Exploring How Compatible QRIS Adoption is in The Role of Trust, Security, and Compatibility

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Article Info	ABSTRACT
	This study examines the adoption of the Quick Response Code Indonesian Standard (QRIS) among micro, small, and medium enterprises (MSMEs) in Indonesia, focusing on the roles of trust, security, and compatibility. Utilizing a quantitative research approach, data were collected from 54 respondents of Universitas Muhammaddiyah Purwokerto Students, and analyzed using SmartPLS. The findings reveal that perceived security significantly influences compatibility, whereas trust exhibits a less pronounced impact. These results highlight the importance of robust security measures in fostering QRIS adoption, supported by theoretical frameworks such as the Technology Acceptance Model (TAM) and Transaction Cost Theory. Practical implications include prioritizing security enhancements and educational initiatives to improve digital literacy. The study contributes to understanding digital payment adoption dynamics and offers a foundation for optimizing QRIS implementation in emerging markets.

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1. INTRODUCTION

The digital payment landscape in Indonesia has undergone a significant transformation, with Quick Response Code Indonesian Standard (QRIS) playing a pivotal role in enhancing financial inclusion and accelerating economic activity. QRIS, a unified QR code system launched in 2019 by Bank Indonesia, has become a cornerstone of Indonesia's digital economy. Its adoption, particularly during the COVID-19 pandemic, demonstrated its utility in enabling cashless transactions and supporting economic continuity amidst mobility restrictions. This transition is more than a technological evolution it represents a cultural and economic shift. By 2023, QRIS usage expanded to over 45 million users, with a remarkable increase in transaction volumes and merchant participation,

92% of whom are micro, small, and medium enterprises (Post, 2023) This underscores QRIS's critical role in empowering MSMEs, facilitating cross- border transactions, and fostering macroeconomic stability.

Figure 1. QRIS Support the Expansion of Digital Financial Inclusion

(Source: Bank Central Indonesia presented conference in Yogyakarta August 2, 2024)

This figure shows that leveraging technology to enhance financial system to be more inclusive and equitable by application of QRIS payment. And we can see from the data above that value of transaction in QRIS Indonesia peaked almost Rp 2,131,761,598 trillion rupiah in 2023, by adding new 17.02 million users and the volume of 130% year over year, with Nominal year over year increase of 168%.

The adoption of QRIS is shaped by three key factors: trust, security, and compatibility. Trust ensures that users feel confident in the system's reliability and fairness, security guarantees the safeguarding of financial and personal data, and compatibility ensures seamless integration with existing digital ecosystems. These factors collectively influence behavioral intentions and drive QRIS's acceptance across diverse demographics. One notable addition is the global comparison, where QRIS is positioned as part of a broader global trend in digital payment systems while addressing unique regional challenges. Unlike platforms in more mature markets, QRIS is highlighted as focusing heavily on inclusivity, making it a model for emerging economies. This comparative perspective adds value by situating QRIS within a global framework and demonstrating its potential as a benchmark for similar systems in other countries. The relationship between trust and security in technology, as illustrated in the context of QRIS adoption in Indonesia, is deeply intertwined and foundational to the success of digital payment systems. Trust is a critical factor that ensures users feel confident in the reliability and fairness of the QRIS system. This trust is primarily built upon the assurance that financial and personal data will be safeguarded. The text highlights that security is vital for protecting sensitive user information, which directly influences user confidence. If security mechanisms are strong, users perceive the system as trustworthy and are more likely to adopt it.

Security measures ensure the system functions without breaches, fraud, or data theft, creating a reliable digital payment experience. In turn, this reliability fosters trust, encouraging more users and merchants to integrate QRIS into their daily operations. Trust and security collectively drive compatibility, meaning that users are more likely to use QRIS if they trust the system's safety and find its security features robust. The text mentions that these factors significantly influence the adoption of QRIS across diverse demographics. QRIS's emphasis on reducing barriers for MSMEs and

underserved communities demonstrates how trust in the system promotes inclusivity. Security ensures that even small and marginalized merchants feel safe entering the digital economy, which reinforces a broader sense of equity and reliability in the system. By enabling these groups to participate securely, QRIS creates a foundation for broader financial inclusion and economic growth.

The phenomenon explored in this study focuses on the compatibility of QRIS adoption within MSMEs in Indonesia, specifically examining how trust and security influence its integration into business operations. While prior studies (Gefen, 2003; Roca, 2009) emphasize the importance of trust in reducing perceived risks and fostering technology acceptance, recent findings suggest that perceived security plays a more significant role in determining compatibility. This study addresses this gap by investigating the dynamic relationship between trust, security, and compatibility, offering insights into optimizing QRIS adoption and enhancing digital payment penetration in emerging markets. This exploration contributes to understanding the adoption dynamics of QRIS and provides a foundation for practical strategies to promote financial inclusion, digital literacy, and MSME empowerment in Indonesia.

Furthermore, the second version emphasizes QRIS's role in promoting economic equity. It discusses how the system reduces barriers for MSMEs and integrates underserved communities into the formal financial system, thereby enhancing inclusivity and reducing economic disparities. Finally, it connects QRIS to Indonesia's broader goals by aligning its implementation with national strategies to boost financial literacy and digital readiness, presenting a future-oriented vision that positions QRIS as a driver of socio-economic transformation (Karimatul, 2024). Understanding and addressing these elements are crucial as Indonesia positions itself at the forefront of digital finance in Southeast Asia. By doing so, it not only boosts its domestic economy but also strengthens its role in the global digital marketplace. The exploration of behavioral intentions surrounding QRIS adoption provides valuable insights for policymakers and stakeholders aiming to optimize digital payment systems and harness their full potential.

The study titled "Integrated QR Payment System (QRIS): Cashless Payment Solution in Developing Country from Merchant Perspective" by (Fajar, 2022) explores the adoption of QRIS among micro, small, and medium-sized enterprises (MSMEs) in Indonesia. The research reveals that while QRIS demonstrates potential to boost digital payment penetration, factors such as infrastructure, trust, facilitating conditions, and relative advantages are pivotal for its adoption. Despite challenges like limited digital knowledge and infrastructure, the study finds MSMEs increasingly accepting QRIS due to its compatibility with business operations and the advantages it offers, such as convenience and enhanced transaction efficiency. This adoption is expected to contribute significantly to the cashless economy and economic growth in Indonesia and the ASEAN region (Rafferty, 2022).

Literature Review
Digital Payment Systems and Financial Inclusion
The role of digital payment systems in enhancing financial inclusion has been extensively studied. According to (Demirgüç, 2020), digital financial services play a crucial role in reducing poverty and inequality by providing underserved populations with access to financial resources. QRIS, as a unified payment system, aligns with these objectives by integrating micro, small, and medium enterprises (MSMEs) into the formal financial ecosystem.

Technology Acceptance Model (TAM) and Trust in Digital Payment Systems
The Technology Acceptance Model (TAM), introduced by (Davis, 1989), serves as a foundational framework for understanding the factors influencing technology adoption. Perceived usefulness and perceived ease of use are central constructs of TAM, both of which are influenced by external factors such as trust and security. This study builds on TAM to explore how these constructs impact QRIS compatibility. Trust is a critical

determinant in the adoption of financial technologies. (gefen, 2003) Emphasize that trust mitigates users, perceived risks and uncertainties, thus fostering technology acceptance. In the context of QRIS, trust in the system's reliability, transparency, and regulatory compliance plays a significant role in adoption decisions, though this study finds its impact on compatibility to be less significant compared to security.

Security as a Driver of Adoption and MSMEs and Digital Transformation

Perceived security is widely recognized as a pivotal factor in the adoption of digital payment systems (Roca, the importance of perceived trust, security and privacy in online trading systems, 2009), argue that users' confidence in a system's ability to protect sensitive data directly influences their willingness to adopt it. In emerging markets, where cyber security concerns are prevalent, robust security measures are imperative for gaining user trust and ensuring compatibility with existing systems. Micro, small, and medium enterprises (MSMEs) are vital to the economic growth of developing countries. Studies by (Agyapong, 2019), highlight the challenges faced by MSMEs in adopting digital payment systems, including limited digital literacy and infrastructure. QRIS addresses these challenges by offering a user-friendly platform tailored to the needs of MSMEs, thereby promoting digital transformation and economic resilience.

Diffusion of Innovations Theory and Policy Implications

(Rogers, 2003), Diffusion of Innovations Theory provides additional insights into QRIS adoption. The theory suggests that perceived relative advantage, compatibility, complexity, trial ability, and observability are key factors influencing technology adoption. This study's focus on trust and security ties into the broader framework of compatibility and relative advantage as outlined by Rogers. Government policies and regulations significantly impact the adoption of digital payment systems. Studies by (Venkatesh, 2016) demonstrate that supportive regulatory frameworks, including incentives for MSMEs and robust consumer protection laws, are crucial for fostering adoption. QRIS's success is partly attributed to Indonesia's proactive policies in promoting financial literacy and digital payments. By integrating these perspectives, this study situates QRIS within the broader context of digital payment adoption and offers a comprehensive understanding of the factors influencing its compatibility.

Hypotheses Development

Trust has a Positive and Significant Effect on The Compatibility to Adopt QRIS

The Technology Acceptance Model (TAM)

Trust is a cornerstone in the adoption of any financial technology, including QRIS, as it directly influences users' confidence in the system's reliability, transparency, and regulatory compliance. The Technology Acceptance Model (TAM), proposed by (Davis F., 1989) provides a theoretical foundation for understanding the role of trust. According to TAM, users are more likely to adopt a technology when they perceive it as useful and easy to use. Trust amplifies these perceptions by ensuring that users feel confident in the system's ability to secure transactions and meet their expectations. Similarly, the Diffusion of Innovations Theory (Rogers, 2003) underscores that trust enhances the perceived relative advantage and compatibility of QRIS, making it more likely for businesses to integrate it into their operations.

Empirical studies further highlight the importance of trust. (Ghosh, 2000) Found that trust in mobile payment platforms significantly influences their adoption, particularly in developing economies like those in Southeast Asia. Trust in QRIS ensures merchants believe in its capability to protect sensitive financial data, operate transparently, and comply with government regulations, all of which increase its compatibility with merchants' payment systems. Trust not only reduces uncertainty but also reinforces the perceived value of QRIS, making it a vital driver for adoption.

H1: Trust has a positive and significant effect on the Compatibility to adopt QRIS.

Perceived Security has a Positive and Significant Effect on The Compatibility to Adopt QRIS.

Transaction Cost Theory

Perceived security refers to users' confidence that a digital payment system can protect transaction data, ensure financial privacy, and prevent fraud. It is a critical determinant of technology adoption, as highlighted by the Transaction Cost Theory (Coase's, 1937). Enhanced security reduces transaction costs by minimizing the risks associated with fraud, data breaches, and system failures, thus making QRIS more attractive to merchants. Additionally, the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, User Acceptance of Information Technology, 2003) emphasizes the role of facilitating conditions—such as robust security measures—in fostering adoption. Perceived security ensures that users feel confident in the system's technical infrastructure, leading to increased compatibility with their existing operations.

Empirical evidence strongly supports this relationship. (Kumar, 2019) Observed that security perceptions are pivotal in driving digital wallet adoption in emerging economies, where concerns about data breaches and fraud are high. Similarly, (Zhong, 2022) demonstrated that secure digital payments play a significant role in fostering trust and financial inclusiveness. For merchants, the perception that QRIS provides robust encryption, fraud prevention mechanisms, and reliable authentication processes significantly enhances its compatibility, as they are more likely to adopt a system they perceive as secure and trustworthy.

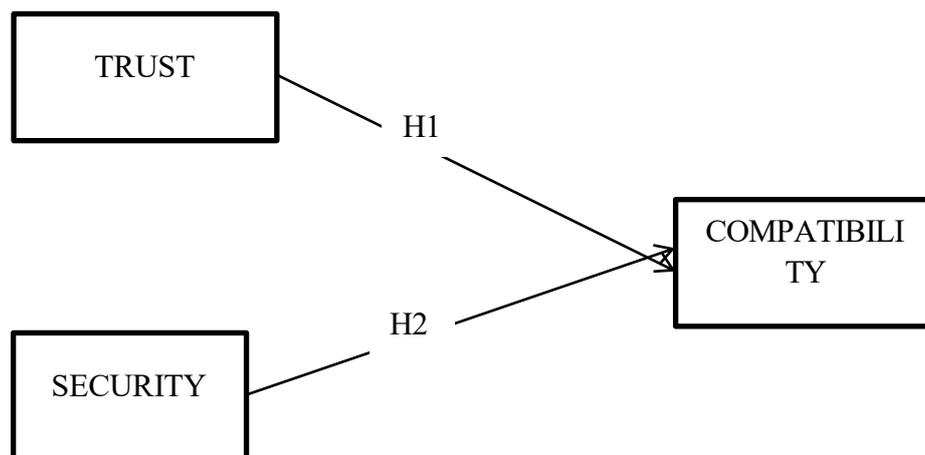H2: Perceived security has a positive and significant effect on the Compatibility to adopt QRIS.

Figure 2. Theoretical Framework

2. METHOD

This study employs a quantitative research design with a cross-sectional approach to examine the relationships between trust, perceived security (independent variables), and compatibility to adopt QRIS (dependent variable). Data will be collected from a purposive sample of at least 30 respondents, primarily students, micro, small, and medium enterprises (MSMEs) familiar with digital payment systems, using structured questionnaires with a 5-point Likert scale. The survey items, adapted from validated scales, measure trust (system reliability, transparency, and government backing), perceived security (transaction safety and data protection), and compatibility (willingness and likelihood of adoption). Statistical analysis will involve descriptive statistics for respondent demographics and PLS-SEM for hypothesis testing and structural relationship modeling, utilizing software like SmartPLS, and SPSS.

Sample Selection

The study uses a purposive sampling method targeting individuals familiar with digital payment systems, specifically students of Universitas Muhammadiyah Purwokerto and MSMEs. Data were collected from 54 respondents, as stated in the methodology section. The sample size exceeds the minimum threshold of 30 samples recommended for PLS-SEM analysis.

Table 1. Operational Definition and Variable Indicators

Variable	Item	Indicators	Refrence
Trust	**T1**	Accuracy	**Nor, K. M., and Pearson, J. M. (2008).** An exploratory study into the adoption of internet banking in a developing country: Malaysia. *Journal of Internet Commerce, 7*(1), 29-73. https://doi.org/10.1080/153328 6080 2004162. https://doi.org/10.1016/j.jretco nser. 2020.102304.
	T2	Confident	
	T3	Trustworthy	
	T4	Transactions	
	T5	Sufficient regulations and technical standards	
Security	**S1**	Monitoring during transactions.	
	S2	Sensitive information being misused, ,	**de Luna, I. R., Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2019).** Mobile payment is not all the same: The adoption of mobile payment systems depending on the technology applied. *Technological Forecasting and Social Change, 146*, 931-944. https://doi.org/10.1016/j.techf ore.20 18.09.018
	S3	Safe and comfortable	
	S4	Security policies and statements to protect its users.	
Compatibility	**C1**	Workflow.	**Oliveira, T., Thomas, M., & Espadanal, M. (2016).** Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management, 53*(5), 517-530. https://doi.org/10.1016/j.im.2 016.03 .002
	C2	Payment methods like cash or credit/debit cards.	
	C3	Business operations.	
	C4	Selling products or services.	

(Source: Research Data, 2024)

Variable Measurement

The study measured three key variables: Trust, Security, and Compatibility, using structured questionnaires. Responses were recorded on a 5-point Likert scale, where participants rated their agreement with various statements related to each construct.

Trust

Measured by items evaluating system reliability, transparency, and government backing. Example indicators: T1 to T5 ("The system is reliable for secure transactions"). Cronbach's Alpha: 0.877, Composite Reliability: 0.911 Average Variance Extracted (AVE): 0.672.

Security

Focused on transaction safety and data protection. Example indicators: S1 to S4 ("The system safeguards my financial data"). Cronbach's Alpha: 0.828, Composite Reliability: 0.880, AVE: 0.661.

Compatibility

Measured by participants' perceptions of QRIS's integration with their existing systems. Example indicators: C1 to C5 ("QRIS fits well with my current payment processes"). Cronbach's Alpha: 0.903, Composite Reliability: 0.927, AVE: 0.719. These measurements demonstrate strong internal consistency, as all reliability and validity metrics exceed recommended thresholds (Cronbach's Alpha > 0.70, AVE > 0.50). This ensures that the indicators are robust for assessing the respective constructs.

3. RESULTS AND DISCUSSION

Results

Based on the research the characteristics on respondents by gender 36.4% female 63.6% male respondents are as follows below by Google form collected data.
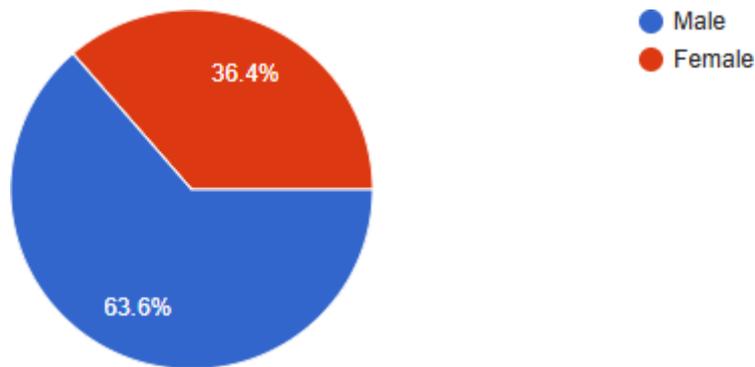

Figure 3. Distribution of Respondents by Gender

Based on the criteria sampling in the research 54 research objectives were obtained and fully analyzed. The descriptive table below shows analysis descriptive of variables employed in this research. The data in the table below found that the variables trust has minimum value of 10, maximum value of 25, and average value of 21.19. Security has minimum of 10, maximum of 20, and average of 16.41. While the last variable has minimum of 6, maximum of 30, and average of 22.59 in the table.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Trust	54	10	25	21.19	3.619
Security	54	10	20	16.41	2.865
Combatibiliy	54	6	30	22.59	5.138
Valid N (listwise)	54				

(Source: Research Data, 2024)

SmartPLS Analysis

PLS is a variant-based SEM method to solve problems that cannot be solved by covariance-based structural equation modeling (Ghozali L. a., 2012) .Lautan and Ghozali further stated that PLS: (1) does not require a strong theoretical basis and supports research that develops and tests theories; (2) does not require normally distributed data; and (3) requires a sample size of at least 10 samples per each path for complex models.

The first step in the evaluation of this research model with evaluating measurement models using Software SmartPLS version 3.3.9. Outer model is a test of indicators which form latent variables. The outer model test aims to know the level of validity and reliability of indicators measuring construct. Testing is carried out in two stages, namely the validity test and reliability test. Results of the test validity and reliability model the measurements are described as on according tables:

The t-statistics and p-value in smartPLS were obtained through bootstrapping with a 54 sample. This shows the outcome of the internal model of structure. This study suggests a beneficial outcome of that hypothesis 1 were accepted and second were rejected at a significance level of 0.1, where the t-value must be greater than 1.645 and the p-value less than 0.1 as descriptive data shows below table 2.

Table 3. Average Variable Values

Variables	Score
Trust	2,607
Security	4,886
Compatibility	5,861

(Source: Research Data, 2024)

Based the table 2 the average score of each variable implies highest that dictates on other hand that the usage trust of the individual person is lower than security which means people have more feelings of secure and compatible the application of QRIS. According to (Ghozali L. a., 2012) secure transaction is expected to increase the trust and compatibility of the system.

Table 4. Reliability and Validity Variables

Variables	Items	Loadings	Cronbach's Alpha α	Composite Reliability CR	Average Variance Extracted (AVE) AVE
Trust	T1	0.833	0,877	0,911	0,672
	T2	0.872			
	T3	0.852			
	T4	0.863			
	T5	0.819			
Security	S1	0.814	0,828	0,88	0,661
	S2	0.790			
	S3	0.876			
	S4	0.769			
Combatibility	C1	0.795	0,903	0,927	0,719
	C2	0.840			
	C3	0.855			
	C4	0.878			
	C5	0.728			

(Source: Research Data, 2024)

Based on the table 6, it can be seen the analysis that all indicators had values of factors loading is higher 0.5, cronbach Alpha, Composite reliability is also higher than 0.70 and AVE which is higher than 0.70 and conditions are met that means all indicators in each variable is valid for measuring.

Table 4. R Square

	R Square	R Square Adjusted
Combatibility	0,358	0,333

(Source: Research Data, 2024)

R square shows in table 10 the contrast of the dependent variable initiated by independent variable. R square Compatibility to the use of QRIS is 0.358 which in literally 36% variance in compatibility to the application of QRIS is affected by the variable security and the rest is affected by other external factors.

Table 5. f Square

	Combatibility	Security	Trust
Combatibility			
Security	0,226		
Trust	0,018		

(Source: Research Data, 2024)

The influence of the f square table 11 shows that 0.226 and 0.018 that the variable security is strong compared to the trust, and effect of independent variable security to dependent variable compatibility is greater than the independent variable of trust has to dependent variable of compatibility.

Table 6. Discriminant Validity

Fornell-Larcker Criterion

	Combatibility	Security	Trust
Combatibility	0,820		
Security	0,589	0,813	
Trust	0,462	0,643	0,848

(Source: Research Data, 2024)

Discrimination validity is related to the principle that different construction errors must not be correlated (Jogiyanto). Examining cross-loading is one way to assess discriminant validity using a reflective indicator. This value for each variable must be greater than 0.70. According to (Ghozali L. a.), the model has robust discriminant validity if the AVE for each construct is greater than the correlation between the construct and other constructs.

Table 7. Collinearity Statistics (VIF)

	VIF
C1	2,261
C2	2,356
C3	3,661

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C4	4,267
C5	2,127
S1	1,721
S2	1,904
S3	2,940
S4	2,227
T1	2,289
T2	2,739
T3	2,191
T4	2,992
T5	2,363

(Source: Research Data, 2024)

Table 8. Path Coefficients

	(O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Result
Security -> Combatibility	0,498	0,485	0,144	3,461	0,001	Supported
Trust -> Combatibility	0,142	0,167	0,165	0,858	0,391	Not Supported

(Source: Research Data, 2024)

Based on table 8 path coefficients describes contribution or influence between construct variables, done through bootstrapping procedures. The significance value is expressed in the statistical t-test value measured from the data original compared to the standard deviation in data processing Smartpls 3.3.9. The type of test used (two-tailed) with significance of P value less than 10% H2 is accepted and H1 is. Statistical t test results from Evaluation of the structural model through bootstrapping procedures such as shown in the Table 8.

Discussion

The findings of this research provide significant insights into the adoption of the Quick Response Code Indonesian Standard (QRIS) within the framework of trust, security, and compatibility, particularly among micro, small, and medium enterprises (MSMEs). The results are indicative of the interplay between these variables, with security demonstrating a stronger influence on compatibility than trust. These findings align with theoretical frameworks such as the Technology Acceptance Model (TAM) and Transaction Cost Theory, as well as empirical studies on digital payment adoption. Trust is a critical factor in the adoption of mobile payment systems, indicating that QRIS must focus on building user trust through transparency and reliability to enhance its adoption among MSMEs (Alharbi, 2021). Nevertheless many student feel reluctant about QRIS trust , rather knowing it is safe does not complete the trust is integral part in it. According to (Kauffman, 2021) suggest that QRIS should implement robust security measures to alleviate user concerns and promote wider acceptance. (Roca, Understanding E- Learning Continuance Intention in the Workplace: A Self-Determination Theory Perspective Computers in Human Behavior, 112, 106467., 2020). The findings suggest that QRIS should prioritize user education on security features to build trust and encourage adoption.

First hypotheses trust and compatibility

The study revealed that trust did not significantly affect the compatibility of QRIS adoption, as indicated by the path coefficient results (p-value > 0.1). While trust is widely recognized as a cornerstone in financial technology adoption, its influence appears less pronounced in this context. This result could be attributed to the familiarity and governmental backing of QRIS, which might inherently instill confidence without necessitating high trust levels. The existing literature, including (Ghosh, 2000) and (Rogers, 2003), highlights the importance of trust in reducing uncertainty and enhancing perceived value. However, in the case of QRIS, other factors, such as security and institutional endorsements, might overshadow the role of trust, particularly in environments where digital literacy is still evolving.

Second hypothesis security and compatibility

Perceived security emerged as a significant determinant of compatibility, with a strong path coefficient (p-value < 0.01). This finding underscores the critical role of security in fostering QRIS adoption. Enhanced security features, including robust encryption, fraud prevention mechanisms, and reliable authentication processes, reduce transaction risks and increase merchants' confidence in integrating QRIS into their operations. These results align with the Transaction Cost Theory, which posits that reduced risks and enhanced reliability lower transaction costs, thereby increasing adoption likelihood. The study by (Zhong, 2022), corroborates this, emphasizing that secure digital payment systems are pivotal in driving adoption in emerging economies.

This demonstrates that Indonesian merchants typically employ QRIS when they have the necessary resources, adequate understanding of QRIS technology, recommendations for adopting QRIS, and compatibility with their previous system argued by (Nathan, 2022). Subsequently, it was discovered that trust had a marginally beneficial impact on compatibility, which is the capacity of one computer, piece of software, etc. to function with another without any issues in the case of QRIS payment. This indicates that QRIS is more likely to be used by Indonesian retailers and students since it allows for safe and secure business transactions and facilitates quick, reliable, consistent, and user-friendly transactions. Retailers view QRIS as an appropriate payment method to use. While it shows the extend users trust that QRIS can be integrated with other digital payment is less and most likely people are not aware of the system.

Theoretical Implications

The application of TAM and Transaction Cost Theory provides a robust framework for understanding the adoption dynamics of QRIS. While TAM emphasizes perceived usefulness and ease of use as critical adoption drivers, this study highlights that these perceptions are strongly mediated by security concerns. The findings also extend the applicability of the Unified Theory of Acceptance and Use of Technology (UTAUT), which underscores the importance of facilitating conditions such as security measures. This theoretical integration broadens the understanding of digital payment adoption in emerging markets.

Practical Implications

For policymakers and practitioners, the study highlights the need to prioritize security enhancements in digital payment systems. Ensuring robust data protection, fraud prevention, and user-friendly security protocols can significantly increase the adoption of QRIS. Additionally, while trust might not play a direct role in this study, efforts to maintain transparency and regulatory compliance should not be overlooked, as these factors contribute to the overall ecosystem's credibility. Furthermore, the findings suggest a need for targeted educational initiatives to improve digital literacy

among MSMEs. By addressing misconceptions and enhancing familiarity with QRIS's functionality, stakeholders can further reduce barriers to adoption.

Limitations and Future Research
1. While this study provides valuable insights, it is limited by its sample size and scope, focusing primarily on MSMEs and students familiar with digital payment systems.
2. Future research could expand this scope by including diverse demographics and regions to validate the generalizability of these findings.
3. Additionally, longitudinal studies could provide a more comprehensive understanding of how trust and security perceptions evolve over time and their long-term impact on compatibility and adoption.

4.   CONCLUSION

This study aims to examine the adoption of QRIS in Indonesia by focusing on the critical roles of trust, security, and compatibility in shaping user behavior. The findings highlight that security significantly drives QRIS adoption, while trust, though less influential in this study, remains a vital element in the broader digital payment ecosystem. Compatibility also plays an essential role in ensuring the seamless integration of QRIS into existing financial systems, particularly for MSMEs. Theoretically, this research contributes to the literature on digital financial inclusion by situating QRIS as a model for payment innovation in emerging markets, while practically, it provides valuable insights for policymakers and industry stakeholders seeking to strengthen Indonesia's digital economy. Despite these contributions, the study is limited by its contextual scope and reliance on cross-sectional data, which may not fully capture the dynamic evolution of user perceptions over time. Future research should adopt longitudinal and comparative approaches across regions or payment systems to enrich the understanding of QRIS adoption. Building on these findings, stakeholders are recommended to strengthen security measures, foster transparency to build trust, enhance system compatibility, and promote financial literacy and digital skills among MSMEs. In addition, leveraging social media for awareness, engaging policymakers through supportive regulations, and continuously collecting user feedback will further optimize QRIS adoption and sustain Indonesia's vision of a robust, inclusive, and secure digital economy.

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