construct	Indicator	Outer Loading	AVE
Performance Expectancy (PE)	X1.1	0.769	0.602
	X1.2	0.654	
	X1.3	0.849	
	X1.4	0.818	
Effort Expectancy (EE)	X2.1	0.783	0.582
	X2.2	0.729	
	X2.3	0.802	
	X2.4	0.734	
Social Influence (SI)	X3.1	0.685	0.614
	X3.2	0.840	
	X3.3	0.820	
	X3.4	0.780	
Facilitating Conditions (FC)	X4.1	0.679	0.505
	X4.2	0.751	
	X4.3	0.700	
Fintech Literacy (FL)	X5.1	0.731	0.530
	X5.2	0.750	
	X5.3	0.577	
	X5.4	0.831	
Behavioral Intention (BI)	BI1	0.915	0.813
	BI2	0.928	
	BI3	0.861	
Use Behavior (UB)	UB1	0.775	0.647
	UB2	0.912	
	UB3	0.713	

The results presented in Table 1 indicate that most indicators exhibit outer loading values above the recommended threshold of 0.70, demonstrating strong associations between the indicators and their respective latent constructs. Although several indicators, namely X1.2, X3.1, X4.1, and X5.3, display loading values between 0.50 and 0.70, these values remain acceptable within the PLS-SEM framework because all constructs achieve AVE values exceeding the recommended threshold of 0.50. The AVE values range from 0.505 to 0.813, indicating that each construct explains more than 50% of the variance in its indicators. Behavioral Intention exhibits the highest AVE value (0.813), suggesting excellent indicator convergence, whereas Facilitating Conditions records the lowest AVE value (0.505), reflecting greater heterogeneity in respondents' perceptions. Overall, the findings confirm that the indicators adequately represent their underlying constructs and that the measurement model demonstrates satisfactory convergent validity.

Table 2. Fornell–Larcker Criterion

Construct	PE	EE	SI	FC	FL	BI	UB
PE	**0.776**						
EE	0.670	**0.763**					
SI	0.119	0.182	**0.783**				

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FC	0.406	0.527	0.264	**0.711**			
FL	0.467	0.614	0.268	0.555	**0.728**		
BI	0.286	0.333	0.406	0.350	0.425	**0.902**	
UB	0.385	0.441	0.262	0.296	0.383	0.465	**0.805**

Note: Diagonal values represent the square root of AVE.

The Fornell–Larcker results indicate that the square root of AVE for each construct exceeds its correlations with all other constructs. This finding demonstrates that each construct shares more variance with its own indicators than with indicators associated with different constructs. Consequently, the constructs included in the study are conceptually and empirically distinct, reducing the possibility of construct redundancy and strengthening the validity of the measurement model.

Table 3. Heterotrait Monotrait Ratio (HTMT)

Construct	**PE**	**EE**	**SI**	**FC**	**FL**	**BI**	**UB**
PE	-						
EE	0.868	-					
SI	0.157	0.253	-				
FC	0.652	0.866	0.428	-			
FL	0.611	0.831	0.337	0.879	-		
BI	0.331	0.387	0.477	0.518	0.431	-	
UB	0.474	0.582	0.344	0.526	0.528	0.544	-

The HTMT analysis further confirms discriminant validity, as all HTMT values remain below the recommended threshold of 0.90. The highest HTMT value is observed between Facilitating Conditions and Fintech Literacy (0.879), yet it remains within the acceptable range. These findings suggest that although some constructs are moderately related, they continue to represent distinct theoretical dimensions. Taken together, the Fornell–Larcker and HTMT results provide strong evidence that the measurement model possesses satisfactory discriminant validity.

Table 4. Cross Loadings

	X1.	**X2.**	**X3.**	**X4.**	**X5.**	**X6.1/Y1.**	**Y2.**
X1.1	0.769	0.635	0.131	0.348	0.446	0.200	0.419
X1.2	0.654	0.419	0.049	0.259	0.302	0.139	0.103
X1.3	0.849	0.535	0.091	0.332	0.368	0.271	0.277
X1.4	0.818	0.498	0.093	0.322	0.344	0.246	0.352
X2.1	0.489	0.783	0.145	0.435	0.431	0.290	0.369
X2.2	0.497	0.729	0.231	0.491	0.474	0.191	0.395
X2.3	0.547	0.802	0.137	0.336	0.525	0.306	0.314
X2.4	0.521	0.734	0.044	0.386	0.448	0.189	0.278
X3.1	0.018	0.002	0.685	0.113	0.163	0.234	0.152
X3.2	0.031	0.047	0.840	0.148	0.202	0.369	0.166
X3.3	0.150	0.249	0.820	0.280	0.278	0.342	0.288
X3.4	0.167	0.250	0.780	0.275	0.187	0.307	0.208
X4.1	0.340	0.383	0.115	0.679	0.256	0.228	0.209
X4.2	0.445	0.527	0.158	0.751	0.604	0.252	0.325

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X4.3	0.096	0.222	0.279	0.700	0.313	0.264	0.101
X5.1	0.308	0.525	0.113	0.440	0.731	0.309	0.329
X5.2	0.489	0.543	0.244	0.416	0.750	0.222	0.294
X5.3	0.220	0.379	0.152	0.323	0.577	0.072	0.221
X5.4	0.349	0.410	0.260	0.435	0.831	0.433	0.280
X6.1/Y1.1	0.253	0.304	0.354	0.277	0.345	0.915	0.422
X6.1/Y1.2	0.249	0.294	0.352	0.331	0.379	0.928	0.433
X6.1/Y1.3	0.270	0.302	0.391	0.336	0.422	0.861	0.403
Y2.1	0.259	0.289	0.175	0.183	0.258	0.306	0.775
Y2.2	0.385	0.420	0.235	0.248	0.330	0.496	0.912
Y2.3	0.256	0.344	0.227	0.307	0.355	0.259	0.713

The cross-loading analysis was conducted to further evaluate indicator specificity. The results indicate that each indicator loads more strongly on its assigned construct than on any other construct. For instance, indicator X1.3 exhibits its highest loading on Performance Expectancy (0.849), while indicator X3.2 records its highest loading on Social Influence (0.840). Similar patterns are observed across all indicators. These findings demonstrate that the indicators are appropriately associated with their intended constructs and do not exhibit substantial cross-construct contamination. Consequently, the measurement model demonstrates strong indicator discrimination and supports the validity of the proposed construct structure.

Table 5. Reliability Assessment

Construct	Cronbach's Alpha	Composite Reliability
Performance Expectancy	0.782	0.857
Effort Expectancy	0.766	0.847
Social Influence	0.790	0.863
Facilitating Conditions	0.510	0.754
Fintech Literacy	0.732	0.816
Behavioral Intention	0.885	0.929
Use Behavior	0.733	0.845

The reliability assessment demonstrates that all constructs achieve Composite Reliability values above the recommended threshold of 0.70, indicating satisfactory internal consistency. Most constructs also report Cronbach's Alpha values above 0.70. Although Facilitating Conditions records a Cronbach's Alpha value of 0.510, its Composite Reliability value of 0.754 remains above the acceptable threshold. Given that Composite Reliability is considered a more robust reliability indicator in PLS-SEM, the construct remains suitable for analysis. Overall, these findings indicate that the measurement instrument generates reliable and consistent responses across all constructs.

Table 6. Variance Inflation Factor (VIF)

Indicator	VIF
X1.1	1.565
X1.2	1.365
X1.3	1.736
X1.4	1.640
X2.1	1.429
X2.2	1.494
X2.3	1.469

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X2.4	1.519
X3.1	1.567
X3.2	1.930
X3.3	1.878
X3.4	1.740
X4.1	1.137
X4.2	1.182
X4.3	1.084
X5.1	1.372
X5.2	1.568
X5.3	1.369
X5.4	1.393
BI1	3.515
BI2	3.755
BI3	1.902
UB1	1.472
UB2	1.710
UB3	1.366

The VIF values range from 1.084 to 3.755, all of which remain well below the critical threshold of 5.00. This finding indicates that multicollinearity is not a concern within the research model. Each construct contributes unique explanatory information, and the estimated structural relationships are unlikely to be distorted by excessive correlations among predictor variables. Therefore, the model satisfies the assumptions required for structural model evaluation.

Table 7. Coefficient of Determination (R^2)

Endogenous Variable	R^2	Adjusted R^2
Behavioral Intention (BI)	0.289	0.271
Use Behavior (UB)	0.217	0.213

The coefficient of determination analysis reveals that Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Fintech Literacy collectively explain 28.9% of the variance in Behavioral Intention. Furthermore, Behavioral Intention explains 21.7% of the variance in Use Behavior. Although these values are categorized as relatively weak according to conventional PLS-SEM benchmarks, they remain meaningful in behavioral studies, where human decision-making is often influenced by numerous contextual, psychological, and environmental factors. The findings imply that additional variables beyond those included in the present model may contribute to QRIS adoption behavior.

Table 8. Path Coefficients

Relationship	Path Coefficient (β)
PE → BI	0.083
EE → BI	0.030
SI → BI	0.304
FC → BI	0.089
FL → BI	0.238
BI → UB	0.465

The path coefficient results indicate positive relationships across all proposed paths. Social Influence exhibits the strongest effect on Behavioral Intention (β = 0.304), followed by Fintech Literacy (β = 0.238). In contrast, Performance Expectancy, Effort Expectancy, and Facilitating

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Conditions demonstrate relatively weak relationships with Behavioral Intention. Behavioral Intention shows a substantial positive relationship with Use Behavior (β = 0.465), suggesting that stronger intentions to use QRIS are associated with more frequent actual usage behavior.

Table 9. Effect Size (f^2)

Relationship	f^2	Interpretation
PE → BI	0.005	Negligible
EE → BI	0.001	Negligible
SI → BI	0.118	Small
FC → BI	0.007	Negligible
FL → BI	0.042	Small
BI → UB	0.276	Medium

The effect size analysis demonstrates that Social Influence and Fintech Literacy contribute meaningful explanatory power to Behavioral Intention, although their effects remain within the small category. Conversely, Performance Expectancy, Effort Expectancy, and Facilitating Conditions exhibit negligible effect sizes, indicating limited practical influence on users' intentions to adopt QRIS. Behavioral Intention, however, exerts a moderate effect on Use Behavior, highlighting its pivotal role as the primary mechanism through which perceptions and knowledge are translated into actual usage behavior.

Table 10. Predictive Relevance (Q^2)

Endogenous Variable	Q^2
Behavioral Intention (BI)	0.220
Use Behavior (UB)	0.148

The Q^2 values for Behavioral Intention (0.220) and Use Behavior (0.148) are both greater than zero, indicating that the model possesses predictive relevance. These findings suggest that the proposed framework not only explains the observed relationships within the sample but also demonstrates an adequate ability to predict future observations. Consequently, the model can be considered useful for understanding and forecasting QRIS adoption behavior among users.

Table 11. Hypothesis Testing Results

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	PE → BI	0.083	0.948	0.343	Not Supported
H2	EE → BI	0.030	0.277	0.782	Not Supported
H3	SI → BI	0.304	4.352	0.000	Supported
H4	FC → BI	0.089	0.930	0.352	Not Supported
H5	FL → BI	0.238	2.620	0.009	Supported
H6	BI → UB	0.465	6.671	0.000	Supported

The hypothesis testing results reveal that Social Influence and Fintech Literacy significantly influence Behavioral Intention, while Behavioral Intention significantly influences Use Behavior. Specifically, Social Influence exerts the strongest significant effect on Behavioral Intention (β = 0.304, p0.0001), indicating that recommendations, encouragement, and social pressure from peers, family members, and the surrounding environment play a critical role in motivating QRIS adoption. Fintech Literacy also demonstrates a significant positive effect (β = 0.238, p = 0.009), suggesting that individuals with greater knowledge and understanding of digital financial services are more likely to develop favorable intentions toward QRIS usage. Moreover, Behavioral Intention significantly predicts Use Behavior (β = 0.465, p < 0.001),

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confirming the central proposition of the UTAUT model that intention serves as the primary determinant of actual technology use.

In contrast, Performance Expectancy, Effort Expectancy, and Facilitating Conditions do not significantly affect Behavioral Intention. These findings imply that QRIS users may already perceive the system as useful, easy to use, and adequately supported by existing infrastructure, thereby reducing the explanatory power of these factors in influencing adoption intentions. Overall, the results suggest that social influence and fintech literacy represent the most important drivers of QRIS adoption, whereas behavioral intention remains the key mechanism translating these factors into actual usage behavior.

Rethinking Digital Payment Adoption Through Social Influence and Fintech Literacy

The primary contribution of this study lies in demonstrating that the determinants of QRIS adoption in Indonesia are no longer adequately explained by conventional technology acceptance assumptions that place technological characteristics at the center of user decision-making. While contemporary digital payment studies continue to identify perceived usefulness, ease of use, and facilitating conditions as important drivers of behavioral intention (Al-Okaily et al., 2023; Nguyen, 2024), the present findings indicate that social influence and fintech literacy have become substantially more important in shaping users' intentions to adopt QRIS. This shift is theoretically significant because it suggests that QRIS has moved beyond the introductory phase of technological diffusion and entered a stage of broader societal normalization. Once a technology becomes widely available and technically familiar, adoption decisions become less dependent on technological evaluations and increasingly dependent on social legitimacy and users' capacity to navigate the digital financial ecosystem. Such a pattern reflects a transition from technology-centered adoption to socially embedded adoption, where acceptance is determined not merely by system characteristics but by the social and cognitive environment surrounding users.

The insignificant influence of performance expectancy deserves particular attention because it challenges one of the most robust propositions within the technology adoption literature. Studies have consistently reported perceived usefulness as one of the strongest predictors of digital technology adoption across various contexts (Chawla & Joshi, 2023; Khan et al., 2023). However, the present findings suggest that usefulness may cease to function as a differentiating factor once a technology reaches widespread acceptance. Most QRIS users already recognize its benefits, including transaction speed, convenience, and security. Consequently, perceived usefulness becomes a baseline expectation rather than a source of behavioral motivation. This phenomenon is consistent with recent findings suggesting that technological benefits exert their strongest influence during the early stages of adoption but gradually lose explanatory power as technologies become integrated into everyday practice (Talwar et al., 2023; Yang et al., 2021). From a management perspective, this implies that further QRIS expansion cannot rely solely on communicating functional benefits because such benefits are already taken for granted by many users. Instead, strategic efforts must focus on strengthening user engagement, trust, and ecosystem integration.

A similar interpretation can be applied to the insignificant role of effort expectancy. Contemporary digital payment studies continue to demonstrate that perceived ease of use influences user intentions, particularly during the initial stages of technology exposure (Al-Okaily et al., 2023; Chawla & Joshi, 2023). Yet the present findings indicate that ease of use no longer significantly explains QRIS adoption intentions. This outcome is not necessarily evidence that usability is unimportant; rather, it may indicate that usability barriers have largely been resolved. QRIS has been designed as a highly standardized payment mechanism that minimizes procedural complexity and promotes interoperability across payment platforms.

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When most users perceive a system as inherently simple, variation in ease-of-use perceptions diminishes, reducing its explanatory power. Similar findings have been reported in digital payment studies conducted by Singh et al. (2020), Sivathanu (2023), and Farah et al. (2022), where ease-of-use effects weakened as mobile payment technologies matured and became embedded in routine consumption practices. This observation suggests that managers and policymakers should avoid assuming that simplifying technological interfaces alone will substantially increase adoption. At advanced stages of digital payment development, behavioral barriers are more likely to originate from social and informational factors than from usability concerns.

Perhaps the most revealing finding concerns the insignificant effect of facilitating conditions. Recent digital adoption studies suggest that access to infrastructure, technical support, and organizational resources encourages technology utilization (Hassan et al., 2024; Farah et al., 2022). However, in the context of QRIS, facilitating conditions did not significantly influence behavioral intention. This finding reflects the remarkable progress achieved by Indonesia's digital payment ecosystem during the last several years. Smartphone penetration, internet accessibility, banking applications, and digital wallets have become increasingly widespread, reducing infrastructure-related constraints for many users. Consequently, facilitating conditions may have evolved from a competitive advantage into a basic requirement. In other words, infrastructure no longer differentiates users who intend to adopt QRIS from those who do not because access has become relatively commonplace. Similar patterns have been observed in recent studies examining digital payment adoption in emerging economies, where infrastructure variables lost significance once technological accessibility reached sufficient levels (Nguyen, 2024; Hassan et al., 2024). For policymakers, this finding suggests that future investments in digital payment expansion should not focus exclusively on technological infrastructure but should increasingly address behavioral and educational dimensions of financial inclusion.

In contrast, social influence emerged as the strongest determinant of behavioral intention. This result reinforces the argument that technology adoption in collectivist societies cannot be fully understood through individual-level utility assessments alone. Indonesia represents a social environment in which behavioral decisions are strongly shaped by interpersonal networks, community norms, and social expectations. Individuals often adopt new practices because these practices are endorsed by family members, colleagues, friends, or influential social groups. The significance of social influence found in this study aligns with recent research conducted by Raza et al. (2024), Aji et al. (2020), and Khan et al. (2023), which demonstrated that social endorsement substantially increases willingness to adopt digital financial technologies. More importantly, the current findings indicate that QRIS adoption has become a socially reinforced behavior rather than merely an economically rational choice. The managerial implication is profound. Efforts to increase QRIS utilization should move beyond conventional promotional campaigns emphasizing efficiency and instead leverage social mechanisms such as peer influence, community ambassadors, merchant advocacy, and social proof strategies. Adoption spreads more effectively when individuals observe trusted others successfully using the technology than when they simply receive information about its technical advantages.

The significance of fintech literacy introduces another critical dimension to understanding digital payment adoption. Unlike traditional financial literacy, fintech literacy encompasses the ability to understand digital financial products, evaluate associated risks, protect personal information, and make informed decisions within technology-mediated financial environments. The positive effect of fintech literacy confirms that technological adoption is fundamentally linked to knowledge-based capability. Users who possess greater understanding of digital financial systems are better equipped to recognize benefits, assess risks, and

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confidently engage with QRIS transactions. This finding is consistent with the work of Damayanti et al. (2024), Hassan et al. (2024), and Khan et al. (2023), all of whom argued that financial technology literacy represents a critical prerequisite for meaningful digital financial inclusion. The implication is that technological availability alone is insufficient. Without adequate literacy, users may remain hesitant, vulnerable to misinformation, or incapable of fully utilizing available financial technologies. Therefore, fintech literacy should not be viewed merely as an educational concern but as a strategic asset that directly influences the success of digital transformation initiatives.

The importance of fintech literacy also highlights a limitation in many contemporary digitalization policies. Governments and financial institutions often evaluate success through indicators such as transaction volume, number of users, or merchant participation. While these metrics are important, they may obscure significant disparities in users' capabilities to engage effectively with digital financial systems. The present findings suggest that sustainable digital financial inclusion requires more than expanding technological access. It requires cultivating users' competencies. Individuals who understand digital payment mechanisms are more likely to become active, confident, and resilient participants within the digital economy. Consequently, digital financial policy should increasingly incorporate literacy development as a central strategic pillar rather than treating it as a supplementary educational activity. Such an approach is especially important in emerging economies where disparities in education, income, and digital skills remain substantial (Damayanti et al., 2024; Hassan et al., 2024).

The strong relationship between behavioral intention and actual use behavior confirms one of the most enduring propositions within behavioral research. Consistent with recent digital payment adoption studies (Talwar et al., 2023; Nguyen, 2024; Chawla & Joshi, 2023), individuals who express stronger intentions are significantly more likely to translate those intentions into actual usage behavior. However, the present findings extend this understanding by demonstrating that behavioral intention functions as a critical mediating mechanism through which social influence and fintech literacy ultimately affect QRIS usage. This means that increasing transaction volume requires more than simply increasing access to QRIS infrastructure. Policymakers and managers must first cultivate the psychological willingness to use the technology. Without strengthening behavioral intention, even sophisticated technological systems may fail to generate sustained usage.

From a broader management perspective, the findings suggest that digital transformation initiatives should be understood as socio-cognitive processes rather than purely technological processes. Organizations frequently assume that technology adoption depends primarily on system quality, usability, and infrastructure readiness. While these factors remain important, the present study demonstrates that human factors increasingly determine adoption outcomes once technological maturity has been achieved. Successful digital transformation therefore requires simultaneous investment in social influence mechanisms, user education, knowledge dissemination, and capability development. Managers who focus exclusively on technological deployment may achieve implementation without achieving meaningful utilization. Sustainable digital transformation occurs when technology becomes embedded within users' social environments and supported by sufficient cognitive competence.

Taken together, the findings indicate that the future growth of QRIS and similar digital payment systems will depend less on technological refinement and more on the ability of institutions to strengthen social acceptance and fintech literacy. The significance of social influence and fintech literacy suggests that the next stage of digital payment development is fundamentally behavioral rather than technological. Consequently, Bank Indonesia, financial institutions, fintech providers, and policymakers should prioritize community-based literacy programs,

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digital financial education, peer-driven promotion strategies, and initiatives that enhance public confidence in digital financial systems. Such efforts are likely to produce greater long-term adoption effects than technological improvements alone because they address the underlying social and cognitive mechanisms that ultimately drive user behavior.

Conclusion

This study examined the determinants of QRIS adoption by extending the Unified Theory of Acceptance and Use of Technology (UTAUT) with fintech literacy as an additional construct. The findings reveal that social influence and fintech literacy are the primary factors shaping users' behavioral intentions toward QRIS, while behavioral intention significantly drives actual usage behavior. In contrast, performance expectancy, effort expectancy, and facilitating conditions do not exert significant effects on behavioral intention, suggesting that the functional benefits, ease of use, and supporting infrastructure of QRIS may have become baseline expectations among users rather than decisive adoption factors. These results indicate that QRIS adoption is increasingly influenced by social dynamics and users' capabilities to understand and utilize digital financial services rather than by technological considerations alone. The study contributes to the technology adoption literature by demonstrating the importance of integrating fintech literacy into the UTAUT framework, particularly within emerging digital financial ecosystems. From a managerial and policy perspective, the findings highlight the need for Bank Indonesia, financial institutions, and fintech providers to prioritize digital financial literacy initiatives and community-based engagement strategies to strengthen public confidence, encourage sustained adoption, and promote more inclusive digital financial participation.

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