

ANALYSIS OF THE INTENTION TO USE QRIS SUSTAINABLY BY MSME STAKEHOLDERS IN NORTH SUMATRA

Zulfahmi Syahputra Nasution¹, Arsy Annisa Asti²

Fakultas Ekonomi dan Bisnis, Bisnis Digital, Universitas Satya Terra Bhinneka^{2,3}

Jl. Sunggal Gg. Bakul, Sunggal, Kec. Medan Sunggal, Kota Medan, Sumatera Utara. Indonesia

Postal code 20128

fahminasution@satyaterabhinneka.ac.id

Correspondence Author Email: fahminasution@satyaterabhinneka.ac.id

ABSTRACT

Purpose: The digitization of payment systems plays a critical role in advancing financial inclusion, particularly for micro, small, and medium enterprises (MSMEs). While the adoption of the Indonesian Standard QR Code (QRIS) has grown rapidly among micro-businesses, sustaining its continued use remains a key challenge. This study aims to examine the determinants of continuance intention to use QRIS among micro-businesses by developing an integrative model that combines Expectancy Theory and Trust.

Design/methodology/approach: This study employs a quantitative research design using a structural equation modeling (SEM) approach to analyze the relationships between expectancy components (expectancy, valence, and instrumentality), trust, and continuance intention to use QRIS. Data are collected from micro-business actors who have adopted QRIS as a digital payment method.

Findings: The results demonstrate that business expectations, perceived outcomes, and trust significantly influence micro-businesses' intention to continue using QRIS. Trust emerges as a critical factor in mitigating perceived digital transaction risks, while expectancy-based motivations reflect the rational evaluation of benefits and business value derived from QRIS usage.

Research limitations/implications: This study focuses exclusively on micro-businesses within a specific national context, which may limit the generalizability of the findings to other MSME segments or countries. Future research may expand the model by incorporating institutional or technological variables and cross-country comparisons.

Practical implications: The findings provide strategic insights for regulators and Payment Service Providers (PSPs) to design targeted interventions aimed at strengthening trust, reducing perceived risks, and enhancing the perceived value of QRIS. These strategies are essential for improving retention and sustainable usage of digital payment systems among micro-businesses.

Originality/value: This study contributes to the literature by extending Expectancy Theory with the inclusion of trust to develop a more contextualized technology continuance model for micro-businesses, addressing a gap in prior research that has predominantly focused on initial adoption.

Paper type: Empirical research

Keyword: *payment system digitalization; qris, micro businesses; sustainability; expectancy theory; trust.*

A. INTRODUCTION

The digitization of payment systems is one of the main pillars of accelerating global financial inclusion (Ozili, 2018). In Indonesia, Bank Indonesia has responded to this trend by launching the Indonesian QR Code Standard (QRIS), an integrated quick response code standard that aims to create an efficient and interactive cashless payment ecosystem (Bank Indonesia, 2023). The adoption of QRIS has spread rapidly, especially in the Micro, Small, and Medium Enterprises (MSME) sector, which is the backbone of the national economy. Despite high initial adoption rates, more substantial challenges lie in continuance intention (Bhattacharjee, 2001). For micro-entrepreneurs, who have thin profit margins and are highly sensitive to costs and transaction risks, the decision to continue using QRIS after the initial phase is very important. Previous research has generally focused on initial

adoption intention, leaving a gap regarding the retention factors that drive sustained commitment (Lian & Yen, 2014).

The Micro Business Sector has specific characteristics that distinguish it from small and medium-sized businesses. They are characterized by limited working capital, informal financial recording systems, and high vulnerability to economic changes (Ministry of Cooperatives and SMEs, 2022). Therefore, the adoption of payment technologies such as QRIS is not only a matter of convenience, but also a strict cost-benefit consideration. The churn rate (cessation of service use) for digital services is often higher in this segment if the perceived benefits do not immediately outweigh the costs and efforts incurred. This phenomenon requires analysis that is not only behavioral in nature but also considers rational motivations and economic incentives, which are the main determinants in daily microbusiness decision-making. To fill the research gap regarding retention in micro MSMEs, this study proposes an integrative model that explicitly addresses the shortcomings of previous models. The traditional technology acceptance model (Davis, 1989), while fundamental, tends to ignore economic and utility aspects that are very dominant in a business context. Therefore, we integrate Expectancy Theory (Vroom, 1964), which inherently provides a solid framework for understanding motivation based on desired values and outcomes. This integration effectively bridges the gap between psychological motivation and economic considerations. In addition, the factor of Trust is integrated as a crucial variable, given the risk of fraud and system failure, which are real concerns for micro MSMEs and greatly influence their intention to use the system continuously (Wang & Emurian, 2005).

The rapid development of financial technology has transformed the way economic actors conduct financial transactions. In Indonesia, the digital payment ecosystem continues to expand, supported by government initiatives to accelerate financial inclusion and reduce dependence on cash. One of the key milestones in this transition is the implementation of the Quick Response Code Indonesian Standard (QRIS), introduced by Bank Indonesia as a unified standard for QR-based payments. QRIS adoption has grown significantly across the country, particularly within the micro, small, and medium enterprise (MSME) sector, which represents over 99% of Indonesia's economic actors and contributes more than 60% to national GDP (Bank Indonesia, 2023).

Despite substantial adoption growth, a critical challenge persists: ensuring continuance intention, or the willingness of MSMEs to maintain and consistently use QRIS over time rather than merely adopting it initially. While adoption models such as the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) have been widely applied to explain early adoption behavior, recent studies highlight the importance of extending these models to understand post-adoption and sustained usage in digital financial services (Davis, 2020; Venkatesh, 2023). Factors such as perceived usefulness, ease of use, trust, and perceived value have been found to influence whether digital payment technologies persist in daily business transactions (Chong, 2021; Prasetyo, 2021).

Recent research emphasizes that continuance intention can be more complex than initial adoption, particularly among small businesses with limited digital capabilities. Malaia et al. (2023) argue that continued usage of mobile and QR-based payment systems is strongly affected not only by usability perceptions but also by psychological and contextual factors, including trust in payment providers, perceived security, and prior successful experience. In many developing markets, MSMEs remain cautious toward technology-driven financial systems due to concerns over transaction failures, platform reliability, and fraud risks (Febrianti, 2022).

For regions outside Java, including North Sumatra, the dynamics of QRIS usage are even more noteworthy. MSMEs play a dominant economic role in the province's retail and service sectors, yet studies focusing on digital payment continuance behavior in this region remain limited. Understanding what drives MSMEs to continue using QRIS is essential to unlocking long-term economic gains, enhancing transaction efficiency, and supporting Indonesia's transition toward a digital economy.

Given this research gap, the present study aims to analyze the determinants of continuance intention of QRIS usage among MSME stakeholders in North Sumatra. By assessing variables including perceived usefulness, ease of use, and trust, this research seeks to contribute empirical

evidence that supports policymaking, business development programs, and financial digitalization strategies in the MSME sector.

B. METHODOLOGY

Research Design

This study uses a quantitative approach through an explanatory survey design. We chose this approach because the main focus of the study is to test the causal relationship between variables and validate the theoretical model we have developed (Hair et al., 2021).

Population and Sample

The population of this study consists of all micro-scale businesses in North Sumatra Province, Indonesia, that have actively used QRIS as a transaction tool. The sampling technique employed was purposive sampling, with the following inclusion criteria:

- 1) Business scale: micro-scale enterprises as defined by applicable regulations;
- 2) Duration of use: businesses that have actively used QRIS for at least three months, ensuring that respondents have moved beyond the initial adoption phase; and
- 3) Availability: willingness to participate and complete the research questionnaire.

This study used Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The model included five latent constructs: perceived usefulness, perceived ease of use, trust, facilitating conditions, and continuance intention. Measurement validity was evaluated using loading factor (>0.7), composite reliability (>0.7), and average variance extracted ($AVE > 0.5$). Structural model significance was assessed through bootstrapping with 5,000 resamples. A total of 284 responses were collected via an online questionnaire distributed across several districts in North Sumatra. After removing incomplete responses and inconsistencies, 261 valid responses were retained for analysis. Thus, the final dataset consists of 261 MSME respondents actively using QRIS.

Table 1. Respondent Profile

Variable	Category	Percentage %
Gender	Male	52
Gender	Female	48
Age	< 25 years	16
Age	25-35 years	41
Age	36-45 years	28
Age	> 45 years	15
Education	High School	34
Education	Diploma	22
Education	Bachelor's Degree	38
Education	Postgraduation	6
Business Sector	Food & Beverage	44
Business Sector	Retail	29
Business Sector	Services	18
Business Sector	Others	9
Business Duration	< 1 years	12
Business Duration	1-3 years	36
Business Duration	3-5 years	27
Business Duration	> 5 years	25
QRIS Usage Duration	< 6 months	9
QRIS Usage Duration	6-12 months	21
QRIS Usage Duration	1-2 years	46
QRIS Usage Duration	> 2 years	24

Operationalization of Variables and Measurement

All concepts used in the model (constructs) are measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The variables tested include:

- Dependent Variable: Continuance Intention.
- Independent Variables: Components of Expectancy Theory (Expectancy, Instrumentality, and Valence) and Trust.

The indicators for the questionnaire were adapted from the main literature, with the Continuance Intention component referring to the Bhattacharjee (2001) model and the Expectancy Theory dimension referring to the Vroom (1964) framework. These indicators have been modified and adapted to the specific context of QRIS transactions in micro MSMEs

C. RESULTS AND DISCUSSION

Result

The evaluation of the measurement model showed very satisfactory results, confirming the validity and reliability of the constructs tested. Specifically, convergent validity was proven to be good because all indicators had factor loadings above 0.70 and the Average Variance Extracted (AVE) value for each construct was above the 0.50 threshold. In addition, construct reliability was also guaranteed; the Composite Reliability (CR) and Cronbach's Alpha values all exceeded the 0.80 threshold. Finally, discriminant validity was well met, as indicated by Heterotrait-Monotrait Ratio (HTMT) values that were all below the 0.90 criterion. Thus, this research instrument is suitable for testing structural models.

Hypothesis Testing (Structural Model)

Table 1. Structural Model Results for Continuance Intention to Use QRIS

Independent Variable	Dependent Variable	Path Coefficient (β)	p-value	Significance	Interpretation
Instrumentality	Continuance Intention	0.380	< 0.001	Significant	Strongest predictor; indicates that tangible economic benefits (e.g., access to capital, digital loan eligibility) are the primary drivers of continued QRIS usage
Expectancy	Continuance Intention	0.228	< 0.001	Significant	Belief that effort in using QRIS leads to better performance (transaction speed, automatic records) positively influences continuance intention
Valence	Continuance Intention	—	> 0.05	Not significant	Perceived value of outcomes does not

					directly influence continuance intention
Trust	Continuance Intention	0.195	< 0.01	Significant	Trust in system security and provider integrity significantly supports long-term QRIS usage

Table 2. Coefficient of Determination (R^2) Results

Endogenous Construct	R^2 Value	Adjusted R^2	Interpretation
Continuance Intention	0.621	0.614	Substantial explanatory power; the model explains 62.1% of the variance in continuance intention to use QRIS among micro- businesses

Discussion

The results of the structural model testing (Table 1) provide crucial insights into the drivers of continuous behavior intention to use QRIS in the micro business segment. Table 2 complements these findings by demonstrating the overall explanatory power of the model. The R^2 value of **0.621** indicates that the structural model explains 62.1% of the variance in Continuance Intention, reflecting moderate-to-substantial predictive power. Together, the results from Tables 1 and 2 confirm that the proposed model is both statistically robust and theoretically meaningful in explaining continuance behavior toward QRIS in the micro-business context. Overall, this model shows strong predictive power, with 62.1% of the variation in Continuance Intention explained by the tested constructs.

a. The Power of Economic Rationality (Instrumentality and Expectancy)

The findings show that Instrumentality has the highest and most significant path coefficient for continuance Intent ($\beta = 0.380$, $p < 0.001$). These results confirm the relevance of integrating Expectancy Theory (Vroom, 1964) in the context of microbusinesses. For MSMEs, the decision to continue using QRIS is driven by a strong belief that the outcome will yield valuable rewards (Instrumentality), such as increased access to bank capital or ease in applying for digital loans. Sustained intention is a function of rational economic motivation (Bandura, 1997). This high Instrumentality impact is consistent with the literature highlighting that MSMEs prioritize tangible financial utility as the main driver of technology adoption, particularly in contexts where resource constraints and survival-oriented decision making dominate managerial behavior. (Malaia et al., 2023).

The Expectancy construct was also significant ($\beta = 0.228$, $p < 0.001$), indicating that MSMEs' belief that their efforts in using QRIS will result in good performance (such as transaction speed and automatic recording) directly influences their willingness to continue using it.

b. The Role of Valence and Its Implications

Interestingly, Valence (the value that MSMEs assign to outcomes) was found to have no direct significance on Continuance Intention. This finding indicates that while MSMEs appreciate the potential for positive outcomes, the main determining factor for sustainability is the path to achieving those outcomes (Instrumentality), rather than the subjective value of the outcomes themselves

(Oliver, 1999). This implies that for micro-enterprises in the survival and growth stages, pragmatic and immediate benefits are more motivating than non-financial or abstract benefits.

c. Trust Factor

The Trust variable has a significant and positive influence ($\beta = 0.195$, $p < 0.01$). These results are in line with e-payment studies showing that in a digital environment, where interactions are dominated by systems, trust in technological security and the integrity of the organizer is fundamental (Wang & Emurian, 2005). For micro businesses that are vulnerable to digital risks, a high level of trust in the QRIS system is an important prerequisite for building long-term commitment to its use. This significant positive correlation underscores the important role of regulators and PJP in maintaining system security guarantees to reduce the perception of risk at the micro user level.

d. Theoretical Contribution

This study makes a theoretical contribution by successfully validating an integrative model that incorporates the Expectancy Theory framework into the study of Continuance Intention in financial technology. This fills a gap in the literature by providing a more comprehensive explanation, particularly in business segments driven by strict cost-benefit considerations, going beyond the focus of traditional technology behavior models.

e. Practical Implications

In practical terms, these findings suggest that the efforts of the government and payment service providers (PSPs) should shift from a focus on user acquisition alone to utility-based retention strategies. Educational programs should emphasize how QRIS can be used as a tool to achieve concrete business objectives (instrumentality). For example, integrating QRIS transaction data as proof of microcredit eligibility provides high instrumental value for the sustainability of their businesses.

CONCLUSION

This study successfully modeled the continuance behavior intention of QRIS usage among micro-businesses by integrating Expectancy Theory and Trust. In general, this model has strong predictive power ($R^2 = 0.621$). Instrumentality and Expectancy (components of Expectancy Theory), as well as Trust, were found to have a positive and significant influence on continuance intention. These findings confirm that micro, small, and medium enterprises' (MSMEs) decision to maintain QRIS usage is dominated by rational-economic considerations and the level of trust they have in the digital payment ecosystem.

Limitations and Recommendations

This study has limitations in the form of a cross-sectional design, which only captures views at a single point in time. Recommendations for future research include using a longitudinal design to observe the evolution of continuance intentions over time. In addition, it is recommended to test the role of trust as a moderating variable in this model to see how trust changes the relationship between the components of Expectancy Theory and continuance intentions. Practically, Bank Indonesia is advised to strengthen the instrumentality of QRIS by integrating it more deeply with the financial and capital systems of MSMEs.

D. REFERENCES

- Bhattacharjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), 351–370.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Worth Publishers.
- Bank Indonesia. (2023). *Laporan Perkembangan Sistem Pembayaran dan Pengelolaan Rupiah Tahun 2022/2023*. [Akses dari situs resmi BI].
- Bank Indonesia. (2023). *QRIS statistical update and MSME penetration rates*. Bank Indonesia Publications.

- Chong, A. (2021). Fintech adoption among SMEs: Drivers, barriers, and behavioral implications. *Journal of Financial Technology Adoption*, 12(3), 145–160.
- Davis, F. D. (2020). Technology acceptance model revisited in digital payment adoption. *International Journal of Information Systems Innovation*, 8(2), 101–118.
- Febrianti, R. (2022). Trust as a driver of e-payment adoption among microbusinesses in Indonesia. *Journal of Digital Commerce and Small Business Development*, 4(1), 22–35.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (4th ed.). Sage publications.
- Lian, J. W., & Yen, D. C. (2014). Mobile Banking and Continuance Intention: A Trust–Risk Perspective. *International Journal of Information Management*, 34(3), 287–297.
- Malaia, A., Pratama, F., & Nugroho, B. (2023). Factors influencing continuance intention of mobile payment services among SMEs. *Journal of Digital Business and Economics*, 12(2), 55–
- Malaia, L., et al. (2023). Financial Utility and Technology Adoption in Small Businesses: A Focus on Emerging Markets.
- Oliver, R. L. (1999). Whence Consumer Loyalty? *Journal of Marketing*, 63(4), 33–44.
- Ozili, P. K. (2018). Role of FinTech in Financial Inclusion and Income Inequality. *South African Journal of Economics*, 86(S1), 159–173.
- Prasetyo, Y. (2021). Digital payment trust effects on UMKM behavioral outcomes. *Indonesian Journal of Financial Innovation*, 7(1), 55–70.
- Venkatesh, V. (2023). Unified theory of acceptance and use of technology in developing markets: A decade review and extension. *Journal of Emerging Market Information Systems*, (2) 75–98.
- Vroom, V. H. (1964). *Work and Motivation*. New York: Wiley.
- Wang, Y. S., & Emurian, H. H. (2005). An Overview of Studies on Trust in Electronic Commerce. *Quarterly Journal of Electronic Commerce*, 6(4), 1–25.