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Factors Influencing Consumer Adoption of QRIS Mobile Payment Services in Indonesia: An Extended Technology Acceptance Model Approach

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Abstract. This study investigates the factors influencing consumers' behavioral intention to adopt QRIS-based mobile payments in Indonesia. Using an extended Technology Acceptance Model (TAM), we examine the effects of perceived usefulness, perceived ease of use, perceived enjoyment, trust, and innovation on behavioral intention and actual adoption of QRIS. Data were collected from a sample of 500 QRIS users in Indonesia using an online survey. The results, analyzed using partial least squares structural equation modeling (PLS-SEM), reveal that all variables have significant positive effects on behavioral intention and adoption. The findings contribute to the literature on mobile payment adoption and provide insights for mobile payment providers, policymakers, and researchers. Limitations and future research directions are discussed.

Keywords: Adoption, Behavior Intention, Perceived Enjoyment, Trust, TAM (Technology Acceptance Model)

1. Introduction

This study makes both theoretical and empirical contributions. Theoretically, it evaluates the relationship between customer behavioral intentions to embrace QRIS and the elements of perceived enjoyment, trust, and innovation in QR codes. This suggests that there will be an increase in both the use of QRIS and digital currency, indirectly affecting internet usage, smartphone sales, and the digital economy. This study also includes variables that were overlooked by other researchers. The empirical approach used in this study is based on previous works, particularly those by Ho et al. (2020), Yan et al. (2021), Susanti & Kresnha Reza (2022), Persadha et al. (2023). The distinction lies in the sample size and the exclusion of risk variables, subjective excitement, and inventiveness in QR codes.

Studying behavioral intentions in the use of QRIS services is crucial for researchers in digital finance, financial management, and consumer behavior, as behavioral intentions reflect a person's motivation to take specific actions (Ajzen, 1991). Behavioral intention is a measure of how likely someone is to perform a certain behavior (Kang, 2014). The core idea of the technology adoption model, as discussed by Susanti & Reza (2022), Venkatesh, et al (2012), Ajzen (1991), Taylor & Todd (1995), Sheppard et al. (1988), is the behavioral intention to utilize technology.

According to Li-YaYan., et al, (2020), the user-friendliness and simplicity of mobile devices influence behavioral intentions to use QR codes. Ho et al. (2020) found that various independent variables (degree of relationship) influence the behavioral intention to use mobile banking services, including new technical innovations, attitudes toward adoption, subjective attitudes, perceived control behavior, interest, benefits, convenience, trial, risk, effectiveness, and conditions. Pham & Ho (2015) also found that both individual and product characteristics impact these intentions.

Kang (2014) showed that perceived usefulness and ease of use affect the behavioral change in intention from mobile banking to NFC mobile payments. Thakur & Srivastava (2014) demonstrated that perceived usefulness and perceived convenience influence the readiness to adopt mobile payments. However, Li-YaYan., et al (2020) found that ease of mobile use and personal innovation do not influence behavioral intentions to adopt mobile banking. Similarly, Ho et al., (2020a) found that ease of use of mobile devices and technological innovation do not significantly influence the behavioral intention to use mobile banking services. These diverse findings suggest that further research is needed on the use of technology in mobile payments, especially QRIS. Many studies focus on mobile payments in general or specific technologies such as NFC, but there are still few studies that specifically examine QRIS adoption in Indonesia.

The factors affecting behavioral intention to use mobile payments are still diverse and inconclusive. According to Li-YaYan., et al, (2020), the factors influencing usage behavior intention to adopt QR codes include usability on mobile devices and ease of mobile use. Ho et al., (2020a) found that dependent variables like attitude toward adoption, perceived behavioral control, and innovation in new technology, as well as independent variables like suitability, benefits, convenience, trials, risks, and self-efficacy, affect behavioral usage intention for mobile banking.

According to Pham & Ho (2015), the factors that influence consumers to use NFC include personal-related factors and product-related factors. As factors affecting behavioral intention to apply mobile payments are not yet conclusive, further research is needed to identify these influencing factors. Theoretical and empirical literature showing the relationship between factors influencing the use of mobile payments provides ambiguous results.

Several studies show mixed results regarding the elements influencing a person's behavioral intention to use mobile payments. For example, Li-YaYan et al. (2020) found that ease of use of mobile devices and personal innovativeness did not affect behavioral intention to adopt mobile banking, while Ho et al. (2020a) discovered that comfort of use of mobile devices and technological innovation did not significantly affect behavioral intention.

This study makes both theoretical and empirical contributions. Theoretically, it evaluates the relationship between customer behavioral intentions to embrace QRIS and the elements of perceived enjoyment, trust, and innovation in QR codes. This suggests that there will be an increase in both the use of QRIS and digital currency, indirectly affecting internet usage, smartphone sales, and the digital economy. There are variables in this study that other researchers did not consider. The empirical approach used in this study is based on previous works, particularly those by Ho et al. (2020), Yan et

al. (2021), Susanti & Kresnha Reza (2022), Persadha et al. (2023). The distinction lies in the sample size and the exclusion of risk variables, subjective excitement, and inventiveness in QR codes.

In this study, a model framework for the Technology Acceptance Model (TAM) is used. The purpose of this research is to provide a more thorough knowledge of the factors that influence behavioral intention to accept QRIS-based mobile payments. Research questions such as "What are the main factors influencing behavioral intention in adopting QRIS-based mobile payments?" must be considered so that the research objectives can be achieved. Additionally, the study explores the influence of independent and moderating variables on the use of QRIS in Indonesia.

2. Literature Review

Usability is the first quality to consider for any new technology. Perceived usefulness is the extent to which an individual thinks that utilizing a particular method will improve their productivity at work (Xiao & Goulias, 2022; Dhagarra et al. 2020). To persuade customers to use QRIS-based mobile payments, it is essential to demonstrate that this method offers more benefits than alternative payment methods (such as cash, credit cards, or debit cards). According to several studies Flavian et al. (2020), Faasolo & Sumarliah (2021), Ho et al. (2020), Handarkho & Harjoseputro (2020), Nabipour Sanjebad et al. (2020), mobile payments are more productive and efficient.

With QRIS payments, customers can complete transactions quickly without using cash or credit cards. A survey by Putit et al. (2021) indicates that contactless payments are easy to use and process twice as fast as card payments. This speed of service is particularly appealing in crowded retail environments. Additionally, it was reported that QRIS payment speeds were six seconds faster than PayPass card payments (Saripudin et al., 2023; Puspitasari & Salehudin, 2022). Recent research suggests that consumers are more likely to use e-commerce or mobile payments if they perceive clear advantages and utility (Bylok, 2022; Picoto et al. 2023; German Ruiz-Herrera et al. 2023; Naruetharadhol et al. 2022; Zhou et al. 2021; Jang & Hsieh, 2021). Customers are more inclined to use NFC payments if they believe it will make their transactions smoother. Thus, the following hypothesis is proposed: Consumers are more likely to adopt e-commerce or mobile payments if they perceive clear advantages and utility.

When consumers see the distinct benefits that mobile payment services offer over alternative payment options, they are more inclined to use them. A number of earlier research projects made use of well-known theoretical frameworks, including the Diffusion of Innovations (DOI), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technology Acceptance Model (TAM). These models offer a strong foundation for comprehending the variables influencing the uptake of mobile payment technology. The Technology Acceptance Model (TAM) emphasizes that another crucial aspect of new technologies is their usefulness and ease of use. The degree to which a technology is thought to be easy to comprehend and utilize is known as perceived ease of use and usefulness. (Susanti & Alamsyah, 2022; Xiao & Goulias, (2022). Islam et al., 2020; Dhingra & Mudgal, 2020). Users are more likely to adopt innovations or applications that they find easier to use. Consistent with studies by Luna et al. (2023) and Andronie et al. (2021), our hypothesis is that users of mobile commerce platforms who find them easy to use will be more inclined to accept mobile payments. Users' attitudes about technologies like QRIS can be predicted with the aid of Ease of use and usefulness, which in turn affects their intention to utilize and absorb those technology.

Trust is another critical factor in interactions between marketers and consumers because it can lead to successful transactions (Faqih, 2022). Perceived consumer trust in electronic Payment systems pertain to the conviction that financial transactions will handled in a manner that meets their expectations (Lindberg et al., 2023; Namahoot & Jantasri, 2023; Zaid Kilani et al., 2023; Choudhury & Shamszare, 2023; Liu & Zheng, 2023). Increasing trust has a direct and favorable impact on behavioral purchase intentions, as demonstrated by (Abdul Sathar et al., 2023; Tian et al., 2023;.Zhao et al., 2023; Liu et al., 2023) Trust is crucial in uncertain situations like electronic commerce, according to (Faqih, 2022; Chakraborty et al. 2022; Kumar et al. 2022; Butt et al., 2022). It will be extremely difficult to achieve universal adoption of a new technology or service unless the service provider builds customer trust. Therefore, we anticipate that trust will significantly influence the behavioral intention to use QRIS-based mobile payments.

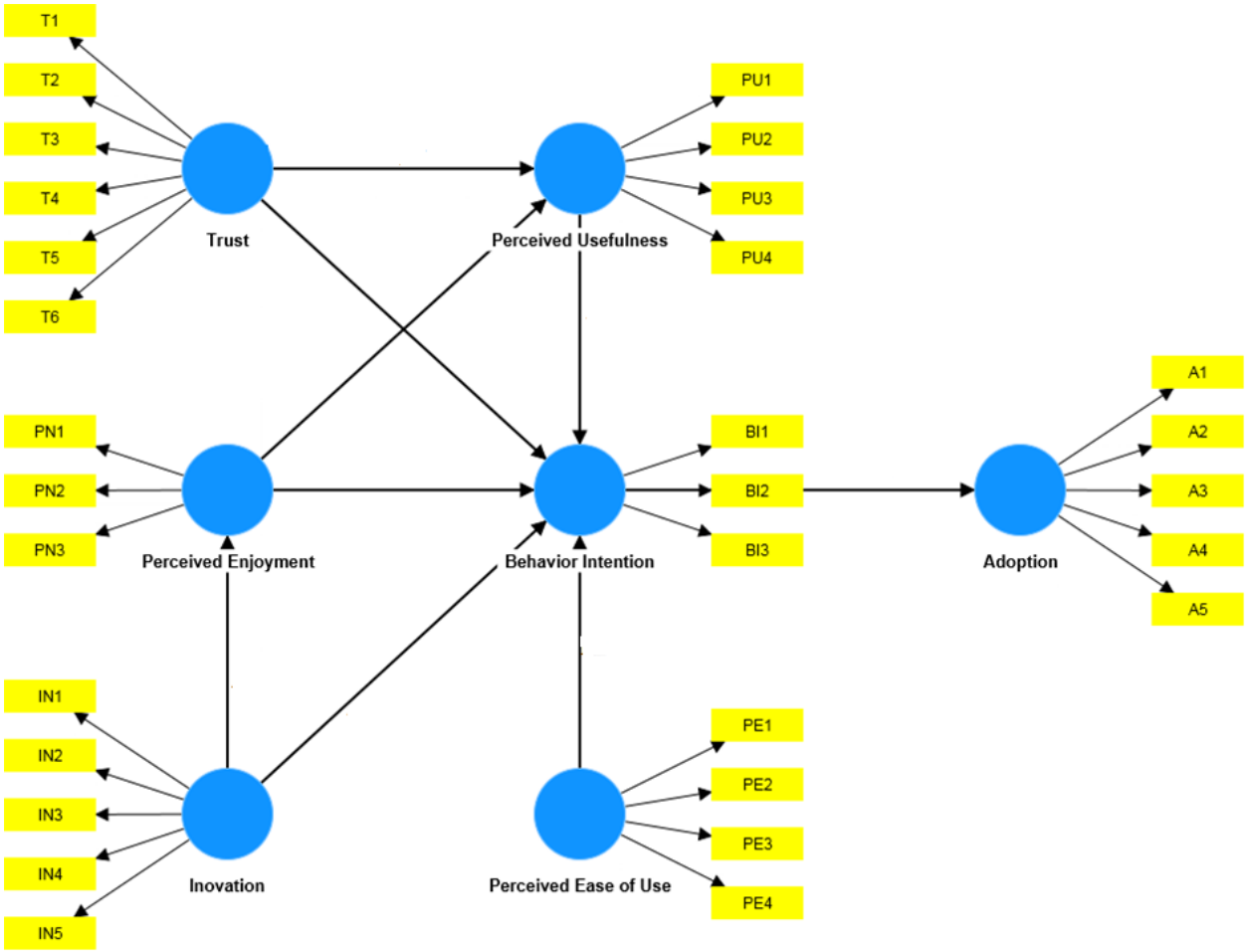

Fig.1 Research framework

3. Method

3.1 Measurement Items Design

In terms of how each construct is operationalized, the nine constructs are multi-item scaled to fit the QRIS mobile payments environment. A five-point Likert scale, spanning neutral (3) to strongly agree (1) to strongly disagree (3) (5), was used to measure each item. Appendix A displays the questionnaire items created for this investigation. Utilizing a questionnaire survey, study data was gathered for this investigation. Thus, creating a questionnaire is essential. The measurement variable items make up the main components of the questionnaire. By referring to previous investigations, all of the measuring variables used in this investigation were modified to meet the current research backdrop. The measuring items were designed using two processes. The research team modified the phrasing of some items to align with the present research backdrop after first making reference to earlier studies. Secondly, a test survey was carried out to evaluate the questionnaire's scientific validity. The final variable measurement items were acquired after further modification of the measurement items based on the replies from the respondents.

Table 1. Respondent demographic information

Variable	Cate gory	Frequency (N=650)	%
Gender	Female	298	60
	Male	202	40
Age	20 – 35	320	64
	36 - 40	124	25
	41 – 50	40	8
	51 – 60	12	2
	> 61	4	1
Education Level	Senior High School	142	28
	Bachelor degree	308	62
	Stratum 2	42	8
	Stratum 3	6	1,6
	Junior high school	2	0,4
Work status	Student/Students	116	18
	Businessman	16	3
	Government employees	183	28
	Private	112	17
	Employee	68	10
	Housewife	15	2
	Another	140	22
Monthly household income (IDR)	Less tan 2.000.000	240	48
	2.500.000 – 4.000.000	120	24
	4.000.000 - 6.000.000	64	13
	6.000.000 - 8.000.000	42	8
	8.000.000 - 10.000.000	20	4
	More than 10.000.000	14	3

3.2 Data Collection Process

Survey research was used as a study approach to test the suggested research model. Data collection is done only once, via the distribution of an online survey via Google Forms (link: https://forms.gle/q92eEgcKjvaTzY618). Convenience sampling was used as the sample technique in this study. Non-probability sampling is the sample technique employed in this study. Data was collected from QRIS user respondents in various Indonesian islands. A total of 500 respondents participated.

3.3 Sampling Method

In this study, the sampling method used was convenience sampling. Convenience sampling is a type of non-probability sampling in which samples are selected based on the availability and ease of access of researchers. This technique is often used in research because of its ease of obtaining respondents without requiring a complicated and time-consuming sampling process.

Sample Recruitment;
The sample in this study was recruited through the distribution of an online survey using Google Forms. The survey was distributed to various QRIS users in Indonesia through various communication channels, such as social media, email, and other communication platforms. Thus, the respondents who participated in this survey were those who voluntarily filled out the questionnaire provided by the researcher.

The use of convenience sampling or purposive sampling method in this study is based on practical and strategic considerations that aim to obtain relevant, representative, and easily accessible data from QRIS users. By considering the affordability, efficiency, and relevance of the sample, this method is seen as the right choice to achieve the stated research objectives.

Inclusion and Exclusion Criteria;
To ensure the relevance and quality of the data collected, the researcher applied the following inclusion and exclusion criteria:
Inclusion Criteria:

1. Respondents must be active users of QRIS-based mobile payment services.
2. Respondents must be at least 18 years old to ensure understanding and awareness in using the service.
3. Respondents are willing and able to complete the online survey provided in Indonesian.

Exclusion Criteria:

1. Respondents who did not actively use the QRIS service were excluded from this study.
2. Respondents who did not complete the survey or provided inconsistent answers.
3. Respondents who are under 18 years old or do not have the ability to understand the questionnaire provided.

By applying these inclusion and exclusion criteria, this study can ensure that the data collected is relevant and representative of the QRIS user population in Indonesia.

4. Analysis and Result

4.1 Analysis of Validity and Realiability

Software packages of Smart-PLS-4 were used to analyze the data. It is well known that obtaining the measurement item's factor loading is necessary prior to performing the reliability and validity study. This research focuses on exploring the factors that influence behavioural intention and QRIS adoption, as well as predicting how these factors influence each other. PLS-SEM is designed to provide deep insights in this kind of context.

A statistical analytic method called partial least squares structural equation modeling (PLS-SEM) is utilized to model the relationship between latent variables and their indicator variables. PLS-SEM is a particularly useful method in research contexts that focus on prediction and theory exploration. Given that the sampling method used is convenience sampling, the data obtained may not fulfil the assumption of normal distribution. PLS-SEM allows data analysis without requiring normality, so the results are still valid and reliable. Considering all these factors, PLS-SEM is an appropriate method to use in this study. This technique allows in-depth and predictive analysis of the factors influencing QRIS adoption, providing relevant and reliable results for further strategy development.

Table 2 displayed the loading factor for every measuring instrument. All of the measurement items' factor loadings, according to Table 2, appeared to be greater than 0.70. Therefore, for the purpose of data analysis, every measurement item was kept. Blended dependability and Cronbach's alpha were frequently used to evaluate reliability. As per reference Fornell & Larcker (1981), it may be recognized that the constructs' reliability was satisfactory when the The values of Cronbach's alpha and composite reliability were greater than 0.70. Average variance extracted (AVE) and factor loading were frequently used to evaluate validity. The validity of the constructs is considered to be well when each measurement item's Both the AVE value and the factor loading are higher than 0.70. the 0.50 benchmark. Figure 2 displayed the findings of the validity and reliability analyses. As shown in Table 2 and Figure 2, the factor loading, composite reliability, Cronbach's alpha, and AVE values for each measuring item were all greater than 0.70. Therefore, it was decided that the validity and reliability of the variables were all acceptable.

Table 2. Outer-Loadings Values, And Convergent Validity

Variabel	Item	Loading Factor	EVE	Description
Adoption	A1	0.830	0,686	Valid
	A2	0.836		Valid
	A3	0.825		Valid
	A4	0.783		Valid
	A5	0.864		Valid
Behavior Intention	BI1	0.890	0,773	Valid
	BI2	0.883		Valid
	BI3	0.864		Valid
Perceived Enjoyment	PENJ1	0.856	0,730	Valid
	PENJ2	0.814		Valid
	PENJ3	0.891		Valid
Innovation	IN1	0.908	0,770	Valid
	IN2	0.868		Valid
	IN3	0.797		Valid
	IN4	0.926		Valid
	IN5	0.884		Valid
Perceived Ease of use	PEOU1	0.833	0,692	Valid
	PEOU2	0.860		Valid
	PEOU3	0.794		Valid
	PEOU4	0.841		Valid
Perceived usefulness	PU1	0.766	0,681	Valid
	PU2	0.804		Valid
	PU3	0.906		Valid
	PU4	0.817		Valid
Trust	T1	0.834	0,668	Valid
	T2	0.814		Valid
	T3	0.825		Valid
	T4	0.831		Valid
	T5	0.810		Valid
	T6	0.791		Valid

Source: The outcomes of Smart PLS-4

Table 3. Reliability

Variabel	Cronbach's Alpha	Composite Reliability
Adoption	0.885	0.916
Behavior Intention	0.853	0.911
Inovation	0.925	0.944
Perceived Ease of Use	0.853	0.900
Perceived Enjoyment	0.816	0.890
Perceived Usefulness	0.843	0.895
Trust	0.901	0.924

Source: The outcomes of Smart PLS-4

Table 3 above demonstrates that all research variables possess a combined reliability value larger than 0.7 and that Cronbach Alpha is greater than 0.7. Based on these findings, it is feasible to conclude that every variable has a high degree of reliability, which Verify that each variable's Cronbach alpha and composite reliability are satisfied. Thus, additional analysis can be performed by assessing the inner model in order to determine whether the model fits well.

Table 4. R Square Test Results

Variabel	R-*Square*	R-*Square Adjusted Adjusted*
Adoption	0.681	0.680
Behavior Intention	0.539	0.534
Perceived Enjoyment	0.173	0.171
Perceived Usefulness	0.358	0.356

Source: The outcomes of Smart PLS-4

The adoption variable's R-Square value, which is 0.681 in the table above, indicates that 68.1% of the variance in adoption can be accounted for by the independent factors, with the residual 31.9% coming from sources outside the purview of this study. The Behavioral Intention variable's R-Square value is 0.539, indicating that the variable that is independent of the other 52.9% of the variable's explanation, with components not included in the research accounting for the remaining 47.1%.

Table 5. Nilai Fornell-Larcker Criterion

Variabel	Adoption	Behavior Intention	Inovation	Perceived Ease of Use	Perceived Enjoyment	Perceived Usefulness	Trust
Adoption	0.828						
Behavior Intention	0.825	0.879					
Inovation	0.554	0.512	0.878				
Perceived Ease of Use	0.716	0.618	0.503	0.832			
Perceived Enjoyment	0.690	0.553	0.416	0.583	0.854		
Perceived Usefulness	0.720	0.604	0.407	0.618	0.547	0.825	
Trust	0.635	0.562	0.384	0.541	0.575	0.513	0.818

Source: The outcomes of Smart PLS-4

Table 6. HTMT Indicators

Variabel	Adoption	Behavior Intention	Inovation	Perceived Ease of Use	Perceived Enjoyment	Perceived Usefulness	Trust
Adoption							
Behavior Intention	0.947						
Inovation	0.606	0.569					
Perceived Ease of Use	0.814	0.708	0.567				
Perceived Enjoyment	0.802	0.657	0.470	0.684			
Perceived Usefulness	0.824	0.702	0.450	0.708	0.648		
Trust	0.707	0.637	0.420	0.616	0.659	0.576	

Source: The outcomes of Smart PLS-4

4.2 Structural Model (Inner Model)

After testing the exterior model, the interior model is tested next. The inner or structural model is assessed in order to ascertain the connection between constructs, significant values, and the R-square of the research model. The R-square for each dependent latent variable should be examined as the initial step in assessing the PLS structural model.

Table 7. Common Method Bias Test Results

Variabel	Item	VIF	Bias Status of Common Method
Trust	T1	2.891	No Bias
	T2	2.405	No Bias
	T3	2.834	No Bias
	T4	2.348	No Bias
	T5	2.179	No Bias
	T6	2.185	No Bias
Perceived Enjoyment	PN1	1.828	No Bias
	PN2	1.691	No Bias
	PN3	1.957	No Bias
Inovation	IN1	3.939	bias
	IN2	2.854	No Bias
	IN3	2.059	No Bias
	IN4	4.428	Bias
	IN5	3.061	Bias
Perceived Usefulness	PU1	1.977	No Bias
	PU2	2.019	No Bias
	PU3	3.120	Bias
	PU4	2.386	No Bias
Perceived Ease of Use	PE1	1.848	No Bias
	PE2	2.224	No Bias
	PE3	1.873	No Bias
	PE4	1.888	No Bias
Behavior Intention	BI1	2.267	No Bias

	BI2	2.098	No Bias
	BI3	1.995	No Bias
Adoption	A1	2.450	No Bias
	A2	2.203	No Bias
	A3	2.145	No Bias
	A4	2.183	No Bias
	A5	2.736	No Bias

Source: The outcomes of Smart PLS-4

Based on the results from the VIF table above, we can see that some items show a general method bias, while most other items do not show any bias. Items IN1, IN4, and IN5 show a common method bias with VIF values greater than 3. This suggests that there is a high potential for multicollinearity among these indicators in measuring the innovation variable. This may be due to overly similar measurements or similarities in the way respondents understand and assess innovation. Item PU3 shows a common method bias with a VIF value of 3.120. This also indicates potential multicollinearity that needs to be considered in the interpretation of the results for the perceived usefulness variable. Most items of the Trust, Perceived Enjoyment, Perceived Ease of Use, Behaviour Intention, and Adoption variables do not show any common method bias with VIF values below 3. This indicates that these variables are well measured without any significant multicollinearity.

These results indicate that while most constructs were measured well without significant common method bias, there are some items that require further attention to reduce this bias. In future studies, researchers may consider revising or replacing items that exhibit high common method bias or using other techniques such as statistical control to address this multicollinearity issue.

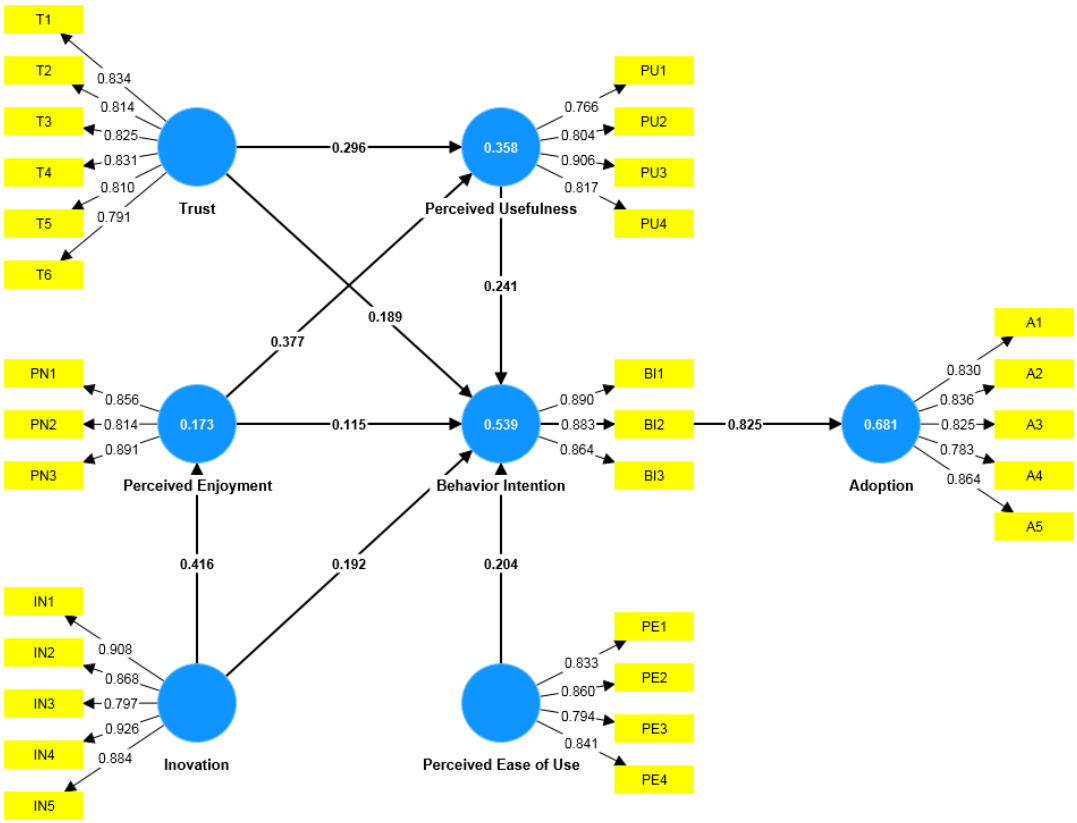

Fig.2 Structural Model
Source: The outcomes of Smart PLS-4

4.1 Model Fit Index

Table 8. Model Fit Index

Suitability Index	Value	Interpretation Limit	Interpretation
SRMR	0.075	≤ 0.08	The model has a good fit, showing a small mean standard difference between the observed and predicted correlations.
NFI	0.912	≥ 0.90	The model has an excellent fit, showing significant improvement over the null model.
RMSEA	0.054	≤ 0.06 (Good), ≤ 0.08 (Adequate)	The model has a good fit, indicating that the model well estimates the population covariance matrix.

Source: The outcomes of Smart PLS-4

SRMR (Standardized Root Mean Square Residual) has a value of 0.075. SRMR values below 0.08 show that the obtained data and the suggested model fit each other well. This means that the average standardized difference between the observed correlations and those predicted by the model is small, indicating that the model is fairly accurate in representing the data. The NFI (Normed Fit Index) has a value of 0.912. NFI values above 0.90 indicate that the proposed model is significantly better than the null model, which assumes no relationship between the variables. This indicates that the proposed model has an excellent fit with the data. RMSEA (Root Mean Square Error of Approximation) has a value of 0.054. An RMSEA value below 0.06 indicates that the model has a very good fit with the population. RMSEA measures how well a model with optimally selected parameters fits the population covariance matrix, and this value indicates that the model has minimal error of approximation.

4.2 Hypotheses Testing Analysis

Table 9. Path coefficient values

Variabel	**Sampel Asli (O)**	**T Statistik (| O/STDEV |)**	**P Values**
Behavior Intention -> Adoption	0.825	20.328	0.000
Inovation -> Behavior Intention	0.192	3.543	0.000
Inovation -> Perceived Enjoyment	0.416	10.051	0.000
Perceived Ease of Use -> Behavior Intention	0.204	3.993	0.000
Perceived Enjoyment -> Behavior Intention	0.115	2.415	0.016
Perceived Enjoyment -> Perceived Usefulness	0.377	7.731	0.000
Perceived Usefulness -> Behavior Intention	0.241	5.247	0.000
Trust -> Behavior Intention	0.189	3.209	0.001
Trust -> Perceived Usefulness	0.296	5.995	0.000

Source: The outcomes of Smart PLS 4

Innovation has a path coefficient of 0.192, which indicates a considerable impact on behavioral intention. This effect has a P-value of 0.000 and a T-statistic of 3.543, which indicates statistical significance. With a path coefficient of 0.416, innovation has a considerable and moderately strong impact on subjective satisfaction. A T-statistic of 10.051 and a P-value of 0.000 indicate that it has very high statistical significance. With a path coefficient of 0.204, perceived ease of use significantly influences behavioral intention. The statistical significance of this effect is indicated by the T-statistic of 3.993 and P-value of 0.000. With a path coefficient of 0.115, perceived enjoyment has a considerable

but comparatively little impact on behavioral intention. With a P-value of 0.016 and a T-statistic of 2.415, this impact is significant. With a path value of 0.377, felt enjoyment significantly influences perceived usefulness. High statistical significance is indicated by the T-statistic of 7.731 and P-value of 0.000. With a path coefficient of 0.241, perceived utility significantly influences behavioral intention. The statistical significance of this effect is indicated by a T-statistic of 5.247 and a P-value of 0.000. Behavior intentions are significantly influenced by trust, with a path coefficient of 0.189. The statistical significance of this effect is indicated by the T-statistic of 3.209 and P-value of 0.001. Perceived usefulness is significantly influenced by trust, with a path coefficient of 0.296. This effect has a P-value of 0.000 and a T-statistic of 5.995, indicating statistical significance. For the most part, every path in our model demonstrated strong statistical significance (P-value <0.05), but at different levels of influence (path coefficients). This implies that every component in the model behavioral intention, perceived enjoyment, usability, convenience of use, and trust has a significant impact on adoption.

5. Discussions

The findings of this study support the notion that consumers' behavioral intention to adopt QRIS in Indonesia is significantly influenced by elements including innovativeness, perceived ease of use, perceived enjoyment, perceived advantages, and trust. The path analysis conducted using Smart PLS 4 provides deep insights into the relative influence of each variable on behavioral intention and actual adoption.

Behavioural intention was found to have a very strong influence on QRIS adoption. This implies that QRIS adoption is more likely among users who have a strong intention to use it. This result is consistent with the TAM's current thinking. which states that behavioural intention is a key predictor of technology adoption. Innovation has a significant influence on behavioural intention and perceived enjoyment. This suggests that innovation in payment technology is essential to attract users. Continuous innovation and introduction of new features can improve user experience and encourage further adoption.

Perceived ease of use and perceived enjoyment were also found to be significant in influencing behavioural intentions. This indicates that users are more likely to use QRIS if they find the technology easy to use and provide a pleasant experience. The development of an intuitive user interface and positive user experience is key to increasing adoption. Perceived benefits and trust have a significant influence on behavioural intentions. In addition, trust also significantly influences perceived benefits (path coefficient 0.296). This emphasises the importance of building user trust through guaranteed security and transparent communication regarding the benefits of QRIS.

6. Conclusions

The purpose of this study is to ascertain user attitudes toward the adoption of QRIS as well as their perceptions of trust, innovation, fun, perceived benefits, usability, and behavioral intentions. A structural equation model based on partial least squares was used to examine the data that was processed using Smart PLS-4. The study's findings show that: behavioral intentions are positively and significantly influenced by perceptions of usefulness, ease of use, enjoyment, and trust; Perceived enjoyment is positively and significantly influenced by the perception of novelty, while adoption is positively and significantly influenced by behavioral goals.

Theoretical Contribution

The present study has constructed a novel research paradigm by assessing prior studies. The TAM theory serves as the basis for our investigation. The model that is being employed consists of the following elements: adoption, ease of use, utility, trust, inventiveness, and enjoyment. Furthermore, there is insufficient focus on incentivizing individual behavioural intentions while employing QRIS digitizing services that can facilitate transactions. This study contributes to the expanding corpus of information about the ongoing application of QRIS. Scholars and researchers will find the proposed study structure helpful in enabling additional research into how Indonesian clients utilize QRIS services.

Practical Implications

The findings have significant practical implications for mobile payment service providers and policy makers in Indonesia. To increase QRIS adoption, service providers should focus on:

1. Developing innovative features that improve user experience.
2. Improving the user interface to make it easier to use.
3. Provide clear and transparent information regarding the benefits and security of QRIS to build user trust.
4. Providing a pleasant and satisfying user experience to encourage positive behavioural intentions.

Research Limitations

This research has several limitations that need to be considered. The research sample is limited to individual consumers, so the results may not fully represent the wider population, including MSMEs. In addition, this study did not include other variables that may also be relevant in the context of mobile payment technology adoption.

Future Research Directions

Future research can expand the sample to include various user groups, including MSMEs, to get a more comprehensive picture. Also, additional variables such as social influence, awareness of technology, and environmental factors can be included in the model to deepen the understanding of the factors influencing QRIS adoption.

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Appendix

Contructs	Item (UK)	Code	Source
Perceived Ease of Use	Learning how to use QRIS was easy for me.	PE1	Pham & Ho (2015), Tan et al., (2014
	My interactions with QRIS were clear and understandable.	PE2	
	QRIS is easy to use.	PE3	
	It is very easy for me to become proficient in using QRIS.	PE4	
Perceived Usefulness	QRIS is useful in my daily life.	PU1	Tan et al., 2014
	Using QRIS helps me pay quickly.	PU2	
	Using QRIS increases my productivity.	PU3	
	Using QRIS increases my chances of achieving the things that are important to me.	PU4	
Perceived Enjoy	Using QRIS Is Fun.	ENJ1	Venkatesh et al. (2012)
	Using QRIS Is Enjoyble	ENJ2	
	Using QRIS Is Very Entertaining.	ENJ3	
Innovation	If I Hear About QRIS Technology, I Will Look For Ways To Experiment With It.	IN1	Ho et al., (2020) Pham & Ho, (2015)
	Among My Friends, I Am Usually The First To Explore New Technology, Namely QRIS.	IN2	
	I Like Experimenting With New Technology, Namely QRIS.	IN3	
	In General, I Don't Hesitate To Try QRIS.	IN4	
	Compared To My Friends, I Look For A Lot Of Information About QRIS Services.	IN5	
Trush	I Believe QRIS Can Be Trusted.	T1	Hwang & Kim (2007) Pham & Ho, (2015)
	I Believe In QRIS.	T2	
	I Don't Hesitate To Pay Using QRIS.	T3	
	I Feel Confident That The Legal Structure And Technology Are Sufficient To Protect Me From QRIS Problems.	T4	
	Even Without Observation, I Am Sure That QRIS Can Function Well.	T5	
	I Am Sure The Payment Process Via QRIS Will Run Smoothly.	T6	
Behavioral Intention	I will continue to use QRIS in the future.		Yan et al., (2021)
	I will always try to use QRIS in my daily life.		
	I plan to continue using QRIS frequently.		
Adoption	Email		Ho et al., (2020)
	Online shopping		
	Watch Movies and videos online		
	Instant messaging and video calling		
	Using social media sites		