

The Decision to Stay: Understanding Quick Response Indonesian Code Standard (QRIS) Continuance Intention Among Merchants

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Abstract – The rapid expansion of digital payment systems has transformed financial transactions in Indonesia, with the Quick Response Code Indonesian Standard (QRIS) emerging as a key initiative for advancing a cashless economy. Although existing studies have extensively examined consumers' adoption of QRIS, empirical evidence on merchants' continuance intention remains limited, despite their pivotal role in sustaining the QRIS ecosystem. Grounded in Technology Continuance Theory (TCT), this study investigates the determinants of merchants' continuance intention to use Quick Response Code Indonesian Standard (QRIS) by integrating constructs from the Technology Acceptance Model (TAM) and the Expectation Confirmation Model (ECM). The proposed model examines the effects of confirmation, perceived usefulness, perceived value, perceived risk, and user satisfaction on continuance intention, while age and gender are incorporated as moderating variables. Data were collected from QRIS-enabled merchants in Indonesia and analyzed using structural equation modeling (SEM). A robustness test was also conducted to verify the stability and reliability of the proposed model. The findings highlight that continuance intention is influenced by satisfaction, while satisfaction is influenced by confirmation, perceived value, perceived usefulness, perceived risk, and perceived value. Theoretically, this study extends the information systems and fintech literature by adopting a merchant-oriented perspective on technology continuance. Practically, these findings provide valuable insights for Bank Indonesia to support the broader adoption and scalability of QRIS, including its implementation across other ASEAN countries, thereby strengthening its contribution to Indonesia's digital economy.

Keywords: Technology Acceptance; Technology Continuance; Expectation Confirmation; QRIS; Digital Economy.

I. INTRODUCTION

The widespread adoption of information and communication technology (ICT) and internet use has fundamentally transformed various aspects of human life, a phenomenon widely referred to as digital transformation (Veldhoven & Vanthienen, 2022). One of the sectors most significantly affected by this transformation is the financial industry (Tsindeliani et al., 2021), as reflected in the rapid emergence of financial technology (fintech) services (Mavlutova et al., 2023). The integration of digital technology into financial products has intensified competition among financial service providers seeking to enhance customer convenience and improve transactional efficiency (Bueno et al., 2024), while also enhancing organizational effectiveness and transparency (Gao, 2023). Moreover, fintech enables financial institutions to introduce innovative products and services (Elia et al., 2023) and facilitates remote transactions without physical presence (Bhat et al., 2023). A key outcome of this transformation is the expansion of digital payment systems, which are defined as payment methods integrated with digital technologies and instruments (Dimitrova et al., 2022), which have experienced substantial growth at both the global and national levels, including in Indonesia (Burhan, 2022; Bank Indonesia, 2021).

In Indonesia, a major milestone in digital payment innovation is the introduction of the Quick Response Code Indonesian Standard (QRIS), a unified QR-based payment system developed by Bank Indonesia in collaboration with the Indonesian Payment System Association (Bank Indonesia, 2019) QRIS

enables interoperable, efficient, and cost-effective transactions across different banks and payment platforms, thereby promoting a cashless society and supporting merchant digitalization. The adoption of QRIS accelerated significantly during the COVID-19 pandemic, as physical distancing measures increased the demand for contactless financial services (Bongomin & Ntayi, 2020; C. T. Lee & Pan, 2023), alongside a decline in the use of cash and card-based payment methods (Cevik, 2020; Tut, 2023). Notably, QRIS adoption has continued to grow in the post-pandemic period, particularly among micro, small, and medium enterprises (MSMEs), due to its transaction speed, reliability, enhanced security, and automated transaction recording features (Ediputra & Amalyah, 2022; Kadin, 2024; PAN-RB, 2024)

The emergence of the Quick Response Code Indonesian Standard (QRIS) as an innovative digital financial payment system has been well received by the public. By integrating with a wide range of fintech platforms, including electronic wallets, e-commerce applications, and both conventional and digital banks, QRIS offers users greater flexibility in selecting payment methods while enabling merchants to improve operational efficiency through a single interoperable QR code. Nevertheless, despite its advantages, QRIS adoption is not free from risks and challenges, particularly in terms of security and operations, such as the vulnerability of QR code forgery that may facilitate malware distribution and payment fraud (Anggraeni, 2022), as well as the falsification of digital transaction proofs by irresponsible consumers, which can disadvantage merchants. In addition, infrastructural limitations particularly Indonesia's relatively low mobile internet speed compared with other Southeast Asian countries may hinder QRIS-based transactions, which depend on stable and reliable internet connectivity. This challenge is noteworthy because adequate technological infrastructure is widely recognized as a critical driver of the continuance use of technology-based products (Ferreira et al., 2023). From a regulatory perspective, the current transaction fee policy of 0.3% borne by QRIS merchants and prohibited from being passed on to consumers (Verma et al., 2020) is perceived by some merchants as

reducing profit margins, prompting them to increase prices for QRIS users and potentially shifting consumers toward alternative payment methods. Considering these benefits, risks, and challenges, this study aims to examine the determinants of merchants' continuance intention to use QRIS based on Technology Continuance Theory (TCT). Specifically, it investigates the roles of perceived usefulness, perceived value, perceived risk, and confirmation, while incorporating age and gender as moderating variables to extend the existing literature. Unlike most previous studies, which have primarily focused on consumers' continuance intention, this study centers on merchants, thereby providing a broader understanding of post-adoption behavior in digital payment systems.

Theoretically, this study is expected to contribute to the information systems literature by extending research on technology continuance usage within the context of digital payment systems. It also seeks to enrich the literature on QRIS by shifting the focus from consumers who have dominated prior research to merchants, whose continued participation is critical to the long-term sustainability of the QRIS ecosystem. Practically, this study is expected to provide valuable insights for the government and Bank Indonesia, as the regulator and initiator of QRIS, by identifying key factors that influence merchants' and users' continuance intention to use QRIS. These insights provide an empirical foundation for the formulation and refinement of future policies and regulations, thereby supporting the broader contribution of QRIS to the growth and sustainability of Indonesia's digital economy.

This study is organized into six sections: Introduction, Literature Review and Hypothesis Development, Methodology, Results, Discussion, and Conclusion. Theoretically, this study expands the literature on the relationship between satisfaction and continuance intention of QRIS usage from the merchants' point of view. Practically, this study offers insight into what factors influence the merchants to keep using QRIS in the future. Furthermore, the findings can provide practical guidance for the government in enhancing the QRIS system from the merchants' perspective.

Previous studies on digital financial services have extensively examined users' adoption intentions and identified a wide range of factors influencing the adoption of fintech services. Prior research suggests that technology adoption is shaped by both individual and organizational factors (Xu & Lu, 2022), with perceived usefulness and social influence emerging as key individual determinants (Almashhadani et al., 2023). Empirical evidence from diverse country contexts further supports these findings. For instance, Hoang et al., (2021) found that fintech adoption intention in Vietnamese banking is influenced by trust, user innovativeness, and perceived usefulness, while studies in Nigeria highlight the roles of perceived usefulness, perceived ease of use, trust, and social influence (Akinwale & Kyari, 2022). In Indonesia, fintech adoption intention is primarily driven by perceived usefulness and perceived ease of use (Setiawan et al., 2024). In contrast, research focusing specifically on QRIS remains limited and has largely concentrated on consumers. Existing studies indicate that QR code or QRIS usage intention during the COVID-19 pandemic was influenced by performance expectancy, perceived security, and trust (Musyaffi et al., 2021), and government intervention encouraging digital transactions (Badrawani, 2022). Subsequent studies found that user loyalty or continuance in using QRIS is associated with satisfaction and trust (Chohan et al., 2022), while perceived usefulness and perceived ease of use were also identified as key determinants (Bakhitah et al., 2023). However, the findings regarding the role of perceived security remain mixed, particularly in the context of MSME customers (Muchtar et al., 2024; Usman et al., 2024). Notably, prior studies have predominantly examined QRIS from the consumer perspective and focused on initial usage intention rather than continuance intention. Although merchants play a pivotal role in enabling QRIS as a payment method, previous studies have largely focused on consumers and the initial adoption stage. Consequently, limited attention has been given to understanding the factors influencing merchants' continuance intention to use QRIS after long-term adoption. Accordingly, this study addresses the following research question: What factors influence merchants'

continuance intention to use QRIS during the post-adoption stage?

Technology Continuance Theory (TCT), proposed by Liao et al., (2009) is grounded in three foundational models: the Technology Acceptance Model (TAM), the Expectation Confirmation Model (ECM), and the Cognitive Model (CM). According to Liao et al., (2009), ECM is incorporated into TCT to explain users' post-adoption behavior after experiencing a technology. Bhattacharjee (2001) It argues that the Expectation Confirmation Model (ECM) is particularly well suited for examining the factors that influence long-term or continuance usage of a technology. ECM itself is derived from Expectation Confirmation Theory (ECT) introduced by Oliver (1980), which posits that continuance intention is shaped by the extent to which users' initial expectations are confirmed by the perceived performance or quality of a product or service. In contrast, the Technology Acceptance Model (TAM) focuses on explaining users' initial acceptance of newly introduced technologies (Davis, 1989). By integrating these models, TCT is considered to offer stronger explanatory power than ECM, TAM, or CM when applied independently (Rahi et al., 2021), as it emphasizes that system success is more appropriately evaluated based on long-term usage rather than initial adoption (Pattanayak et al., 2017).

Previous studies have widely adopted Technology Continuance Theory (TCT) as the underlying theoretical framework for examining the continuance usage of various technologies, including internet banking (Rahi et al., 2021), e-learning systems (Dalhan & Akkoyunlu, 2016; Liao et al., 2009), digital wallets (Khayer & Bao, 2019), fintech services (Shiau et al., 2020), mobile shopping platforms (Jain & Raman, 2022), RFID technology (Iranmanesh et al., 2017), and electronic tax systems (Rahman et al., 2020). These applications demonstrate the robustness and versatility of Technology Continuance Theory (TCT) in explaining sustained technology use across a wide range of digital contexts.

The Technology Acceptance Model (TAM), developed by Davis (1989) and grounded in the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (Ajzen, 1985), is one of the most influential

frameworks in information systems research for explaining individuals' intentions to adopt new technologies (Leong et al., 2023; Tian et al., 2023). The Technology Acceptance Model (TAM) posits that technology adoption is primarily determined by perceived usefulness (PU) defined as the extent to which a technology enhances an individual's performance and perceived ease of use (PEOU), which reflects the degree to which using the technology is perceived to be effortless. While originally designed to explain initial technology acceptance, TAM has been widely applied across various technological contexts—including QR-based payments, fintech, digital marketing, artificial intelligence, and cryptocurrency—and has also been adapted to examine continuance intention by incorporating post-adoption perceived usefulness and post-adoption perceived ease of use as key predictors (Gupta et al., 2020; Kirmani et al., 2022; Leong et al., 2023; Tian et al., 2023). Complementing TAM, the ECM, originally proposed by Oliver (1980) and later extended by Bhattacharjee (2001), explains continuance usage behavior by emphasizing user satisfaction as a function of expectation confirmation and perceived performance. In the Expectation Confirmation Model (ECM), confirmation occurs when a technology's perceived performance meets or exceeds users' initial expectations, resulting in greater satisfaction, which subsequently strengthens continuance intention. Conversely, disconfirmation reduces satisfaction and weakens users' intention to continue using the technology. Bhattacharjee (2001) integrates perceived usefulness from TAM into ECM, arguing that it consistently predicts both pre- and post-adoption intentions, whereas perceived ease of use yields less stable results after usage. As a result, the Expectation Confirmation Model (ECM) has been widely applied to examine continuance intention across diverse information systems contexts, including fintech, mobile and internet banking, e-learning, mobile shopping, and digital wallets. Its broad application underscores the model's relevance and effectiveness in explaining long-term technology use.

The Expectation Confirmation Model (ECM) posits that user satisfaction is primarily shaped by confirmation of prior expectations.

According to Bhattacharjee (2001), confirmation has a positive effect on user satisfaction and occurs when the actual performance of a product or service meets users' initial expectations, whereas disconfirmation arises when perceived performance falls short of expectations. In the context of QRIS use among merchants, the confirmation of initial expectations is therefore expected to enhance merchants' satisfaction with the QRIS system. This positive relationship between confirmation and user satisfaction has been consistently supported in prior studies across various contexts, including mobile shopping (Maduku & Thusi, 2023), mobile wallets (Jaiswal et al., 2022), internet banking (Rahi et al., 2021), and digital payment systems (Jangir et al., 2023), indicating that confirmation is a critical determinant of satisfaction in financial technology usage. Moreover, Bhattacharjee (2001) argues that new technologies are often more easily confirmed because users typically possess limited prior knowledge about their usefulness, resulting in relatively lower initial expectations. When users' initial expectations are met or exceeded by the system's actual performance, confirmation is more likely to occur, signaling that the technology delivers meaningful value to its users. This argument is supported by empirical evidence from previous studies (Alamoudi et al., 2026; Jangir et al., 2023; Maduku & Thusi, 2023; Nurdin et al., 2019; Rahi et al., 2021), which demonstrate that confirmed expectations in digital financial services enhance user satisfaction. Based on this theoretical rationale and the existing empirical evidence, the following hypotheses are proposed:

H1: Confirmation positively affects the customers' satisfaction

Davis (1989) defines perceived usefulness as the degree to which an individual believes that using a particular technology will enhance their job performance, a notion further supported by Perwitasari (2022), who argues that individuals' intention to use technology is largely determined by perceived usefulness. Previous studies have extensively employed perceived usefulness within the Technology Acceptance Model (TAM) to explain the adoption of emerging technologies, including

cryptocurrencies (Koeswandana & Sugino, 2023; Quan et al., 2023; Ter Ji-Xi et al., 2021), artificial intelligence (Guidice et al., 2023; Kelly et al., 2023; Moradi & Dass, 2022), and crowdfunding technologies (Koeswandana, 2025). However, the role of perceived usefulness extends beyond initial adoption. Technology Continuance Theory (TCT) integrates the Technology Acceptance Model (TAM), the Expectation Confirmation Model (ECM), and the Cognitive Model (CM) to explain the factors that drive long-term technology use. Consistent with this view, prior research has demonstrated that perceived usefulness remains a significant determinant of continuance intention (Badrawani, 2022; Bhattacharjee, 2001; Jangir et al., 2023; Kirmani et al., 2022; Musyaffi et al., 2021). From the Expectation Confirmation Model (ECM) perspective, user satisfaction is a key predictor of continuance intention and is positively influenced by perceived usefulness (Bhattacharjee, 2001). Empirical evidence further suggests that users who perceive tangible benefits from digital financial technologies are more likely to continue using them in the future (Jangir et al., 2023). Accordingly, merchants who perceive clear benefits from using QRIS are expected to demonstrate a stronger continuance intention to use the system in the future. Based on this theoretical rationale, the following hypothesis is proposed.

H2: Perceive usefulness positively affects the consumers' satisfaction

According to Cho & Hyun (2016), perceived value is defined as a trade-off between users' perceptions of product quality and the price they must pay to obtain the product. Perceived value is also defined as a comprehensive evaluation of the benefits obtained from using a product relative to the sacrifices incurred, based on users' perceptions of what they receive in exchange for what they give (Yang & Peterson, 2004; Zeithaml, 1988). Prior studies have consistently demonstrated a positive and significant relationship between perceived value and continuance intention to use technology. Kirmani et al. (2022) found that perceived value has a positive effect on continuance intention, whereas Karjaluoto et al., (2019) showed that, in the context of mobile

banking and mobile payments, perceived value is one of the most influential determinants of user satisfaction. This finding is further supported by Kirmani et al. (2022), who reported that perceived value is the strongest and most significant predictor of user satisfaction with digital payment methods in India. In the context of QRIS use among merchants, it can therefore be argued that when the performance and benefits of QRIS outweigh the associated costs, merchants' satisfaction is likely to increase. Accordingly, the following hypothesis is proposed:

H3: Perceived value positively affects consumers' satisfaction

Perceived risk is defined as users' evaluation of the trade-off between the expected benefits of using a product or service and the potential losses they perceive based on their experience. (Featherman & Pavlou, 2003), and is widely recognized as a major barrier in the purchase decision-making process (Peter & Ryan, 1976). In the context of technology usage, perceived risk refers to the potential losses that users may experience when adopting or implementing a particular technology (Lee & Song, 2013). Ha et al. (2024) argue that higher levels of perceived risk reduce users' willingness to continue using a technology in the future. Megasari et al. (2025) argue that system security influences human behavior. Prior research has widely examined perceived risk across various domains, including online food ordering adoption (Munikrishnan et al., 2023), chatbot adoption in online retail (Silva et al., 2022), peer-to-peer financial technologies (Anaya & De La Vega, 2022), and AI-based financial services (Al-Gasawneh et al., 2022). Perceived risk has also been widely employed as a predictor of digital payment adoption and usage intention (Jain & Raman, 2022; Oktavendi & Mu'ammal, 2022; Sebastian et al., 2023). Moreover, empirical evidence consistently indicates a negative relationship between perceived risk and user satisfaction. Studies have shown that perceived risk reduces satisfaction in self-service technologies (Barua et al., 2018), digital payment systems (Kirmani et al., 2022), and mobile banking services in both Vietnam (Ha et al., 2024) and India (Saibaba, 2024). Accordingly, based on these

theoretical arguments and empirical findings, the following hypothesis is proposed:

H4: Perceived risk negatively affects the consumers' satisfaction

Kirmani et al. (2022) define satisfaction as a positive user attitude formed based on post-usage experience with a product, while Churchill & Surprenant (1982) describe satisfaction as the perceived discrepancy between users' initial expectations and the actual performance of a product after use. In other words, user satisfaction is achieved when perceived performance meets or exceeds users' prior expectations. Satisfaction has been widely recognized as a significant predictor in various behavioral outcomes, including customer loyalty (Koeswandana & Yulfiatmi, 2025), repurchase intention (Nazir et al., 2023), and revisit intention (Perez-Aranda et al., 2023). Although satisfaction has traditionally been examined within the marketing literature, it has also been widely applied in technology-related research, including studies on mobile banking adoption (Mulia et al., 2020), health application adoption intention (Perez-Aranda et al., 2023), and online shopping applications (Tawira & Ivanov, 2022). Empirical evidence consistently demonstrates that higher user satisfaction leads to stronger continuance intention to use technology in the future (Gupta et al., 2020; Jaiswal et al., 2022; Kirmani et al., 2022). Accordingly, based on these theoretical arguments and prior findings, the following hypothesis is proposed:

H5: Consumers' satisfaction positively affects continuance intention

Age has been widely recognized as an important factor influencing individuals' intention to use information systems. Venkatesh et al. (2012) argue that older users tend to experience greater difficulty in processing complex information embedded in technology, which may reduce ease of use and subsequently lower user satisfaction. In support of this view, Jaiswal et al. (2022) previous research has found that age moderates the relationship between confirmation and user satisfaction; however, it does not moderate the relationship between satisfaction and continuance intention. Furthermore, Zhuang et al. (2021) reported significant differences in continuance intention

between millennial and non-millennial users, indicating that age-related characteristics shape how users evaluate and continue using technology. Based on these theoretical and empirical arguments, this study proposes that age plays a moderating role in the post-adoption evaluation process. Accordingly, the following hypothesis is formulated:

H6a: Age moderates the relationship between confirmation and consumers' satisfaction.

In addition to age, gender is frequently used to distinguish differences in behavioral characteristics between men and women (Faqih & Jaradat, 2015) and has been identified as an important moderating variable in technology adoption and usage (Venkatesh et al., 2012). Previous studies suggest that gender differences influence how users perceive and evaluate technology. For instance, Nguyen et al. (2018) found that perceived risk exerts a stronger influence on men than women in the context of continuance technology adoption, while Marinković et al. (2020) reported that gender affects continuance usage of digital payment systems through value comparisons. Dzogbenuku et al. (2022) showed that men are more strongly influenced by perceived ease of use in the adoption of digital payment technologies, whereas Li (2022) found that women exhibit greater focus in technology-based learning environments. Although some studies report non-significant moderating effects of gender, such as Jaiswal et al. (2022) in mobile wallet usage, others provide evidence that gender moderates the relationship between user satisfaction and continuance intention (Ali et al., 2023; Reddy & Rao, 2019). Venkatesh et al. (2012) further argue that men tend to be more task-oriented, which may shape their technology usage behavior differently from women. Based on these mixed yet substantial findings, this study posits that gender moderates continuance usage behavior. Thus, the following hypothesis is proposed:

H6b: Gender moderates the relationship between user satisfaction and continuance intention.

Based on the hypotheses derived from the underlying theoretical framework and prior empirical evidence, this study proposes a research framework that illustrates the

relationships among the variables examined. The proposed framework serves as the conceptual foundation for investigating the factors influencing merchants' continuance intention toward QRIS usage and is presented in Figure 1 below.

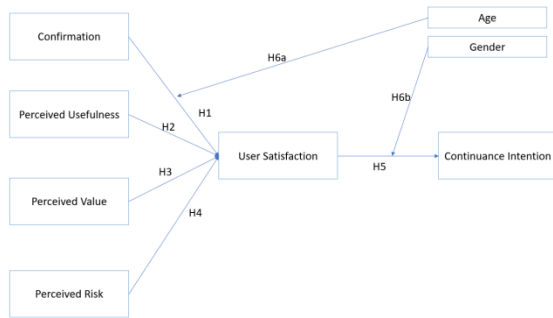


Figure1. Research Framework

II. METHODS

This study collected data using a structured questionnaire. We use purposive sampling based on several criteria, such as (a) the merchant providing QRIS as the payment option, (b) the respondent is either a business owner or an employee, and (c) the respondent must have used QRIS to receive payment. According to Hair et al. (2019), the minimum required sample size should be at least 10 times the number of indicators used in the measurement model. Meanwhile, in this study, we use 22 indicators, which means the minimum sample is 220 respondents. The questionnaire was distributed online using Google Forms to ensure respondents' anonymity. All questionnaire items were measured using a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The use of a 6-point scale is preferred to avoid central tendency bias. The data was then analyzed using SmartPLS. The questionnaire has been completed by 328 respondents. Because we are collecting the questionnaire using Google Forms, all of the questionnaires are completely filled, and there are no incomplete questionnaires. Of the 328 respondents, 147 were male (44.81%). In terms of age, 236 respondents (71.95%) belonged to the post-millennial generation.

The measurement scales for all variables were adapted from established studies. The confirmation construct was adopted from

Bhattacharjee (2001) and was measured using three indicators. Perceived usefulness, adopted from Venkatesh & Bala (2008), contains four indicators. Perceived value adopted from Kirmani et al. (2022) and contains three indicators. Perceived risk adopted from Sivathanu (2019) and Kirmani et al. (2022), and contains four indicators. User satisfaction adopted from Belanche et al. (2012) and Kirmani et al. (2022) contain four indicators. The continuance intention construct was adopted from Bhattacharjee (2001) and was measured using five indicators. For the demographic variables, this study included age and gender, both of which were measured as dummy variables. For age, we categorized into two groups. If they were born before 1980, they were categorized as pre-millennials and coded by 1. If they were born after 1980, they were categorized as post-millennials and coded by 2. For the gender, female respondents were coded by 1 and male respondents were coded by 2. Dummy variable use in this study is based on Venkatesh et al. (2012) and Bertolotti (2018).

To examine the determinants of continuance intention, this study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS. According to Hair et al. (2017), SEM will conduct both measurement and structural models. The measurement model was evaluated to ensure the validity and reliability of the constructs and their indicators, whereas the structural model was assessed to test the proposed hypotheses (Hair et al., 2017).

III. RESULTS AND DISCUSSION

To ensure that all indicators were valid and reliable, the measurement model was evaluated through validity and reliability tests. The first step of the validity test is convergent validity using outer loadings for each indicator. According to Hair et al. (2019) the minimum value of outer loadings is 0,7 which all of the indicators fulfill and there is no need to eliminate any indicators. We also conduct validity and reliability tests To ensure that all indicators were valid and reliable, the measurement model was evaluated through validity and reliability tests. The minimum requirement of CA and CR is 0,7 while AVE is

0,5 (Hair et al., 2019). Table 1 shows the result of reliability and convergent validity, and all of our indicators and variables meet the minimum requirements.

Discriminant validity was also assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The minimum value of HTMT is 0,9 (Henseler et al., 2015) while the Fornell-Larcker must show that the correlation value of each variable must be higher than the correlation value to other variables (Fornell & Larcker, 1981). Tables 2 and 3 present the results of the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, respectively.

Table 2 presents the results of the Fornell–Larcker criterion for assessing discriminant validity in this study. The requirement is to have a higher value of correlation for each

variable compared to the correlation with other variables. For example, the correlation coefficient for SAT with itself is 0.922, whereas its correlations with all other constructs are lower than 0.922, thereby satisfying the Fornell–Larcker criterion for discriminant validity. This means that there is no multicollinearity problem in this model.

Table 3 shows the result of HTMT, according to Henseler et al., (2015) the maximum value of HTMT is 0,9. These results satisfy the criteria proposed by Henseler et al. (2015), indicating that the measurement model demonstrates adequate discriminant validity.

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Table 1. Reliability & Convergent Validity

Indicators	Loadings Factor
Confirmation	CA:0.876 CR: 0.924 AVE: 0.802
C1: Based on my experience, the performance of the QRIS payment method exceeds my initial expectations.	0.920
C2: The services provided by QRIS exceed my expectations.	0.915
C3: Overall, my expectations of QRIS have been confirmed (fulfilled).	0.850
Perceived Usefulness	CA:0.893 CR:0.926 AVE: 0.759
PU 1: I believe that using the QRIS payment method improves transaction efficiency.	0.895
PU2: I believe that the QRIS payment method is useful for conducting transactions.	0.893
PU3: In my opinion, using QRIS makes transactions easier.	0.904
PU4: Overall, using the QRIS payment method improves my business performance.	0.786
Perceived Value	CA: 0.854 CR: 0.911 AVE:0.773
PV1: For me, using QRIS is an enjoyable experience.	0.879
PV2: Based on my experience, using QRIS is very valuable to me.	0.882
PV3: QRIS represents an efficient use of my time and effort.	0.876
Perceived Risk	CA: 0.892 CR: 0.917 AVE: 0.690
PR1: When transacting using QRIS, I am afraid of making mistakes when entering the payment amount, which could result in financial loss.	0.756
PR2: When using QRIS, I feel anxious if there is a loss of internet connection.	0.706
PR3: Providing QRIS payment makes me more vulnerable to potential fraud or scams.	0.900
User Satisfaction	CA: 0.941 CR: 0.958 AVE:0.851
SAT1: In my opinion, my decision to provide the QRIS payment method was the right one.	0.904
SAT2: I have had positive experiences when transacting using QRIS.	0.926
SAT3: Overall, I am satisfied with how QRIS works in facilitating transactions.	0.933

SAT4: Overall, I am satisfied with the services I receive from using QRIS. 0.926

Continuance Intention CA: 0.918 CR:0.938 AVE: 0.754

CI1: I intend to continue using QRIS rather than not using it. 0.915

CI2: I prefer to use QRIS compared to other alternatives (cash, bank transfer, debit/credit cards) when serving customers. 0.790

CI3: If I am able to use QRIS, I will use it as frequently as possible 0.867

CI4: I will use QRIS across various QRIS service providers. 0.902

CI5: I will recommend the QRIS payment method to my friends and family. 0.862

Table 2. Fornell Larcker

Variables	Age	Age* Confirmation	Confirmation	CI	Gender	Gender* SAT	PR	PU	PV	SAT
Age	1.000									
Age* Confirmation	-0.032	1.000								
Confirmation	0.030	-0.052	0.896							
CI	0.046	-0.087	0.668	0.868						
Gender	-0.075	0.049	0.047	-0.018	1.000					
Gender* SAT	-0.011	-0.029	-0.062	-0.009	0.001	1.000				
PR	0.093	0.081	-0.093	-0.121	0.072	-0.036	0.831			
PU	0.120	-0.109	0.702	0.617	0.010	-0.182	-0.049	0.871		
PV	-0.030	-0.064	0.705	0.730	-0.006	-0.087	-0.050	0.752	0.879	
SAT	0.053	-0.104	0.668	0.814	0.003	-0.073	-0.128	0.681	0.726	0.922

Table 3. HTMT

Variables	Age	Age* Confirmation	Confirmation	CI	Gender	Gender* SAT	PR	PU	PV	SAT
Age										
Age* Confirmation	0.032									
Confirmation	0.032	0.056								
CI	0.051	0.091	0.743							
Gender	0.075	0.049	0.052	0.024						

Gender*S									
AT	0.011	0.029	0.065	0.030	0.001				
PR	0.112	0.086	0.089	0.122	0.062	0.051			
PU	0.126	0.116	0.789	0.681	0.016	0.192	0.048		
PV	0.033	0.069	0.814	0.825	0.025	0.094	0.079	0.861	
SAT	0.055	0.107	0.733	0.873	0.014	0.075	0.126	0.741	0.809

Table 4. R-Square

Variables	R-Square
Continuance Intention	0.716
User Satisfaction	0.599

The R^2 values are presented in Table 4. For continuance intention, the model explains 71.6% of the variance through user satisfaction, while the remaining 28.4% is attributable to factors not included in the model. In addition, 59.9% user satisfaction is explained by confirmation, perceived usefulness, perceived value, and perceived risk. According to Hair et al. (2017), if the value of R^2 is greater than 0.5, the study is considered substantial, whereas if R^2 is between 0.2 – 0.49, the study is considered moderate. Both endogenous variables in this study demonstrate substantial explanatory power, as their R^2 values exceed the recommended threshold of 0.50.

Table 5 presents the results of this study. The results indicate that H1, H2, H3, H4, H5, and H6b are supported, whereas H6a is not supported. H1, H3, and H5 are significantly positive at 0.01 level. H2 and H4 are significant at 0.05 levels, with H2 having a positive relationship, while H4 has a negative relationship. H6b is positive and statistically significant at the 10% significance level ($p < 0.10$).

The results indicate that H1 is supported ($p < 0.001$; $\beta = 0.702$), suggesting that higher levels of confirmation significantly enhance user satisfaction. This finding implies that when users' expectations are fulfilled, their satisfaction with QRIS increases accordingly. Similarly, H2 was supported, with a p-value of 0.011 and an original sample estimate of 0.219, demonstrating that perceived usefulness positively influences satisfaction, indicating that users who perceive QRIS as beneficial are more likely to be satisfied with the service. The

analysis also supported H3 ($\beta = 0.398$, $p < 0.001$), indicating that perceived value has a significant positive effect on user satisfaction. This finding suggests that merchants are more satisfied with QRIS when they perceive that its benefits outweigh the associated costs. Furthermore, H4 was supported, with a p-value of 0.037 and an original sample estimate of -0.077 , indicating that perceived risk negatively affects satisfaction, such that users who experience higher levels of risk tend to report lower satisfaction than those who do not. In addition, H5 was strongly supported ($\beta = 0.553$, $p < 0.001$), confirming that user satisfaction has a significant positive effect on continuance intention. This finding indicates that merchants who are more satisfied with QRIS are more likely to continue using the system in the future. Regarding the moderating effects, H6a was not supported, as reflected by an original sample estimate of 0.018 and a p-value of 0.520, suggesting that generational differences do not significantly influence continuance intention in the context of QRIS usage. Conversely, H6b was supported, with an original sample estimate of 0.062 and a p-value of 0.062, indicating the presence of significant differences between male and female users regarding their intention to continue using QRIS.

To ensure the robustness of the proposed model, we also conducted a robustness test. Specifically, we assessed the model using the nonlinearity criterion recommended in the literature by (Sarstedt et al., 2020). Hair et al. (2019) state that the relationship between two constructs is nonlinear, and the size effects depend on the exogenous construct and its value. This study incorporated a quadratic effect into the model and found that the quadratic term was not statistically significant. The insignificant relationship in the quadratic effects test is evidence that the model is robust as shown in Table 6 (Sarstedt et al., 2020).

Table 5. Hypothesis Testing

	Hypothesis	Original Sample	p-value	Decision
H1	Confirmation → User Satisfaction	0.702	0.000***	Supported
H2	Perceived Usefulness → User Satisfaction	0.219	0.011**	Supported
H3	Perceived Value → User Satisfaction	0.398	0.000***	Supported
H4	Perceived Risk → User Satisfaction	-0.077	0.037**	Supported
H5	User Satisfaction → Continuance Intention	0.553	0.000***	Supported
H6a	Age as moderator → User Satisfaction	0.018	0.520 ^{ns}	Not Supported
H6b	Gender as moderator → Continuance Intention	0.062	0.062*	Supported

^{ns} : Not significant; *, p<0.1, **, p<0.05, ***, p<0.01

Table 6. Robustness Test

Hypothesis	P-Value
H1: Confirmation → User Satisfaction	0.001
H2: Perceived Usefulness → User Satisfaction	0.009
H3: Perceived Value → User Satisfaction	0.000
H4: Perceived Risk → User Satisfaction	0.053
H5: User Satisfaction → Continuance Intention	0.000
H6a: Age as moderator → User Satisfaction	0.528
H6b: Gender as moderator → Continuance Intention	0.063
Quadratic Effect 1 (H1)	0.979
Quadratic Effect 2 (H2)	0.596
Quadratic Effect 3 (H3)	0.462
Quadratic Effect 4 (H4)	0.197
Quadratic Effect 5 (H5)	0.875

Discussion

The results highlight the effect of satisfaction on merchants' continuance intention to use QRIS. The findings indicate that satisfaction has a significant positive effect on continuance intention, suggesting that merchants who are

satisfied with the performance of QRIS are more likely to continue using it in the future. This finding empirically supports the applicability of TCT in explaining continuance intention in the context of QRIS usage. Kirmani et al. (2022) and Koeswandana (2025) state that

when the initial expectation of QRIS, such as the increasement of transaction speed and simplicity, is met, they will perceive that the system is quite satisfactory. These findings are also consistent with the postulates of Technology Continuance Theory (TCT), which suggest that post-adoption beliefs are shaped by users' prior satisfaction. More importantly, the results imply that maintaining merchant satisfaction is essential not only for continued system use but also for the long-term sustainability of the digital payment ecosystem. Since merchants are one of the crucial players in QRIS implementation, their continuance intention is crucial for maintaining widespread of QRIS usage in society, which lead to accelerated cashless transaction adoption in Indonesia.

This study also examines the factors that influence merchants' satisfaction by incorporating several key variables, including confirmation, perceived usefulness, perceived value, and perceived risk. The result shows that all of those variables are influencing the satisfaction.

The first hypothesis investigates the The findings confirm a positive relationship between confirmation and user satisfaction. When merchants perceive that QRIS performs as expected, they are more likely to develop favorable evaluations of the system, leading to higher levels of satisfaction. These findings align with Bhattacharjee (2001), which state that confirmation plays a pivotal role in whether the user will keep using the system or not. If consumers feel their expectation was confirmed for a certain system, they will intend to use the system in the future. Our study also finds that higher perceived usefulness leads to greater satisfaction. When merchants recognize the value of QRIS and perceive it as beneficial to their business operations, they are more likely to be satisfied with the system. This finding supports our second hypothesis. Nowadays, many consumers prefer to pay using QRIS instead of cash or another payment option (Syahrin et al., 2025) due to its simplicity and flexibility to pay whenever and wherever. In other words, confirmation may arise from the consistent performance of transaction processing, payment flexibility, and the seamless integration of QRIS into merchants' daily business operations. This finding implies

that QRIS providers and regulators should ensure system reliability and consistency to maintain merchants' positive expectations over time.

Perceived value reflects merchants' evaluation of the balance between the benefits and costs associated with using QRIS. We hypothesize that higher perceived value leads to greater satisfaction. It means that when the merchant finds that the benefit of using QRIS is higher than its cost, it will result in satisfaction. According to (Interactive, 2021), the cost of creating QRIS is only Rp. 30.000 while the additional cost per transaction varies, ranging between 0% - 0,7% based on their business classification. Considering the costs associated with using QRIS, the findings suggest that merchants perceive the benefits to outweigh the costs. This is further supported by the significant positive effect of perceived value on satisfaction, indicating that merchants consider the overall value of QRIS to be favorable. Therefore, our findings support H3. This finding highlights the importance of maintaining affordable transaction costs for merchants, particularly for micro and small enterprises. Policymakers and payment providers should therefore ensure that QRIS remains financially accessible to encourage broader and more sustainable adoption among merchants.

Despite the many advantages of using QRIS, merchants may still face certain risks. In particular, they may be exposed to fraud during QRIS transactions, especially given the occurrence of several QRIS-related fraud cases in Indonesia. Our fourth hypothesis states that higher perceived risk experienced by merchants will decrease the satisfaction level. Our study finds that QRIS has a low risks occur. Even though several cases involving QRIS occur, the risk can be mitigated by increasing vigilance and thoroughness among users. Such fraud typically occurs when customers falsify proof of payment and exploit merchants' negligence during the transaction process. These findings are in line with previous research conducted by Saibaba (2024) which states that higher risk will lead to dissatisfaction among users. From a practical perspective, these findings underscore the importance of strengthening transaction security and enhancing user education to support the sustained use of QRIS. Payment

providers and regulators should continuously improve fraud prevention mechanisms, transaction verification systems, and merchant literacy programs to minimize perceived risk. Increasing merchants' awareness of common fraud schemes may also help strengthen their trust in QRIS and promote long-term continuance intention.

This study also highlights the role of respondents' demographics in the relationship between confirmation, satisfaction, and continuance intention. This study also found that age did not significantly moderate the relationship between satisfaction and continuance intention. To examine this effect, the respondents were classified into two age groups. First called pre-millennials, this group consists of Gen X and Baby Boomers. The second group, called post-millennials, consists of Gen Y and Gen Z. We hypothesize that there will be different effects on pre-millennials and post-millennials due to their differences in technology expectations and tech-savviness. The results revealed no significant differences between the two age groups. This finding may be attributed to the simplicity and user-friendliness of the QRIS system, which makes it easy to understand and use for both pre-millennial and post-millennial merchants. QRIS usage does not need any special tech-savviness; it is just simple system usage. In addition, the expectation about QRIS is very clear because QRIS offers simplicity, fast transactions, and flexibility, which are realized by both generations.

Following the age moderation analysis, we further examined the moderating role of gender in the relationship between satisfaction and continuance intention. Venkatesh et al. (2012) state that males are more task-oriented than females. The result gives the same evidence as Venkatesh et al. (2012), which means that the relationship between satisfaction and continuance intention are stronger on male than female. This finding may be explained by the fact that male users are generally more task-oriented. When a system effectively supports the completion of their tasks, they are more likely to continue using it. Conversely, the task is not merely the factors that influence the continuance intention on female. They still consider the design, the ease, and other factors that are not substantial to the systems (Barnett-

Cowan et al., 2010; Mujtaba, 2023). This finding suggests that QRIS providers should focus not only on technical performance but also on enhancing the user interface, improving customer support, and delivering a better overall user experience to accommodate the diverse preferences of merchants. By understanding these demographic differences, QRIS stakeholders may formulate more targeted strategies to enhance merchant satisfaction and long-term continuance intention.

IV. CONCLUSION

This study investigates the factors that influence merchants' continuance intention to use QRIS. The findings indicate that confirmation, perceived usefulness, and perceived risk positively influence satisfaction, which is in line with Kirmani et al. (2022), Bhattacharjee (2001), and Badrawani (2022). Conversely, perceived risk has a significant negative effect on satisfaction, a finding that is consistent with previous research by Jain and Raman (2022). Moreover, a higher level of satisfaction will increase the continuance intention in the future. This study offers new insight using demographic information. Surprisingly, age did not significantly moderate the relationship between confirmation and satisfaction. The findings indicate that there is no meaningful difference between pre-millennial and post-millennial merchants in their evaluation of QRIS, suggesting that confirmation influences satisfaction similarly across both age groups. This finding suggests that QRIS is relatively inclusive and easy to use across generations. In contrast, gender moderates the relationship between satisfaction and continuance intention, indicating that male and female merchants may evaluate digital payment systems differently. Theoretically, these findings extend the Technology Continuance Theory (TCT) model proposed by Liao et al. (2009) by incorporating perceived risk and perceived value as additional predictors of user satisfaction. This extension provides a more comprehensive understanding of the factors influencing merchants' continuance intention to use QRIS. This result also supports several previous studies by Kirmani et al. (2022), Liao et al. (2009), and Koeswandana (2025). In conclusion, this study shows that the importance of perceived

usefulness, confirmation, perceived risk, and perceived value in determining user satisfaction, which leads to continuance intention in the future. Additionally, incorporating demographic variables such as age and gender enriches the understanding of continuance intention within the context of digital payment adoption and continuance research.

Practically, this study offers several important recommendations to policymakers and practitioners. First, regulators, particularly Bank Indonesia, should continuously strengthen the security of the QRIS system to minimize fraud risk and enhance merchants' trust in the platform. Second, policymakers should maintain affordable transaction fees, especially for micro and small enterprises, to ensure they continue to perceive QRIS as a high-value payment solution. Third, payment service providers should focus on improving transaction speed, system reliability, and user-friendly interfaces to enhance merchants' perceived usefulness and satisfaction, thereby encouraging their continuance intention to use QRIS.

Furthermore, practitioners may develop targeted communication and assistance programs for merchants by emphasizing the operational benefits of QRIS, such as transaction efficiency, payment flexibility, and broader customer reach. Since the findings demonstrate that satisfaction is a key determinant of continuance intention, enhancing merchants' overall experience should be a strategic priority for all QRIS stakeholders. Currently, QRIS is available in several ASEAN countries and other countries such as Japan and South Korea. This should be an opportunity for regulators to develop QRIS to be available in other countries and also develop the systems themselves from various perspectives, such as security and ease, to improve customers' experience and meet the customers' expectations. This study has several limitations. First, the findings may not be generalizable to other countries, as consumer behavior, digital payment infrastructure, and levels of technology readiness vary across national contexts, particularly between developing and developed countries. Future studies can be conducted by analyzing the difference between merchant classes, such as micro, small, and

medium enterprises, regarding the intention of providing QRIS as a payment option.

REFERENCES

- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In *SSSP Springer Series in Social Psychology*. Springer. http://dx.doi.org/10.1007/978-3-642-69746-3_2
- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social behavior*. NJ: Prentice Hall.
- Akinwale, Y. O., & Kyari, A. K. (2022). Factors influencing attitudes and intention to adopt financial technology services among the end-users in Lagos State, Nigeria. *African Journal of Science, Technology, Innovation and Development*, 14(1), 272–279. <https://doi.org/10.1080/20421338.2020.1835177>
- Al-Gasawneh, J. A., Khoja, B. Al, Al-Qeed, M., Nusairat, N. M., Hammouri, Q., & Anuar, M. M. (2022). Mobile-customer relationship management and its effect on post-purchase behavior.. *International Journal of Data and Network Science*, 6, 439–448. <https://doi.org/10.5267/j.ijdns.2021.12.010>
- Alamoudi, H., Glavee-geo, R., Alharthi, M., Doszhan, R., & Suyunchaliyeva, M. M. (2026). Exploring trust and outcome expectancy in FinTech digital payments : insights from the stimulus- organism-response model. *Intetnational Journal of Bank Marketing*, 43(4), 897–919. <https://doi.org/10.1108/IJBM-04-2024-0252>
- Ali, M. A., Ting, D. H., Isha, A. S. N., Ahmad-Ur-Rehman, M., & Ali, S. (2023). Does service recovery matter? Relationships among perceived recovery justice, recovery satisfaction and customer affection and repurchase intentions: the moderating role of gender. *Journal of Asia Business Studies*, 17(2), 308–326. <https://doi.org/https://doi.org/10.1108/JA-BS-02-2021-0060>
- Almashhadani, I. S., Abuhashesh, M., Bany, A., & Al-khasawneh, M. (2023).

- Exploring the determinants of FinTech adoption and intention to use in Jordan : The impact of Exploring the determinants of FinTech adoption and intention to use in Jordan : The impact of. *Cogent Social Sciences*, 9(2).
<https://doi.org/10.1080/23311886.2023.2256536>
- Anaya, Ó., & De La Vega, I. (2022). Drivers of the Sharing Economy That Affect Consumers' Usage Behavior: Moderation of Perceived Risk. *Administrative Sciences*, 12(4).
<https://doi.org/10.3390/admsci12040171>
- Anggraeni, R. (2022). *Awat! Transaksi via QR Code (QRIS) Berisiko Dibobol Hacker*.
<https://finansial.bisnis.com/read/20220614/11/1543551/awat-transaksi-via-qr-code-qr-is-berisiko-dibobol-hacker>
- Badrawani, W. (2022). Measuring Central Bank's Policy Effectiveness in Affecting Intention to Use New Payment Platform During The COVID-19 Pandemic. *International Journal of Economics and Management*, 16(3), 319–337.
<https://doi.org/10.47836/ijeam.16.3.04>
- Bakhitah, A., Indra, R., Halim, W., Ferbian, V., & Hidayat, Z. (2023). QRIS as a Drivers of Product Distribution Flows in Indonesia: Factors of Consumer Purchasing Behavior in the Use of Fintech Payments. *Journal of Distribution Science*, 21(12), 59–69.
<https://doi.org/10.15722/jds.21.12.202312.59>
- Bank Indonesia. (2019). *Peraturan Anggota Dewan Gubernur Nomor 21/ 18 /Padg/2019 Tentang Implementasi Standar Nasional Quick Response Code Untuk Pembayaran* (pp. 1–30).
- Barnett-Cowan, M., Dyde, R. ., Thompson, C., & Harris, L. . (2010). Multisensory determinants of orientation perception: task-specific sex differences. *European Journal of Neuroscience*.
<https://doi.org/10.1111/j.1460-9568.2010.07199.x>
- Barua, Z., Aimin, W., & Hongyi, X. (2018). A perceived reliability-based customer satisfaction model in self-service technology. *Service Industries Journal*, 38(7–8), 446–466.
<https://doi.org/10.1080/02642069.2017.1400533>
- Belanche, D., Casaló, L. V., & Guinaliu, M. (2012). Website usability, consumer satisfaction and the intention to use a website: The moderating effect of perceived risk. *Journal of Retailing and Consumer Services*, 19, 124–132.
<https://doi.org/doi:10.1016/j.jretconser.2011.11.001>
- Bertolotti, R. (2018). *Tutorial K - Data Prep 2-2: Dummy Coding Category Variables* (2nd ed.).
<https://doi.org/https://doi.org/10.1016/B978-0-12-416632-5.00033-5>
- Bhat, J. R., Alqahtani, S. A., & Nekovee, M. (2023). FinTech enablers , use cases , and role of future internet of things. *Journal of King Saud University - Computer and Information Sciences*, 35(1), 87–101.
<https://doi.org/10.1016/j.jksuci.2022.08.033>
- Bhattacharjee, A. (2001). Understanding Information System Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), 351–370.
- Bongomin, G. O. C., & Ntayi, J. M. (2020). Mobile money adoption and usage and financial inclusion: mediating effect of digital consumer protection. *Digital Policy, Regulation and Governance*, 22(3), 157–176.
<https://doi.org/10.1108/DPRG-01-2019-0005>
- Bueno, L. A., Sigahi, T. F. A. ., Rampasso, I. S., & Filho, W. L. (2024). International Journal of Information Impacts of digitization on operational efficiency in the banking sector : Thematic analysis and research agenda proposal. *International Journal of Information Management Data Insights*, 4(1), 100230.
<https://doi.org/10.1016/j.jjimei.2024.100230>
- Burhan, F. A. (2022). *Transaksi Pembayaran Digital di RI Rp 305 T, Fintech Sasar Luar Negeri*.
- Cevik, S. (2020). *Dirty Money: Does the Risk of Infectious Disease Lower Demand for Cash?* International Monetary Fund.
- Cho, C. H., & Hyun, J. H. (2016). What e-SERVPERF in recruiting websites does affect users' perceived value, satisfaction,

- and revisit intention in Korea? *Total Quality Management and Business Excellence*, 27(7–8), 818–835.
<https://doi.org/10.1080/14783363.2016.1188658>
- Chohan, F., Aras, M., Indra, R., Wicaksono, A., & Winardi, F. (2022). Building Customer Loyalty In Digital Transaction Using QR Code: Quick Response Code Indonesian Standard (QRIS). *Journal of Distribution Science*, 20(1), 1–11.
<https://doi.org/10.15722/jds.20.01.202201.1>
- Churchill, G. A., & Surprenant, C. (1982). An Investigation into the Determinants of Customer Satisfaction. *Journal of Marketing Research*, 19(4), 491–504.
- Dalhan, G., & Akkoyunlu, B. (2016). Modeling the continuance usage intention of online learning environments. *Computers in Human Behavior*, 60, 198–211.
<https://doi.org/10.1016/j.chb.2016.02.066>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340.
<https://doi.org/10.5962/bhl.title.33621>
- Dimitrova, I., Öhman, P., & Yazdanfar, D. (2022). Barriers to bank customers' intention to fully adopt digital payment methods. *International Journal of Quality and Service Sciences*, 14(5), 16–36. <https://doi.org/10.1108/IJQSS-03-2021-0045>
- Dzogbenuku, R. K., Amoako, G. K., Kumi, D. K., & Bonsu, G. A. (2022). Digital Payments and Financial Wellbeing of the Rural Poor: The Moderating Role of Age and Gender. *Journal of International Consumer Marketing*, 34(2), 113–136.
<https://doi.org/10.1080/08961530.2021.1917468>
- Ediputra, M. R., & Amalyah, A. A. (2022). Analysis Factors Affecting Consumer Preferences in using Qris Payment In-Store. *2022 5th International Conference on Computer and Informatics Engineering, IC2IE 2022*, 29–34.
<https://doi.org/10.1109/IC2IE56416.2022.9970086>
- Elia, G., Stefanelli, V., & Ferilli, G. B. (2023). Investigating the role of Fintech in the banking industry : what do we know ? *European Journal of Innovation Management*, 26(5), 1365–1393.
<https://doi.org/10.1108/EJIM-12-2021-0608>
- Faqih, K. M. S., & Jaradat, M. I. R. M. (2015). Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective. *Journal of Retailing and Consumer Services*, 22, 37–52.
<https://doi.org/10.1016/j.jretconser.2014.09.006>
- Featherman, M. S., & Pavlou, P. A. (2003). Predicting E-Services Adoption: A Perceived Risk Facets Perspective. *International Journal of Human-Computer Studies*, 59, 451–474.
[https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)
- Ferreira, A., Silva, G. M., & Dias, Á. L. (2023). Determinants of continuance intention to use mobile self-scanning applications in retail. *International Journal of Quality and Reliability Management*, 40(2), 455–477.
<https://doi.org/10.1108/IJQRM-02-2021-0032>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39.
<https://doi.org/10.2307/3151312>
- Gao, X. (2023). Digital transformation in finance and its role in promoting financial transparency. *Global Finance Journal*, 58(October), 100903.
<https://doi.org/10.1016/j.gfj.2023.100903>
- Guidice, M. Del, Scuotto, V., Orlando, B., & Mustilli, M. (2023). Toward the human - Centered approach. A revised model of individual acceptance of AI. *Human Resource Management Review*, 33.
<https://doi.org/10.1016/j.hrmr.2021.100856>
- Gupta, A., Yousaf, A., & Mishra, A. (2020). How pre-adoption expectancies shape post-adoption continuance intentions: An extended expectation-confirmation model. *International Journal of*

- Information Management*, 52.
<https://doi.org/10.1016/j.ijinfomgt.2020.102094>
- Ha, M. T., Tran, K. T., Sakka, G., & Ahmed, Z. U. (2024). Understanding perceived risk factors toward mobile payment usage by employing extended technology continuance theory : a Vietnamese consumers ' perspective. *Journal of Asia Business Studies*, 18(1), 158–182.
<https://doi.org/10.1108/JABS-01-2023-0025>
- Hair, J. F., Hult, G. T. ., Ringle, C. ., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (Second Edi). Sage Publications.
- Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate Data Analysis. In *Book* (8th ed.). Annabel Ainscow.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
<https://doi.org/10.1007/s11747-014-0403-8>
- Hoang, Y. H., Nguyen, D. T. T., Tran, L. H. T., Nguyen, N. T. H., & Vu, N. B. (2021). Customers' adoption of financial services offered by banks and fintechs partnerships: evidence of a transitional economy. *Data Science in Finance and Economics*, 1(1), 77–95.
<https://doi.org/10.3934/dsfe.2021005>
- Indonesia, B. (2021). *Ekonomi digital tumbuh hingga 4.500 triliun pada 2030. Pemerintah dan asosiasi sepakat menjaga inklusi dan mendorong literasi keuangan digital*.
- Interactive, Q. (2021). *Pendaftaran QRIS*.
<https://qris.interactive.co.id/homepage/pricing.php>
- Iranmanesh, M., Zailani, S., & Nikbin, D. (2017). RFID Continuance Usage Intention in Health Care Industry. *Quality Management in Health Care*, 26(2), 116–123.
<https://doi.org/10.1097/QMH.0000000000000134>
- Jain, N., & Raman, T. V. (2022). A partial least squares approach to digital finance adoption. *Journal of Financial Services Marketing*, 27(4), 308–321.
<https://doi.org/10.1057/s41264-021-00127-8>
- Jaiswal, D., Kaushal, V., Mohan, A., & Thaichon, P. (2022). Mobile wallets adoption: pre- and post-adoption dynamics of mobile wallets usage. *Marketing Intelligence and Planning*, 40(5), 573–588.
<https://doi.org/10.1108/MIP-12-2021-0466>
- Jangir, K., Sharma, V., Taneja, S., & Rupeika-Apoga, R. (2023). The Moderating Effect of Perceived Risk on Users' Continuance Intention for FinTech Services. *Journal of Risk and Financial Management*, 16(1).
<https://doi.org/10.3390/jrfm16010021>
- Kadin. (2024). *UMKM Indonesia*.
<https://kadin.id/data-dan-statistik/umkm-indonesia/>
- Karjaluoto, H., Shaikh, A. A., Saarijarvi, H., & Saraniemi, S. (2019). How perceived value drives the use of mobile financial service apps. *International Journal of Information Management*, 47, 252–261.
<https://doi.org/10.1016/j.ijinfomgt.2018.08.014>
- Kelly, S., Kaye, S.-A., & Oviedo-Trespalacios, O. (2023). What factors contribute to the acceptance of artificial intelligence? A systematic review. *Telematics and Informatics*, 77, 1–11.
<https://doi.org/10.1016/j.tele.2022.101925>
- Khayer, A., & Bao, Y. (2019). The continuance usage intention of Alipay: Integrating context-awareness and technology continuance theory (TCT). *Bottom Line*, 32(3), 211–229.
<https://doi.org/10.1108/BL-07-2019-0097>
- Kirmani, M. D., Haque, M. A., Sadiq, M. A., & Hasan, F. (2022). Cashless preferences during the COVID-19 pandemic: investigating user intentions to continue UPI-based payment systems in India. *Journal of Science and Technology Policy Management*.
<https://doi.org/10.1108/JSTPM-08-2021-0127>
- Koeswandana, N. A. (2025). ISLAMIC

- CROWDFUNDING IN INDONESIA : TECHNOLOGY CONTINUANCE. *Jurnal Ilmiah Mahasiswa Ekonomi Akuntansi (JIMEKA)*, 10(3), 630–645. <https://doi.org/10.24815/jimeka.v10i3.35755>
- Koeswandana, N. A., & Sugino, F. A. (2023). Intention to use cryptocurrency: Social and religious perspective. *Jurnal Ekonomi & Keuangan Islam*, 9(1), 91–103. <https://doi.org/10.20885/jeki.vol9.iss1.art7>
- Koeswandana, N. A., & Yulfiatmi, M. Y. (2025). Do cyberattacks and religiosity impact customers' loyalty? Study on Bank Syariah Indonesia. *Jurnal Ekonomi & Keuangan Islam*, 11(May 2023), 179–195. <https://doi.org/10.20885/JEKI.vol11.iss2.art2>
- Lee, C. T., & Pan, L.-Y. (2023). Smile to pay : predicting continuous usage intention toward contactless payment services in the post-COVID-19 era. *International Journal of Bank Marketing*, 41(2), 0265–2323. <https://doi.org/10.1108/IJBM-03-2022-0130>
- Lee, J. H., & Song, C. H. (2013). Effects of trust and perceived risk on user acceptance of a new technology service. *Social Behavior and Personality*, 41(4), 587–597. <https://doi.org/10.2224/sbp.2013.41.4.587>
- Leong, L.-Y., Hew, T.-S., Ooi, K.-B., Metri, B., & Dwivedi, Y. K. (2023). Extending the Theory of Planned Behavior in the Social Commerce Context : A Meta - Analytic SEM (MASEM) Approach. In *Information Systems Frontiers* (Vol. 25, Issue 5). Springer US. <https://doi.org/10.1007/s10796-022-10337-7>
- Li, Y. (2022). Identity construction in social media: a study on blogging continuance. *Behaviour and Information Technology*, 41(8), 1671–1688. <https://doi.org/10.1080/0144929X.2021.1895319>
- Liao, C., Palvia, P., & Chen, J.-L. (2009). Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT). *International Journal of Information Management*, 29, 309–320. <https://doi.org/10.1016/j.jinfomgt.2009.03.004>
- Maduku, D. K., & Thusi, P. (2023). Understanding consumers' mobile shopping continuance intention: New perspectives from South Africa. *Journal of Retailing and Consumer Services*, 70. <https://doi.org/10.1016/j.jretconser.2022.103185>
- Marinković, V., Đorđević, A., & Kalinić, Z. (2020). The moderating effects of gender on customer satisfaction and continuance intention in mobile commerce: a UTAUT-based perspective. *Technology Analysis and Strategic Management*, 32(3), 306–318. <https://doi.org/10.1080/09537325.2019.1655537>
- Mavlutova, I., Spilbergs, A., Verdenhofs, A., Natrins, A., Arefjevs, I., & Volkova, T. (2023). Digital Transformation as a Driver of the Financial Sector Sustainable Development: An Impact on Financial Inclusion and Operational Efficiency. *Sustainability (Switzerland)*, 15(1). <https://doi.org/10.3390/su15010207>
- Megasari, Y., Warsono, S., & Koeswandana, N. A. (2025). Absolute Versus Restrictive Deterrence on Information Security Policy Compliance Behavior in Organizations : A Systematic Review of the Literature. *Cerdika: Jurnal Ilmiah Indonesia*, 5(7), 2096–2102.
- Moradi, M., & Dass, M. (2022). Applications of artificial intelligence in B2B marketing: Challenges and future directions. *Industrial Marketing Management*, 107, 300–314. <https://doi.org/10.1016/j.indmarman.2022.10.016>
- Muchtar, E. H., Trianto, B., Maulana, I., Alim, M. N., Marasabessy, R. H., Hidayat, W., Junaedi, E., & Masrizal. (2024). Quick response code Indonesia standard (QRIS) E-payment adoption: customers perspective. *Cogent Business and Management*, 11(1), 1–19. <https://doi.org/10.1080/23311975.2024.2316044>

- Mujtaba, B. G. (2023). Task and Relationship Orientation of Aspiring Leaders : A Study of Male and Female Adults in Business Education. *Business Ethics and Leadership*, 7(3), 1–12.
[https://doi.org/10.61093/bel.7\(3\).1-12.2023](https://doi.org/10.61093/bel.7(3).1-12.2023)
- Mulia, D., Usman, H., & Parwanto, N. B. (2020). The role of customer intimacy in increasing Islamic bank customer loyalty in using e-banking and m-banking. *Journal of Islamic Marketing*, 12(6), 1097–1123.
<https://doi.org/10.1108/JIMA-09-2019-0190>
- Munikrishnan, U. T., Huang, K., Mamun, A. Al, & Hayat, N. (2023). Perceived Risk, Trust, and Online Food Purchase Intention Among Malaysians. *Business Perspectives and Research*, 11(1), 28–43.
<https://doi.org/10.1177/22785337211043968>
- Musyaffi, A. M., Johari, R. J., Rosnidah, I., Sari, D. A. P., Amal, M. I., Tasyrifania, I., Pertiwia, S. A., & Sutanti, F. D. (2021). Digital Payment during Pandemic: An Extension of the Unified Model of QR Code. *Academic Journal of Interdisciplinary Studies*, 10(6), 213–223.
<https://doi.org/10.36941/ajis-2021-0166>
- Nazir, S., Khadim, S., Asadullah, M. A., & Syed, N. (2023). Exploring the influence of artificial intelligence technology on consumer repurchase intention: The mediation and moderation approach. *Technology in Society*, 72.
<https://doi.org/10.1016/j.techsoc.2022.102190>
- Nguyen, Q. N., Ta, A., & Prybutok, V. (2018). An Integrated Model of Voice-User Interface Continuance Intention: The Gender Effect. *International Journal of Human-Computer Interaction*, 35(15), 1362–1377.
<https://doi.org/10.1080/10447318.2018.1525023>
- Nurdin, N., Pettalongi, S. S., & Mangasing, M. (2019). Understanding digital skill use from the technology continuance theory (TCT). *2019 6th International Conference on Information Technology, Computer and Electrical Engineering, ICITACEE 2019*.
<https://doi.org/10.1109/ICITACEE.2019.8904176>
- Oktavendi, T. W., & Mu'ammal, I. (2022). Acceptance model for predicting adoption of Zakat, Infaq, and Sadaqoh (ZIS) digital payments in Generation Z. *Journal of Islamic Accounting and Business Research*, 13(4), 684–700.
<https://doi.org/10.1108/JIABR-09-2021-0267>
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460.
<https://doi.org/10.2307/3150499>
- PAN-RB, K. (2024). *Transaksi QRIS Tumbuh 226,54 Persen*.
<https://www.menpan.go.id/site/berita-terkini/berita-daerah/transaksi-qr-is-tumbuh-226-54-persen>
- Pattanayak, D., Koilakuntla, M., & Punyatoya, P. (2017). Investigating the influence of TQM, service quality and market orientation on customer satisfaction and loyalty in the Indian banking sector. *International Journal of Quality and Reliability Management*, 34(3), 362–377.
<https://doi.org/10.1108/IJQRM-04-2015-0057>
- Perez-Aranda, J., González Robles, E. M., & Alarcón Urbistondo, P. (2023). Understanding antecedents of continuance and revisit intentions: The case of sport apps. *Journal of Retailing and Consumer Services*, 72.
<https://doi.org/10.1016/j.jretconser.2023.103288>
- Perwitasari, A. W. (2022). The Effect of Perceived Usefulness and Perceived Easiness towards Behavioral Intention to Use Fintech by Indonesian MSMEs. *The Winners*, 23(1), 1–9.
<https://doi.org/10.21512/tw.v23i1.7078>
- Peter, J. P., & Ryan, M. J. (1976). An Investigation of Perceived Risk at the Brand Level. *Journal of Marketing Research*, 13(2), 184.
<https://doi.org/10.2307/3150856>
- Quan, W., Moon, H., Kim, S., & Han, H. (2023). Mobile, Traditional and Cryptocurrency Payments Influence Consumer Trust, Attitude and Destination Choice: Chinese Versus

- Koreans. *International Journal of Hospitality Management*, 108(1003363), 1–12.
<https://doi.org/https://doi.org/10.1016/j.ijhm.2022.103363>
- Rahi, S., Mansour, M. M. O., Alharafsheh, M., & Alghizzawi, M. (2021). The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model. *Journal of Enterprise Information Management*, 34(6), 1874–1892.
<https://doi.org/10.1108/JEIM-04-2020-0156>
- Rahman, M. F., Talukder, M. S., Lanrong, Y., & Khayer, A. (2020). Why do citizens use e-tax system? *International Journal of Research in Business and Social Science* (2147- 4478), 9(7), 177–189.
<https://doi.org/10.20525/ijrbs.v9i7.946>
- Reddy, T. T., & Rao, B. M. (2019). The Moderating Effect of Gender on Continuance Intention Toward Mobile Wallet Services in India. *Indian Journal of Marketing*, 49(4), 48.
<https://doi.org/10.17010/ijom/2019/v49/i4/142976>
- Saibaba, S. (2024). Examining the Determinants of Mobile Banking App Continuance Intention in India: An Extension of the IS Success Model. *Journal of Internet Commerce*, 23(1), 50–89.
<https://doi.org/10.1080/15332861.2023.2236428>
- Sarstedt, M., Ringle, C. M., Cheah, J. H., Ting, H., Moisescu, O. I., & Radomir, L. (2020). Structural model robustness checks in PLS-SEM. *Tourism Economics*, 26(4), 531–554.
<https://doi.org/10.1177/1354816618823921>
- Sebastian, M. G. de B., Antonovica, A., & Guede, J. R. S. (2023). What are the leading factors for using Spanish peer-to-peer mobile payment platform Bizum? The applied analysis of UTAUT2 model. *Technological Forecasting and Social Change*, 187(12235), 1–16.
<https://doi.org/10.1016/j.techfore.2022.122235>
- Setiawan, B., Phan, T. D., Medina, J., Wieriks, M., Nathan, R. J., & Fekete-Farkas, M. (2024). Quest for financial inclusion via digital financial services (Fintech) during COVID-19 pandemic: case study of women in Indonesia. *Journal of Financial Services Marketing*, 29(2), 459–473. <https://doi.org/10.1057/s41264-023-00217-9>
- Shiau, W. L., Yuan, Y., Pu, X., Ray, S., & Chen, C. C. (2020). Understanding fintech continuance: perspectives from self-efficacy and ECT-IS theories. *Industrial Management and Data Systems*, 120(9), 1659–1689.
<https://doi.org/10.1108/IMDS-02-2020-0069>
- Silva, S. C., De Cicco, R., Vlačić, B., & Elmashhara, M. G. (2022). Using chatbots in e-retailing – how to mitigate perceived risk and enhance the flow experience. *International Journal of Retail and Distribution Management*, 51(3), 285–305.
<https://doi.org/10.1108/IJRDM-05-2022-0163>
- Sivathanu, B. (2019). Adoption of digital payment systems in the era of demonetization in India: An empirical study. *Journal of Science and Technology Policy Management*, 10(1), 143–171.
<https://doi.org/10.1108/JSTPM-07-2017-0033>
- Syahrin, K., Arisandy, Y., & Handika, Y. (2025). The Influence of Convenience , Benefits , and Security on Consumer Preferences in Adopting QRIS Non-Cash Payments. *Airlangga Journal of Innovation Management*, 06(03), 521–541.
<https://doi.org/10.20473/ajim.v6i3.77544>
- Tawira, L., & Ivanov, A. (2022). Leveraging personalization and customization affordances of virtual try-on apps for a new model in apparel m-shopping. *Asia Pacific Journal of Marketing and Logistics*, 35(2), 451–471.
<https://doi.org/10.1108/APJML-09-2021-0652>
- Ter Ji-Xi, J., Salamzadeh, Y., & Teoh, A. P. (2021). Behavioral intention to use cryptocurrency in Malaysia: an empirical study. *Bottom Line*, 34(2), 170–197.
<https://doi.org/10.1108/BL-08-2020-0053>

- Tian, Y., Chan, T. J., Suki, N. M., & Kasim, M. A. (2023). Moderating Role of Perceived Trust and Perceived Service Quality on Consumers' Use Behavior of Alipay e-wallet System: The Perspectives of Technology Acceptance Model and Theory of Planned Behavior. *Human Behavior and Emerging Technologies*, 2023(5276406), 1–14. <https://doi.org/10.1155/2023/5276406>
- Tsindeliani, I. A., Proshunin, M. M., & Sadovskaya, T. D. (2021). Digital transformation of the banking system in the context of sustainable development system. *Journal of Money Laundering*, 25(1), 165–180. <https://doi.org/10.1108/JMLC-02-2021-0011>
- Tut, D. (2023). FinTech and the COVID-19 pandemic: Evidence from electronic payment systems. *Emerging Markets Review*, 54(100999), 1–20. <https://doi.org/10.1016/j.ememar.2023.100999>
- Usman, O., Alianti, M., & Fadillah, F. N. (2024). Factors affecting the intention to use QRIS on MSME customers. *International Journal of Applied Economics, Finance and Accounting*, 18(1), 77–87. <https://doi.org/10.33094/ijaefa.v18i1.1323>
- Veldhoven, Z. Van, & Vantthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. *Electronic Markets*, 32, 629–644. <https://doi.org/10.1007/s12525-021-00464-5>
- Venkatesh, V., Thong, J. Y. ., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157–178. <https://doi.org/10.2307/41410412>
- Verma, S., Chaurasia, S. S., & Bhattacharyya, S. S. (2020). The effect of government regulations on continuance intention of in-store proximity mobile payment services. *International Journal of Bank Marketing*, 38(1), 34–62. <https://doi.org/10.1108/IJBM-10-2018-0279>
- Xu, J., & Lu, W. (2022). Technology in Society Developing a human-organization-technology fit model for information technology adoption in organizations. *Technology in Society*, 70(June), 102010. <https://doi.org/10.1016/j.techsoc.2022.102010>
- Yang, Z., & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology and Marketing*, 21(10), 799–822. <https://doi.org/10.1002/mar.20030>
- Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52(3), 2. <https://doi.org/10.2307/1251446>
- Zhuang, X., Lin, L., Zhang, R., Li, J. (Justin), & He, B. (2021). E-service quality perceptions of millennials and non-millennials on O2O delivery applications. *British Food Journal*, 123(12), 4116–4134. <https://doi.org/10.1108/BFJ-01-2021-0049>