



## The Effect of Perceived Usefulness, Perceived Ease of Use, Perceived Trust, and Perceived Risk on MSMEs' Interest in Using the Quick Response Code Indonesian Standard (QRIS) as Payment Method

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**Abstract:** This study aims to investigate and analyze the impact of perceived usefulness, perceived ease, perceived trust, and perceived risk on the interest of SMEs in Tangerang in using the QRIS payment method. The subjects of the study are SME owners in the area. The analysis method employed is causal study with a quantitative approach, based on the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). Primary data were collected through questionnaires and analyzed using Partial Least Squares (PLS) software with a Structural Equation Modeling (SEM) approach. The results indicate that perceived usefulness, perceived ease, perceived trust, and perceived risk significantly influence SMEs' interest in using QRIS.

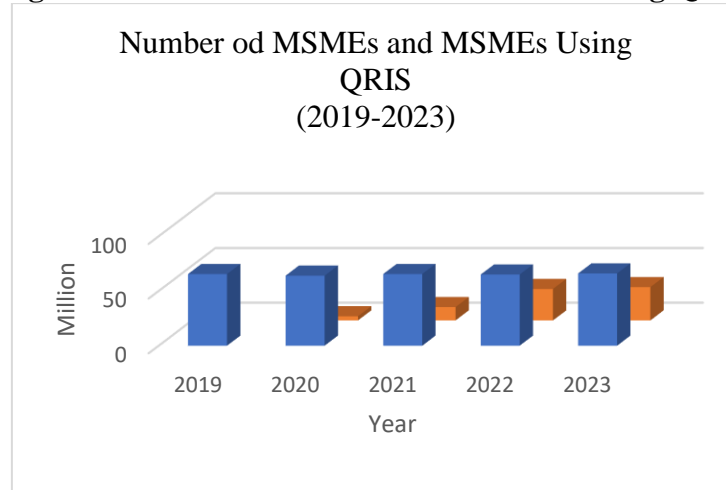
**Keyword:** Perceived Usefulness, Perceived Ease of Use, Perceived Trust, Perceived Risk, Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM)

### INTRODUCTION

Technological developments have facilitated the transition from cash to non-cash payments, with non-cash transactions continuing to grow (Ningsih et al., 2021). MSMEs are increasingly utilizing this method for sales transactions, and customers are experiencing ease in payment (Rustanto et al., 2019). On August 17, 2019, Bank Indonesia and ASPI launched QRIS to improve the efficiency of digital payments with a universal QR code (Bank Indonesia, 2019). The COVID-19 pandemic accelerated the adoption of electronic money as a preventive measure to curb the spread of the virus (Sugiharto & Mulyono, 2023). QRIS facilitates non-cash transactions and enhances the efficiency and performance of MSMEs (Sudiatmika & Martini, 2022).

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economic growth. MSME owners hold full responsibility for their businesses, with decisions entirely in their hands (Rosdiana & Mahliza, 2022). In this digital era, MSME entrepreneurs must rise and adapt to technological advancements (Caroline & Murtiningsih, 2024).

**Figure 1. Number of MSMEs and MSMEs Using QRIS**



**Source:** Indonesian Chamber of Commerce and Industry (Kadin Indonesia), 2024, and Bank Indonesia, 2024 (Data processed by the author, 2024).

The development of the number of MSMEs in Indonesia has shown a fluctuating trend. In 2019, there were 65.47 million MSMEs, which declined to 64 million in 2020 due to the COVID-19 pandemic. The number then rebounded to 65.46 million in 2021, slightly decreased to 65 million in 2022, and increased again to 66 million in 2023. The adoption of QRIS by MSMEs has also grown significantly, from 3.8 million users in 2020 to 30.41 million in 2023. However, a gap remains, as only about half of the total 66 million MSMEs in 2023 have adopted QRIS.

The research by Indah & Agustin (2019) utilized the Unified Theory of Acceptance and Use of Technology (UTAUT) to demonstrate that intentions and behaviors in using technology are influenced by performance expectations, effort expectations, social influence, and facilitating conditions. Utami et al. (2023) employed the Theory of Reasoned Action (TRA) to explain interest in digital wallets, while Akhyar & Sisilia (2023) leveraged the Technology Acceptance Model (TAM) to identify factors influencing technology use. This study uses the Theory of Planned Behavior (TPB) to understand intentions and behaviors regarding technology adoption and TAM to evaluate the influence of perceived usefulness and ease of use on technology acceptance.

According to Putri et al. (2022) and Akhyar & Sisilia (2023), perceived usefulness have a positive influence on interest in QRIS usage; the higher the perceived benefits, the greater the interest. However, Silaen et al. (2021) ; Lahugu et al. (2023) found that perceived benefits did not affect the use of electronic money in Pekanbaru, especially among users less familiar with technology. Perceived ease of use is also considered important, with research by Purnomo & Ramadhani (2022) ; Perwitasari (2021) and Zusrony et al. (2023) showing that ease of use increases MSMEs' interest in QRIS. Conversely, Anisa et al. (2023) and Rafferty & Fajar (2022) found that ease of use did not affect interest in QRIS usage.

Perceived trust according to Anisa et al. (2023) ;Sebayang & Rahmayati (2023) ; Mawardi & Prabowo (2023), is believed to influence interest. The researchers state that the higher the trust, the greater the user's interest in using an application. Positive experiences from repeated interactions strengthen trust (Asih & Nurhayati, 2023). However, Segoro & Ferdiansyah (2023) showed that trust did not significantly influence interest in using M-Wallets. Perceived risk is also thought to affect user interest, with Putri et al. (2022) ;Silaen et al. (2021) ;Natalia & Tesniwati (2021) demonstrating a positive effect. However, Sudiatrika & Martini (2022) and did not find a significant influence of perceived risk on QRIS usage interest.

## **Literature Review**

### **Theory of Planned Behavior (TPB)**

The Theory of Planned Behavior (TPB) is a theoretical framework that explains the factors influencing an individual's intention to perform a behavior, including the use of technology. TPB emphasizes three main variables: attitude, subjective norms, and perceived behavioral control. Developed by Martin Fishbein and Icek Ajzen in the 1980s as an extension of the Theory of Reasoned Action (TRA), TPB adds the consideration of behavioral control, which was absent in TRA (Wicaksono, 2022).

### **Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM), developed by Fred D. Davis in 1986, analyzes the factors influencing users' acceptance of information technology. TAM highlights two key factors: perceived usefulness and ease of use of the technology, which affect the intention to adopt it Davis Fred D. (1989) ; Marey & Purwanto (2019). The model also considers system attributes such as quality, reliability, and adaptability, which influence users' evaluation and behavior toward technology (Wicaksono, 2022).

### **MSME Interest of Use QRIS**

According to Icek Ajzen, the Theory of Planned Behavior (TPB) focuses on behavioral intention factors, including attitude, subjective norms, and perceived behavioral control, which influence interest and behavior (Tamba, 2017). Interest, defined as the desire to engage in an activity considered beneficial, plays a crucial role in technology adoption, such as QRIS. QRIS offers transaction ease for MSMEs, improving effectiveness, efficiency, and reducing the risk of cash theft (Puspitaningrum & Fatah, 2022). As an independent economic sector, MSMEs often leverage technology to advance their businesses. According to Yogananda & Dirgantara (2017), the indicators of interest include: intending to use the product in the future, frequently using the product in the future, and continuing to use the product over time.

### **Perceived Usefulness**

In the Technology Acceptance Model (TAM), perceived usefulness of technology is a key factor influencing users' intentions and actions in adopting technology. The higher a person's perception of the benefits gained, the more likely they are to use the technology. This perception includes the assessment of direct benefits, such as efficiency or productivity, and indirect benefits, such as quality of life or social relationships (Wicaksono, 2022). According to Yogananda & Dirgantara (2017), the indicators of perceived usefulness include: facilitating payment transactions, speeding up the payment process, providing extra benefits when completing payment transactions, offering protection during payment transactions, and improving payment efficiency

### **Perceived Ease of Use**

In the Technology Acceptance Model (TAM), Perceived Ease of Use is an important factor influencing technology adoption. It includes an individual's assessment of how easy the technology is to use, including affordability, technical support, and available resources. The easier a technology is to use, the more likely users are to adopt it. Therefore, the design of technology should take ease of use into account to improve user efficiency (Wicaksono, 2022). According to Yogananda & Dirgantara (2017), the indicators of perceived ease of use are: information technology is easy to learn, information technology is easy to access, and information technology is easy to operate.

## Perceived Trust

Trust is a key factor in online transactions and e-wallet usage, encompassing confidence in the security, reliability, and integrity of the system (Marey & Purwanto, 2019). Trust influences the evaluation of the benefits and ease of use of technology, which impacts the intention and willingness to adopt it. Positive experiences with technology increase trust in new technologies (Wicaksono, 2022). According to Yogananda & Dirgantara (2017), the indicators of perceived trust are: belief that the company provides accurate product information to consumers, belief that the company's product can meet consumer needs, and belief that the company will be concerned if consumers encounter problems with the product

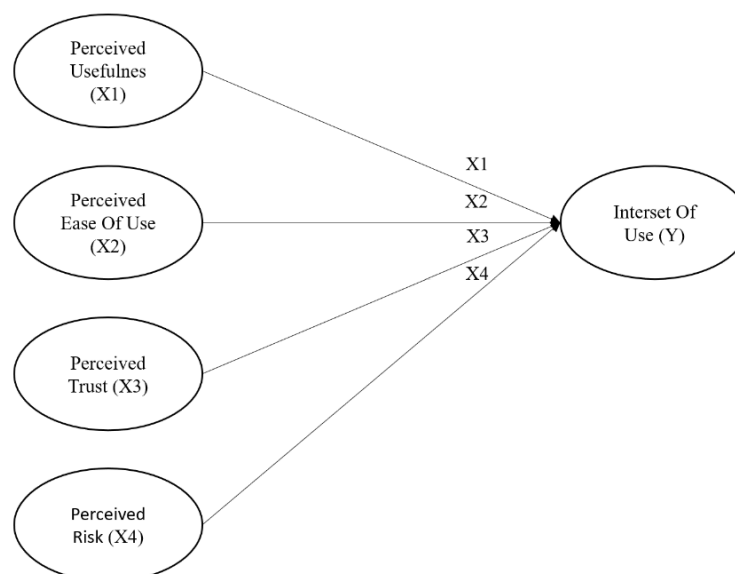
## Perceived Risk

Perceived risk refers to the uncertainty regarding the consequences of using a product or service, including potential financial losses or other negative impacts. The level of perceived risk and tolerance for risk affect individuals' attitudes and decisions, such as in online transactions or when trying new products. Therefore, perceived risk is crucial in the decision-making process and consumer behavior. According to Yogananda & Dirgantara (2017), the risk indicators are: financial risk, individual risk, company performance risk, and confidentiality risk.

## Conceptual Framework

This research uses perceived usefulness, perceived ease of use, perceived trust, and perceived risk as independent variables, with interest of use as the dependent variable.

**Figure 2. Conceptual Framework**



**Source:** Processed Primary Data, 2024

## METHOD

### Research Design

The method used is causal study analysis with a quantitative approach. This study examines the cause-and-effect relationship between independent variables (perceived usefulness, perceived ease of use, perceived trust, and perceived risk) and the dependent variable (interest in use) of QRIS adoption by MSMEs in West Indonesia (Sugiyono, 2013).

## Population and Sample

This study focuses on MSME actors in Tangerang, totaling 15,505 (Badan Pusat Statistik, 2020). The random sampling method was employed, where each member of the population had an equal chance of being selected (Sugiyono, 2013). The sample size was determined using Slovin's formula to ensure representativeness, resulting in a sample of 100 participants.

## Data Analysis Method

The evaluation of the measurement model, also known as the outer model, aims to assess the validity and reliability of the research model. In the outer model with reflective indicators, the assessment is done using several key methods. Convergent validity measures the extent to which the indicators used to form a latent construct are positively and significantly related to each other. Discriminant validity evaluates how distinct the different constructs in the model are from one another. Additionally, composite reliability and Cronbach's alpha are used to assess the internal consistency of the indicator blocks forming the construct. Both are important to ensure that the indicators consistently measure the intended construct and can be relied upon in analysis (Ghozali, 2014).

## RESULTS AND DISCUSSION

### Respondent Characteristics

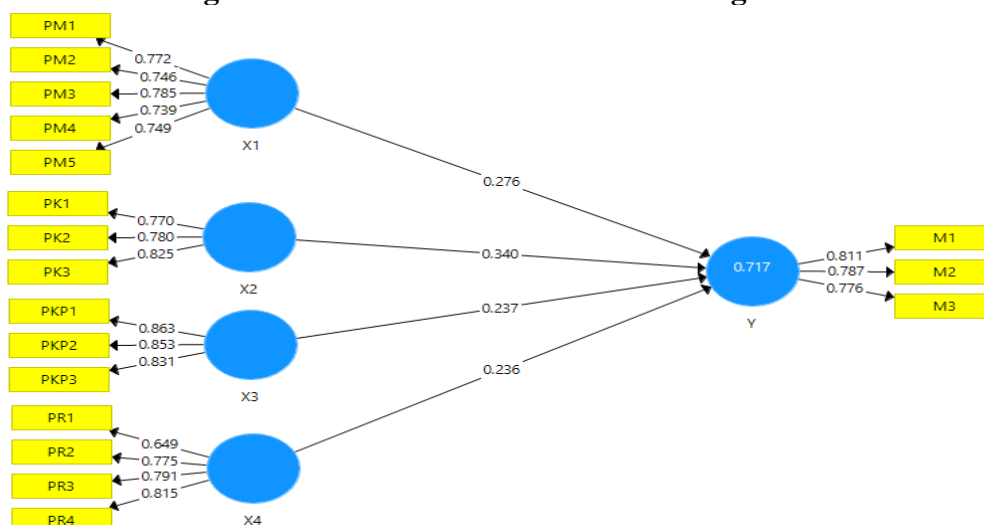
The respondents in this study are MSMEs in Tangerang. The explanation of respondent identities based on the processed questionnaire data includes gender, age, and business duration. During the data collection period, 100 MSMEs were willing to participate. Of the 100 respondents, 51% were female and 49% male, showing a female majority in participation. A total of 41 respondents (41%) were aged 20-30, 36 respondents (36%) were aged 30-40, and 23 respondents (23%) were over 40, with the majority being in the 20-30 age group. Business duration varied, with 23 respondents (23%) having run their business for less than 1 year, 38 respondents (38%) for 1-2 years, 22 respondents (22%) for 2-3 years, and 17 respondents (17%) for more than 3 years.

### Test Results

#### Convergent Validity

Convergent validity testing was carried out by evaluating each construct indicator. Indicators with a loading factor value above 0.7 are considered ideal, indicating that these indicators are valid in measuring the intended construct.

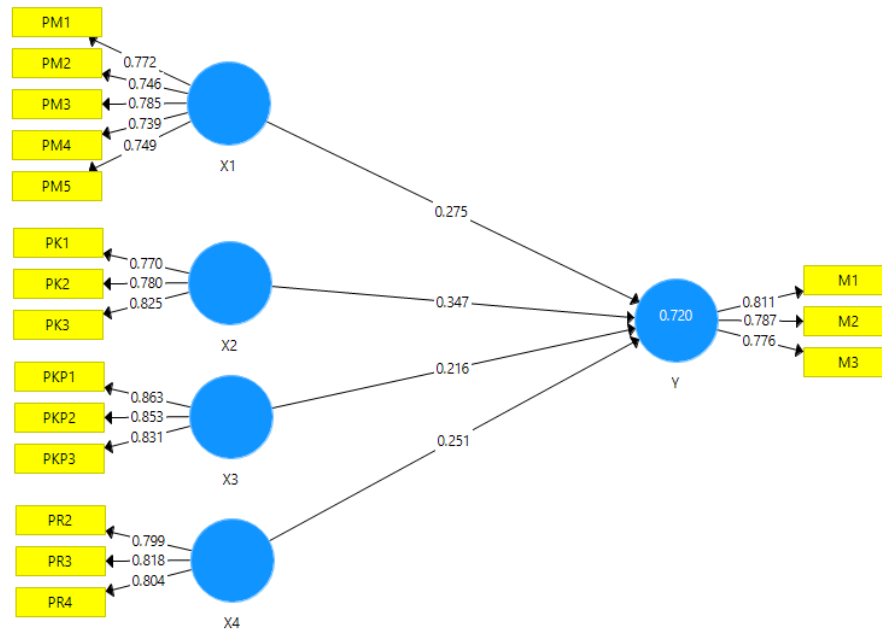
**Figure 3. Results of the SmartPLS 3.0 Algorithm**



Source: Processed Primary Data, 2024

Based on Figure 2, it can be seen that there is an indicator in this study, PR1, with an outer loading below 0.70, which was removed because it indicated that some MSMEs still doubted the security of QRIS. This step ensures that only valid indicators are used, resulting in more accurate and reliable analysis.

**Figure 4. Results of the SmartPLS 3.0 Algorithm after Re-estimation**



**Source:** Processed Primary Data, 2024

Based on figure 3 above shows the recalculated results, indicating that all instruments for each indicator are valid, as the outer loading values exceed 0.70. Therefore, the measurement of the outer model can proceed to the next stage.

## Discriminant Validity

**Tabel 1.**  
**Results of the Discriminant Validity Test (Fornell-Larcker Criterion)**

	X1	X2	X3	X4	Y
X1	<b>0,758</b>				
X2	0,455	<b>0,792</b>			
X3	0,458	0,474	<b>0,849</b>		
X4	0,511	0,420	0,540	<b>0,807</b>	
Y	0,660	0,680	0,642	0,654	<b>0,792</b>

**Source:** Processed Primary Data, 2024

**The Fornell-Larcker Criterion Table** shows that the square root of the AVE, shown in bold, must be greater than the correlations between latent variables. For example, the square root of the AVE for the Perceived Usefulness variable (X1) is 0.758, which is larger than its correlation with other variables. The same applies to the other variables, indicating that discriminant validity is achieved for each variable.

## Average Variance Extracted (AVE)

**Tabel 2.**  
**Average Variance Extracted (AVE)**

Conturct	Average Variance Extracted (AVE)
<b>X1</b>	0,575
<b>X2</b>	0,627
<b>X3</b>	0,721
<b>X4</b>	0,651
<b>Y</b>	0,627

**Source:** Processed Primary Data, 2024

Based on the model testing results in Table 2, the variables Perceived Usefulness, Perceived Ease of Use, Perceived Trust, Perceived Risk, and Interest in Use have AVE values greater than 0.50. Thus, the model tested is valid and demonstrates good discriminant validity, making it suitable for further research.

## Composite Reliability and Cronbach's Alpha

The final step in evaluating the outer model is to test the reliability using Composite Reliability and Cronbach's Alpha. This test ensures that the instruments in the research model are reliable. If all latent variables have a Composite Reliability and Cronbach's Alpha value  $\geq 0.70$ , the constructs are considered to have good reliability, indicating the consistency of the questionnaire used.

**Tabel 3.**  
**Result of Composite Reliability and Cronbach's Alpha**

	Composite Reliability	Cronbach's Alpha	Desc
X1	0,871	0,817	Reliable
X2	0,835	0,704	Reliable
X3	0,886	0,810	Reliable
X4	0,849	0,733	Reliable
Y	0,834	0,703	Reliable

**Source:** Processed Primary Data, 2024

Based on Table 3 above, the results of the Composite Reliability and Cronbach's Alpha tests show satisfactory values, with all latent variables having Composite Reliability and Cronbach's Alpha values  $\geq 0.70$ . Therefore, the questionnaire used in this study can be considered reliable or consistent.

## Structural Model Testing (Inner Model)

After the estimated model meets the criteria for the outer model, the next step is to test the structural model (inner model). The purpose of the inner model testing is to develop a concept-based model from the theory to analyze the relationships between exogenous and endogenous variables as described in the conceptual framework. The structural model testing is conducted with the following steps:

### R-Square ( $R^2$ ) Value

The R-Square value is examined to test the Goodness of Fit of the model.

**Tabel 4.**  
**Result of R-Square ( $R^2$ ) Value**

R-Square
<b>R Square</b>

<b>Y</b>	0,720
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**Source:** Processed Primary Data, 2024

Based on Table 4, the variables **Perceived Usefulness**, **Perceived Ease of Use**, **Perceived Trust**, and **Perceived Risk** contribute 72% to the **Interest of Use**, while the remaining 28% is influenced by other variables outside the model. This model is used to measure the extent to which the latent variables can explain the indicator variables.

### Q-Square (Goodness of Fit Model)

**Tabel 5.**  
**Predictive Relevance**

<b>Q<sup>2</sup> (= 1-SSE/SSO)</b>	
<b>Y</b>	0,431

**Source:** Processed Primary Data, 2024

The Predictive Relevance (Q<sup>2</sup>) for the structural model evaluates the quality of the observation values generated by the model. Q<sup>2</sup> is considered relevant if its value is greater than 0; if negative, the model is deemed irrelevant in predicting the endogenous factors. Based on Table 5, the result of the Predictive Relevance (Q<sup>2</sup>) test is 0.431, which is greater than 0, indicating that the model is relevant and its observation values are good.

### Hypothesis Testing Results

**Tabel 6.**  
**Hypothesis Testing**

<b>Hipotesis</b>	<b>Original Sample (O)</b>	<b>T Statistics ( O/STDEV )</b>	<b>P Values</b>
<b>X1 -&gt; Y</b>	0,275	4.079	0,000
<b>X2 -&gt; Y</b>	0,347	5.153	0,000
<b>X3 -&gt; Y</b>	0,216	2.628	0,009
<b>X4 -&gt; Y</b>	0,251	3.251	0,001

**Source:** Processed Primary Data, 2024

Based on Table 6, the direct effects between exogenous and endogenous variables are as follows:

- 1. Perceived Usefulness on MSME Interest in Using QRIS:** positive coefficient of 0.275, t-statistic of 4.079 (greater than 1.96), P-value of 0.000 (less than 0.05). Ho is rejected, Ha is accepted. Perceived Usefulness has a significant positive effect.
- 2. Perceived Ease of Use on MSME Interest in Using QRIS:** positive coefficient of 0.347, t-statistic of 5.153 (greater than 1.96), P-value of 0.000 (less than 0.05). Ho is rejected, Ha is accepted. Perceived Ease of Use has a significant positive effect.
- 3. Perceived Trust on MSME Interest in Using QRIS:** positive coefficient of 0.216, t-statistic of 2.628 (greater than 1.96), P-value of 0.009 (less than 0.05). Ho is rejected, Ha is accepted. Perceived Trust has a significant positive effect.
- 4. Perceived Risk on MSME Interest in Using QRIS:** positive coefficient of 0.251, t-statistic of 3.251 (greater than 1.96), P-value of 0.001 (less than 0.05). Ho is rejected, Ha is accepted. Perceived Risk has a significant positive effect.

## Discussion of Research Findings

This study examines the impact of **Perceived Usefulness**, **Perceived Ease of Use**, **Perceived Trust**, and **Perceived Risk** on MSMEs' interest in using QRIS. The findings show that MSMEs who perceive high usefulness, ease of use, trust, and low risk towards QRIS are more interested in adopting it, reflecting their readiness to adapt to new payment technology.

### 1. The Impact of Perceived Usefulness on MSMEs' Interest in Using QRIS

The first hypothesis (H1) in this study states that perceived usefulness has a positive effect on MSMEs' interest in using QRIS. Based on statistical tests, it was proven that perceived usefulness has a significant positive effect on MSMEs' interest in using QRIS, thus the first hypothesis is accepted. This means that the more MSMEs perceive benefits from using QRIS, the higher their interest in adopting it.

This result is supported by the **Technology Acceptance Model (TAM)**, which posits that perceived usefulness is one of the factors influencing a person's intention to use a particular technology. Perceived usefulness refers to the extent to which individuals believe that using a system or technology can enhance their productivity or performance (Nurhapsari & Sholihah, 2022). This finding aligns with studies by Akhyar & Sisilia (2023) ; Legi & Saerang (2020) and Putri et al. (2022), which also confirm that perceived usefulness has a positive influence on MSMEs' interest in using QRIS.

### 2. The Impact of Perceived Ease of Use on MSMEs' Interest in Using QRIS

The second hypothesis (H2) in this study posits that perceived ease of use has a positive effect on MSMEs' interest in using QRIS. Based on statistical tests, it was proven that perceived ease of use has a significant positive effect on MSMEs' interest in using QRIS, thus the second hypothesis is accepted. This implies that the easier MSMEs find QRIS to use, the more interested they are in adopting it.

This result is also supported by the **Technology Acceptance Model (TAM)**, which asserts that ease of use can influence a person's interest in adopting a technology, which subsequently impacts actual usage (Kusumaningtyas & Budiantara, 2023). The findings are consistent with studies conducted by Purnomo & Ramadhani (2022) ; Nurhapsari & Sholihah (2022) and Lahugu et al. (2023), which found that perceived ease of use has a positive impact on usage interest.

### 3. The Impact of Perceived Trust on MSMEs' Interest in Using QRIS

The third hypothesis (H3) suggests that perceived trust has a positive effect on MSMEs' interest in using QRIS. Statistical tests confirmed that perceived trust has a significant positive effect on MSMEs' interest in using QRIS, thus the third hypothesis is accepted. This means that the more MSMEs trust QRIS, the higher their interest in adopting it.

This result is supported by the **Theory of Planned Behavior (TPB)**, which states that **Perceived Behavioral Control** operates based on **control beliefs** the belief in the presence or absence of facilitating or inhibiting factors in performing a behavior (Wardani & Sari, 2021). This theory explains that trust can influence a person's interest or desire to use a technology. The findings align with studies by Sebayang & Rahmayati (2023) and Sudiarmika & Martini (2022), which demonstrate that perceived trust has a positive impact on the interest in using QRIS.

### 4. The Impact of Perceived Risk on MSMEs' Interest in Using QRIS

The fourth hypothesis (H4) posits that perceived risk has a positive effect on MSMEs' interest in using QRIS. Statistical tests confirmed that perceived risk has a significant positive effect on MSMEs' interest in using QRIS, thus the fourth hypothesis is

accepted. In other words, the lower the perceived risk of using QRIS, the greater the MSMEs' interest in adopting it.

This result is supported by the **Theory of Planned Behavior (TPB)**, which explains that risk perception can influence a person's interest or desire to adopt technology. Perceived risk can serve as either a supporting or inhibiting factor in technology usage (Wardani & Sari, 2021). This finding aligns with studies by Putri et al. (2022) and Silaen et al. (2021), which found that perceived risk has a positive effect on usage interest.

## CONCLUSION

This study examines the impact of Perceived Usefulness, Perceived Ease of Use, Perceived Trust, and Perceived Risk on MSMEs' interest in using QRIS. The study's limitations include a narrow scope, covering only one region. The results show that:

1. Perceived usefulness positively affects MSMEs' interest in using the QRIS payment method.
2. Perceived ease of use positively affects MSMEs' interest in using the QRIS payment method.
3. Perceived trust positively affects MSMEs' interest in using the QRIS payment method.
4. Perceived risk positively affects MSMEs' interest in using the QRIS payment method.

MSMEs are encouraged to improve their understanding and skills through education and training. Optimizing the use of QRIS features and providing feedback to service providers will help in the system's development. QRIS issuers should focus on enhancing features, transaction security, as well as conducting socialization and promotion. Educational campaigns, incentives, and collaboration with the government and financial institutions are also crucial. Future research should consider including "Business Types" in the respondent data and add other variables for more detailed analysis. Current limitations include a lack of specific data on business types, limited variables, and a small sample size.

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