# HOW EASY AND SAFE IS QRIS? UNCOVERING THE FACTORS THAT DRIVE USER INTEREST IN PEMATANGSIANTAR

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## Abstract

This study confirms that the benefits and ease of use of QRIS directly encourage public interest in transacting MSME products in Pematangsiantar City. Using a quantitative research method with 100 respondents, the data were analysed using SmartPLS to examine the relationships among variables. The results show that the greater the benefits and the easier QRIS is to use, the greater users' interest in choosing digital transactions. Another important finding is the crucial role of user experience (UX), which has been shown to amplify the influence of these benefits and conveniences. Intuitive UX, simple interface, and clear transaction processes can reduce potential barriers and increase the adoption of financial technology. In addition, the digital footprint of each transaction also strengthens the sense of security and trust between users and MSME actors. More broadly, this research makes a strategic contribution to accelerating Indonesia's digital economy transformation. With increased transparency and efficiency of MSME transactions, the flow of money remains in the country, thereby strengthening public awareness and supporting economic independence. These findings affirm the urgency of enhancing digital infrastructure and improving UX quality to expand the use of QRIS in society.

**Keywords**: *UX, Benefit, Ease_of_Use, QRIS_Users'_Interest*

## INTRODUCTION

Indonesia has various digital payment systems that have developed gradually, such as GoPay, OVO, Dana, LinkAja, and so on. This digital platform has different QR codes, so merchants often have to provide multiple QR codes to accept transactions (Ramayanti et al., 2025). This is a consideration for Bank Indonesia in launching QRIS as a national payment standard to unify QR codes in Indonesia. Payment transactions using digital systems or commonly known as electronic money are increasingly trusted by the public (Laloan et al., 2023). Since its launch by BI on August 17, 2019, public confidence in using QRIS has slowly increased. From the latest data, namely the first quarter of 2025, QRIS was used in Indonesia as many as 2.6 billion transactions with a total payment of 262 trillion rupiah. There are 56.3 million QRIS users, 67.7 percent of whom are MSMEs, which is 38.3 million users. (https://goodstats.id/article/transaksi-qris-tumbuh-hampir-600-pada-kuartal-i-2025-Wo7Cm).

This activity also occurred in Pematangsiantar City, referring to data issued by Bank Indonesia in the Pematangsiantar City work area exceeding 102.7 billion rupiah. Bank Indonesia also recorded a growth in QRIS usage in Pematangsiantar of 69 percent yoy (https://ikoneksi.com/transaksi-qris-pematangsiantar-tembus-rp1027-miliar/). However, there are still challenges faced related to the use of QRIS in Pematangsiantar City, including (Shawn & Scott, 2025): first, some MSMEs experience technological infrastructure constraints required in the implementation of the QRIS system in their transactions, such as: unstable internet connectivity, inadequate hardware; not many MSME actors are aware of the efficiency of using QRIS because digital literacy through education and socialization is lacking so that they do not know how this QRIS system works; Finally, the complicated installation process resulted in MSME actors being skeptical in changing the payment system from an on-cash to a QRIS system.

From the results of former research conducted in Semarang by (Nurhapsari & Sholihah, 2022) that the knowledge, usefulness and convenience felt by QRIS users have a positive and significant effect on the intention to use QRIS. Then (Zalukhu & Lattu, 2025) also emphasized in his research that the implementation of QRIS can encourage transaction efficiency because of convenience, especially in the MSME sector, this was obtained from the response of MSME actors in Sukabumi City. Then how does the user experience also contribute positively to

community satisfaction as a QRIS user in Samarinda City based on the results of the research (Rahayu & Aransyah, 2023). Based on some of these studies, this research was then developed in Pematangsiantar City, with the novelty of the mediation variable added that user experience (UX) affects the benefits of QRIS and ease of use has an impact on the QRIS Users' Interest in MSMEs in Pematangsiantar City. The purpose of this study is to find out how UX variables can encourage benefits and ease of use that have an impact on the QRIS Users' Interest in MSMEs in Pematangsiantar City.

## LITERATURE REVIEW
### Benefit
     Benefits are all uses felt by users that can lead to the desire to transact in the application. The perceived benefit is how far the decision-making goes to believe that using the system can increase work productivity (Astuti et al., 2023). The benefit dimensions are productivity, job performance or effectiveness, importance to job, and overall usefulness, and ease accomplishing tasks (Wibowo et al., 2015).

### Ease of Use
     Ease of use is an illustration of the extent to which a person uses a system or technology that does not require a lot of effort, can be learned quickly and is easy to understand. Ease of use is related to one's belief that the system is user-friendly, so it is very easy and fast to learn and operate it (Davis & Davis, 2015). This perception is important because it affects the user's interest and intention in using a technology or system. If users find the system easy to use, they will be more likely to use it and the technology can increase work productivity. Some of the dimensions of ease of use are enjoyment (positive experience when using the application or system), customization (ease of adjusting the settings and features of the application according to the needs of the user, effortless (does not require excessive effort), mobility (the ability to use the application on various devices and locations), rapid (speed and efficiency in using the application), trust (trust in the security and integrity of the system.

### User Experience (UX)
     User experience (UX) refers to the overall experience of a person when interacting with a product, system or service. The interactions referred to here are context-related, including websites, mobile applications, physical products, and software and so on (Indah Tri Handayani et al., 2024). User Experience (UX) encompasses eight dimensions that shape the way users judge and feel a product: usability, accessibility, desirability, findability, credibility, usefulness, value, and learnability. These dimensions assess whether a product is easy to use, accessible, emotionally appealing, easy to navigate, trustworthy, useful, valuable, and easy to learn. Overall, UX describes the functional to emotional experience that determines the quality of user interaction with digital products.
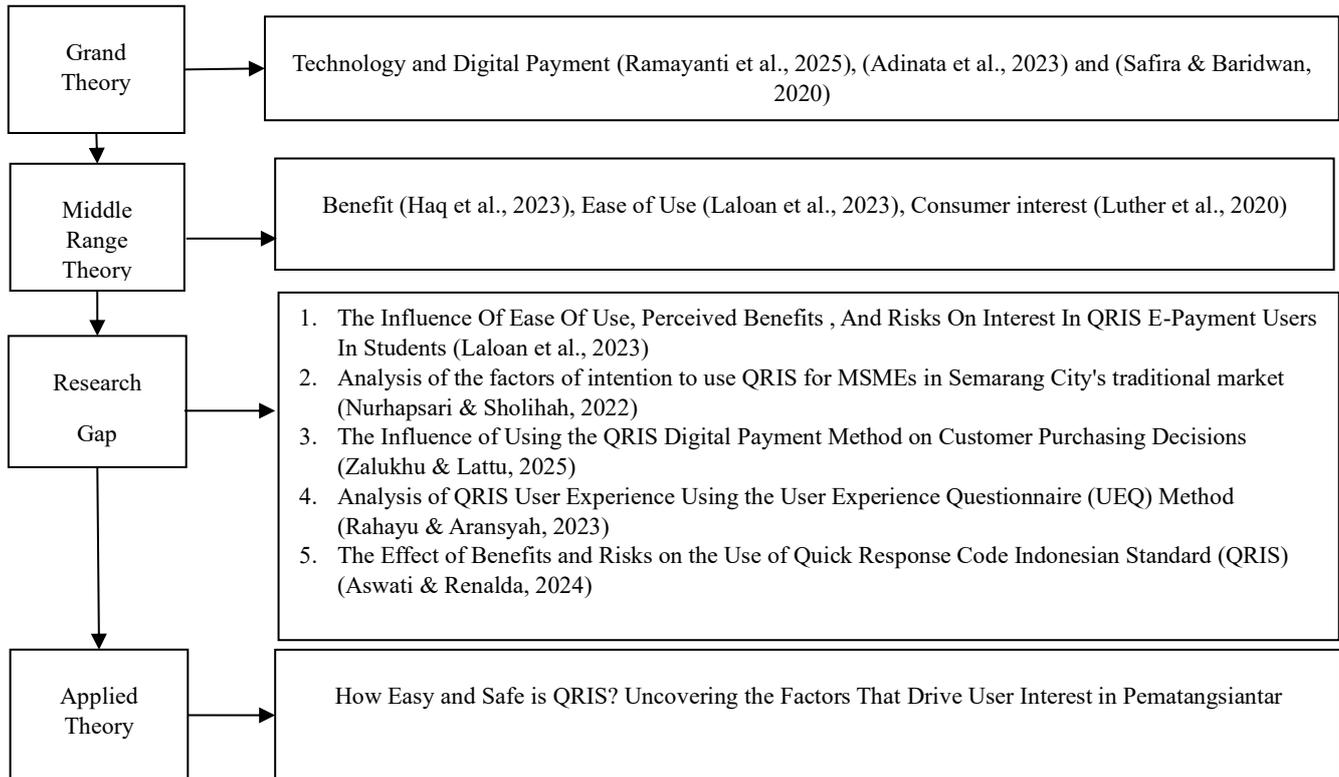
### QRIS Users' Interest
     Interest is a tendency, a sense of pleasure or displeasure and a sense of interest that a person has for a certain object. Interest can be interpreted as a person's interest that is used as a basis for consideration before taking an action or decision-making. Knowledge basically contains two aspects that can affect a person's nature, namely positive aspects and negative aspects. The more positive aspects a person knows, the more positive traits will give rise to positive traits as well, and vice versa (Mailo & Bahasoan, 2024). Using the QRIS product, which is a non-cash payment from Bank Indonesia, prospective users need information and knowledge about the product. This is so that no party feels disadvantaged in using QRIS. When users have a lot of knowledge, they will have a greater interest in using QRIS, and can process information and provide responses well and appropriately.
     The dimensions that are usually used to measure user interest related to QRIS (Quick Response Indonesian Standard) are Perceived Ease of Use, which is the extent to which users find it easy and do not have difficulties in using QRIS, perceived Usefulness is the user's belief that using QRIS provides advantages and convenience in transactions, perceived Security is the level of user confidence in the security of transactions using QRIS, cost is the user's perception of the costs incurred or cost savings in using QRIS and perceived risk is the extent to which the user feels that there are risks that may occur when using QRIS, such as errors or transaction failures (Ferdian et al., 2024). Several previous studies have reviewed the above variables, but I developed a research in Pematangsiantar City, and used the mediation variable as a novelty. The State of Art developed in this study is to develop research variables and add moderation variables to help researchers and MSME actors understand the conditions where the relationship between two variables (independent and dependent) is influential based on the findings of phenomena related to the use of QRIS, especially in MSMEs in Pematangsiantar City. The moderation variable has an

understanding of when or under what conditions the relationship can be called strong or weak, and even change direction.

**Figure 1. State of Art Research**



source: Former Research, 2025

The development of hypotheses in this study is needed in order to emphasize this research model in the next section.

1. The direct effect of Benefits on QRIS Users' Interest

Benefits can directly affect the QRIS Users' Interest. Benefit is an individual's belief in how to use a system to drive its performance. Interest in using a system or product by a person is driven by the perceived value of benefits, meaning that if the benefits are high, the product will be very useful, but if the benefits are lacking, then it will not be used (Laloan et al., 2023) (Aswati & Renalda, 2024).

H1: Benefits (X1) have a positive and significant effect on the QRIS Users' Interest (Y)

2. The direct effect of ease of use on the QRIS Users' Interest

The ease of use of QRIS increases the intention to adopt m-payment and QRIS, the same thing was found in previous research (Ramayanti et al., 2025). This situation helps users and business actors to create an efficient and transparent financial climate. These findings have an impact on a system of mutually beneficial transactions.

H2: Ease of Use (X2) has a positive and significant effect on QRIS Users' Interest (Y)

3. The Effect of Benefits by Moderating User Experience (UX) on QRIS Users' Interests

The role of UX in increasing the influence of QRIS benefits on the QRIS Users' Interest is crucial. Various testimonials of real user experiences who feel and are able to show real changes in the benefits of QRIS play a role in encouraging business actors to use the QRIS payment system, and consumers are more confident in using it than carrying cash. Financial statements are more accurate because there is a digital trace of transactions stored when using QRIS (Rahayu & Aransyah, 2023).

H3: User Experience (M) is able to strengthen the Benefits (X1) to the QRIS Users' Interest (Y)

4. The Effect of Ease of Use with User Experience Moderated on QRIS Users' Interest

The ease of use of QRIS, which is presented with various real user testimonials, can have a direct impact on accelerating the adoption of digital payment systems. When the scan-to-pay model reduces transaction time your a shorter one, hesitant users will be interested in using QRIS. Based on findings from previous service in Pematangsiantar City (Silaban et al., 2024), namely traditional businesses and MSMEs still use cash payment systems in transactions. This is difficult because of the limited options for local visitors and even foreign tourists.
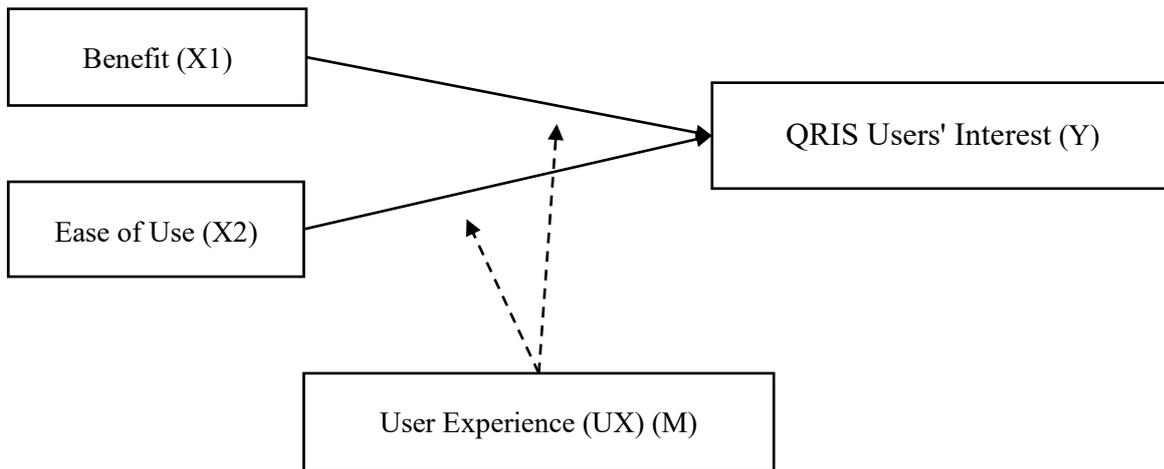
The importance of user experience from the convenience gained when using QRIS will encourage an increase in interest in QRIS users.

H4: User Experience (M) is able to strengthen the Ease of Use (X2) to the QRIS Users' Interest (Y)

**Figure 2. Reseach's Framework**



Source: (Liana, 2009)

## METHOD

In this study, the type of research is quantitative, with the location of the MSME research in Pematangsiantar City, the data taken is primary data directly on the object, with the population of all consumers who are transacting in MSMEs in Pematangsiantar City during May 2025, the sample determination is random sampling. The reason for choosing random sampling is Stratified Random Sampling, which is the population is divided based on certain characteristics, then the sample is collected randomly from each strata The method of data collection is by distributing questionnaires, namely consumers or customers who use QRIS as a payment system with 100 respondents. Data analysis by using a moderator construct model in a PLS path model (for example, by including a single item or multiple item constructs) (Becker et al., 2018). Next, add the relationship from the moderator to the path relationship between the two constructs you want to moderate. In this study, the moderation relationship was tested with Moderate Regression Analysis (MRA), which is a special application in multiple linear regression where the regression contains elements of interaction. The mathematical model of the relationship between variables is as follows (Ghozali, 2020):
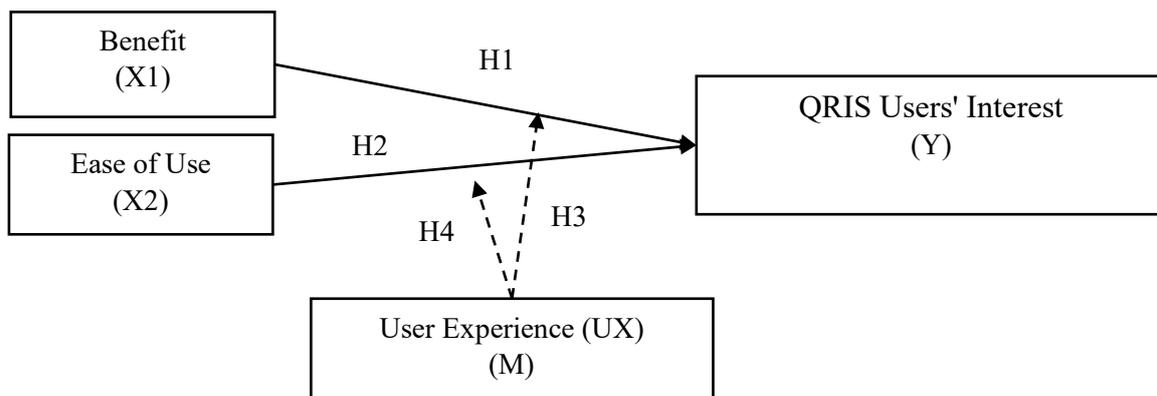
$$Y = a_1 + b_1X_1 + b_3M + b_5X_1*M + e_1$$
$$Y = a_2 + b_2X_2 + b_4M + b_6X_2*M + e_2$$

Information:

X is an independent variable, M is a moderator variable, X*M is an interaction variable between X and Z.

**Figure 3. Model of the Relationship between Regression Variables and Moderation Variable**



Source: (Liana, 2009)

## RESULT AND DISCUSSION

### 1. Results

#### Outer loading

This model is often used as a basis for measurement in looking at the relationship between each indicator.

**Table 1. Outer Loading Value**

|        | M     | X1    | X1*M  | X2    | X2*M  | Y_    |
|--------|-------|-------|-------|-------|-------|-------|
| M1.1   | 0,833 |       |       |       |       |       |
| M1.2   | 0,729 |       |       |       |       |       |
| M1.3   | 0,749 |       |       |       |       |       |
| M1.4   | 0,808 |       |       |       |       |       |
| M1.5   | 0,809 |       |       |       |       |       |
| M1.6   | 0,785 |       |       |       |       |       |
| M1.7   | 0,749 |       |       |       |       |       |
| M1.8   | 0,806 |       |       |       |       |       |
| X1*M   |       |       | 1,104 |       |       |       |
| X1.1   |       | 0,787 |       |       |       |       |
| X1.2   |       | 0,873 |       |       |       |       |
| X1.3   |       | 0,903 |       |       |       |       |
| X1.4   |       | 0,803 |       |       |       |       |
| X1.5   |       | 0,844 |       |       |       |       |
| X2*M   |       |       |       |       | 1,207 |       |
| X2.1   |       |       |       | 0,752 |       |       |
| X2.2   |       |       |       | 0,738 |       |       |
| X2.3   |       |       |       | 0,760 |       |       |
| X2.4   |       |       |       | 0,807 |       |       |
| X2.5   |       |       |       | 0,734 |       |       |
| X2.6   |       |       |       | 0,706 |       |       |
| Y1.1   |       |       |       |       |       | 0,847 |
| Y1.2   |       |       |       |       |       | 0,780 |
| Y1.3   |       |       |       |       |       | 0,787 |
| Y1.4   |       |       |       |       |       | 0,894 |
| Y1.5   |       |       |       |       |       | 0,854 |

Source: SmartPLS Data Processing, 2025

Based on the results of data processing using PLS presented in table 1, it is known that all indicators in this study have an outer loading value of > 0.70. Indicators that have an outer loading value of > 0.70 are interpreted as having convergent validity requirements in the category of adequate and good, so that this study can be continued for the next stage of validity testing. The table above shows that the outer loading factor value of all indicators is above 0.7 with a range of 0.706 – 0.903 so that it is concluded that all indicators have met the requirements for convergent validity and are valid indicators to be used in measuring the four research variables.

**Construct Reliability and Validity Test Scores**

In table 2, it can be seen that the indicator load of each variable in the test of validity and validity. From the test results, an AVE value above 0.5 was obtained, meaning that the measurement of this data was in accordance with valid criteria. The reliability test obtained a Cronbach's Alpha value above 0.6, meaning that the data processing was reliable.

### Table 2. Construct Reliability and Validity

| | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|---|---|---|---|---|
| **Benefits (X1)** | 0,898 | 0,906 | 0,925 | 0,711 |
| **Benefits*UX (X1*M)** | 1,000 | 1,000 | 1,000 | 1,000 |
| **Ease of Use (X2)** | 0,844 | 0,845 | 0,885 | 0,563 |
| **Ease of Use*UX (X2*M)** | 1,000 | 1,000 | 1,000 | 1,000 |
| **User Experience (UX) (M)** | 0,911 | 0,921 | 0,927 | 0,615 |
| **QRIS Users' Interest (Y)** | 0,890 | 0,895 | 0,919 | 0,694 |

Source: SmartPLS data processing, 2025

A variable is declared tested or reliable if it has Cronbach's alpha value greater than 0.7. Based on the data presented in table 2, it is concluded that all constructs have met the reliability criteria, this is evidenced by a composite reliability value greater than 0.8–0.9. All indicators have consistency in measuring five variables. A variable is declared tested or reliable if it has an AVE value of at least 0.5. Based on the data generated in table 5.6, it shows that the AVE value of all variables is more than 0.5 so that all variables are declared reliable. All indicators can reflect all four variables being measured. If all indicators are standardized, then the AVE value will be equal to the average value of block communalities.

### Internal Model Analysis

The value in the R-Square is listed to see how much of an impact the free latent variable has on the dependent variable
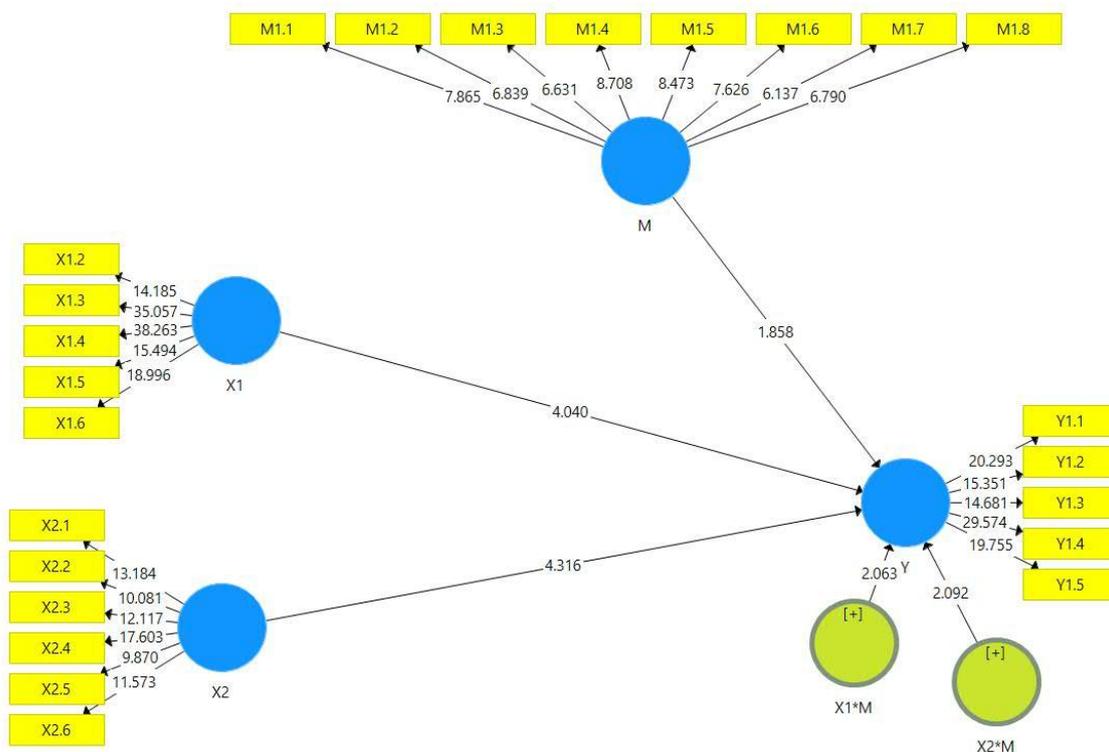


**Figure 4. Inner Model**

Source: SmartPLS data processing, 2025

Based on the tests carried out, the R-Square value can be seen as follows:

**Table 3. Analysis R-Square**

|  | R Square | R Square Adjusted |
|---|---|---|
| **QRIS Users' Interest (Y)** | 0,620 | 0,599 |

Source: SmartPLS Data Processing, 2025

The R-square adjusted value of the QRIS Users' Interest variable is 0.599, meaning that the QRIS Users' Interest variable can be explained by 59.9%. The R-square value of 0.62 means that there is a strong relationship between benefits, ease of use, user experience and QRIS Users' Interest. The following are the results of the moderation test on the effect of QRIS benefits on interest in using QRIS which is moderated by the ease of using QRIS as follows:

**Table 4. Path Coefficients**

|  | Original Sample (O) | Sample Mean (M) | Standard Deviation | T-Statistics | P Values |
|---|---|---|---|---|---|
| **Benefits ->QRIS Users' Interest** | 0,406 | 0,389 | 0,101 | 4,040 | **0,000** |
| **Benefits*User Experience -> QRIS Users' Interest** | -0,249 | -0,200 | 0,121 | 2,063 | **0,040** |
| **Ease of Use -> the QRIS Users' Interest** | 0,397 | 0,402 | 0,092 | 4,316 | **0,000** |
| **Ease of Use*User Experience -> QRIS Users' Interest** | 0,234 | 0,234 | 0,112 | 2,092 | **0,037** |

Source: SmartPLS data processing, 2025

Based on the data that has been processed using Smart PLS 3, each hypothesized relationship is carried out using simulations. In this case, a bootstrap method is used for the sample. With bootstrap testing it is intended to minimize issues against data abnormalities in research. The test results using the Smart PLS bootstrapping method are as follows:

1) The Effect of Benefit on QRIS Users' Interest
From the results of the hypothesis test that has been calculated in table 4, it is known that the path coefficient is 0.406 and the P-Value of QRIS benefit to QRIS Users' Interest is 0.000 plus a positive T-Statistic of 4.040, so it can be concluded that the QRIS benefit has a significant influence on QRIS Users' Interest. Stated H1 Accepted H0 Rejected.

2) The Effect of Ease of Use on QRIS Users' Interest
From the results of the hypothesis test that has been calculated in table 4, it is known that the path coefficient is 0.397 and the P-Value of ease of use on QRIS Users' Interest is 0.000 plus a positive T-Statistic of 4.316, so it can be concluded that ease of use has a significant influence on QRIS Users' Interest. Stated H2 Accepted H0 Rejected.

3) The Effect of Benefit on QRIS Users' Interest moderated by User Experience
From the results of the hypothesis test that has been calculated in table 4, it is known that user experience is able to positively moderate the relationship between benefits and QRIS Users' Interest seen from the positive T-Statistic of 2.063 with a P-value of 0.040, so it can be concluded that user experience is able to moderate the positive relationship between benefits and QRIS Users' Interest. Stated H3 Accepted H0 Rejected.

4) The Effect of Ease of Use on QRIS Users' Interest moderated by User Experience
From the results of the hypothesis test that has been calculated in table 4, it is known that user experience is able to positively moderate the relationship between ease of use and QRIS Users' Interest seen from the positive T-Statistic of 2.092 with a P-value of 0.037, so it can be concluded that user experience is able to positively moderate the relationship between ease of use and QRIS Users' Interest. Stated H4 Accepted H0 Rejected.

**2. Discussion**
Based on the results of data processing, it was obtained that the benefits had a positive and significant effect on the QRIS Users' Interest. This is in accordance with the results of research that was also carried out (Laloan et al., 2023) that the benefits of QRIS in transactions affect the QRIS Users' Interest. This can happen for several reasons,

including: 1) when users feel clear benefits, QRIS users tend to develop a positive attitude, so the interest in adopting this payment is higher. 2) Enabling payments in various MSME products with high system accessibility and flexibility is an added value in encouraging the QRIS Users' Interest. Ease of use has a positive and significant effect. This can be seen from the results of the prob. value $0.000 < 0.05$. This can happen because convenience and efficiency are key factors, where users who use QRIS consider payments to be faster and more practical than conventional methods. Another reason is transaction security because it can reduce the use of cash and is able to provide a clear digital footprint so as to create trust for consumers and MSME actors which ultimately increases user interest. This is in line with research conducted by Muhammad Zhilalul Hag (Haq et al., 2023), that ease of use has a positive and significant effect on the QRIS Users' Interest.

Based on data processing, it was obtained that UX was able to moderate the benefits to the QRIS Users' Interest, with a probability value of $0.040 < 0.05$. This means that UX plays a crucial role in strengthening the benefit variable. Good and correct UX is able to reduce obstacles experienced when making payments in the MSME sector. If the community as consumers in Pematangsiantar City can easily navigate, and complete the payment system, the experience generated will be a good thing that will be continued. So they will be interested in recommending QRIS to others. This is in line with the findings obtained in previous researchers (Daniswara et al., 2025). Based on the results of data processing, it was found that UX was able to moderate the ease of use to the QRIS Users' Interest, this can be seen from the probability values of $0.037 < 0.05$. This finding is acceptable because UX has a very important role in strengthening ease of use and increasing the QRIS Users' Interest in MSME product payment activities in Pematangsiantar City. Some of the reasons include: 1) UX reduces friction and complexity, which makes it easy for consumers to understand and use the product without confusion, making it more attractive to use repeatedly. A reduction in cognitive load is acceptable to consumers so that the experience feels more natural.

## CONCLUSION

The purpose of this study is to find out how much the benefits and ease of use affect the QRIS Users' Interest directly and to find out the role of user experience in strengthening the two variables of free to increase the QRIS Users' Interest in MSME products in Pematangsiantar City. The results of the study show that the variables of benefits and ease of use affect the QRIS Users' Interest either directly or by being strengthened by the moderating variable, namely user experience. This is evidenced by the value of the probability of direct or moderated influence entirely below 0.05. The implications of user experience (UX) encouraging benefits and ease of use in increasing the QRIS Users' Interest in Pematangsiantar City are very significant because intuitive UX is able to reduce the risk of difficulties faced by consumers with various difficult processes when making digital payments, this is also evidenced by previous findings on Tom Sushi Restaurant (Daniswara et al., 2025). A simple interface model with easy and clear steps can increase the adoption of financial technology. The speed of transactions in seconds is the impact of optimized UX, this can be seen from the responsive scan and pay system. Finally, the existence of a digital footprint of each transaction increases the trust of users and MSME actors in Pematangsiantar City.

The suggestion to encourage passion in creating habit formation, namely transactions that switch from cash-based methods to digital payments, is the need to enlighten MSMEs, especially those engaged in traditional businesses, to be willing to adopt the use of QRIS, by emphasizing business benefits, and automatic recording, so that they are willing to switch to digital payments. The importance of government communication, through related agencies, and MSME actors is the key to the success of the use of QRIS. Promoting digital literacy, through campaigns to use QRIS in various socialization meetings, practicing direct demonstrations to business actors, especially in traditional markets, community centers through hands-on experience, so that MSME actors understand and want to use this QRIS system. Finally, there is a need for monitoring and evaluation by relevant institutions if the QRIS system is used, especially by MSMEs in traditional markets in order to create a supportive, safe and sustainable financial ecosystem.

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