

## EVALUATION OF FACTORS AFFECTING INTENTION TO USE QRIS PAYMENT TRANSACTION

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**ABSTRACT.** *The development of mobile payment in Indonesia has been growing rapidly. In 2019 Go-pay, OVO, and DANA dominate mobile payment in Indonesia until Q2 2019. At first, all three of them have a payment method using QR code in their own way, but now Bank Indonesia has issued regulations on the use of QR payments that use a standard applied throughout Indonesia, namely QRIS. And in 2025, Bank Indonesia has projections that will focus on digital finance, including banking digitization and integration of the national digital economy finance. The research purpose is to identify the factors that influence people to use QRIS as their mobile payment. The research uses the TAM method and then added several independent variables. The study is conducted by distributing questionnaires to people who use QRIS in Jabodetabek. Then the data is analyzed utilizing the Structural Equation Models (SEM) method using analytical tools, SMART PLS. The result indicates that Attitude toward QRIS payment (ATT) influences the Intention to Use QRIS payment (ITU), and ATT is influenced by Perceived Ease of Use (PEU) and Perceived Usefulness (PU). And for the added several independent variables, the results are technology anxiety and experience influence PEU, while social influence, experience, and compatibility influence PU.*

**Keywords:** TAM (Technology Acceptance Model), Structural equation models, Mobile payment, QRIS

**1. Introduction.** The development of online payment in Indonesia, especially mobile payment, has been overgrowing until Q2 in 2019, the use of mobile payments reached 390 million transactions, and the total nominal rupiah that had been transacted through electronic money reached more than 56 trillion rupiah [1].

There are many mobile payment companies in Indonesia, but in Q2 2019, Go-pay, OVO, and Dana dominate the number and amount of mobile transactions [1]. Three of them have QR payment as a way to make payments. At first, we can only use QR payment of fintech A using only application A and QR code of fintech A. However, after Bank Indonesia issued regulations on the use of QR payments standards, now any application with QRIS system standard can be used to scan the QR code of any other fintech or banks. The goal is to make it easier for the store, so the store only needs to make a cooperation agreement with one fintech or bank and only use one QR code to receive payments from any application using the QRIS system.

In 2025, Bank Indonesia has projections that will focus on digital finance, including banking digitization and integration of the national digital economy-finance but based on the report of the Indonesian Payment System Association (ASPI) for quarter 1 – 2021, the number of QRIS transactions in 2020 has only reached 123.92 million transactions as long as with a nominal transaction of 8182 billion rupiah (8182 trillion rupiah) [2]. This nominal is still smaller than the number of debit card transactions which in 2020

reached 6658 million transactions with a nominal value of 6243 trillion. Where 3999 million transactions are cash withdrawals with a nominal value of 2991 trillion rupiah [2], this is a concern because Bank Indonesia's target for transactions in 2025 will focus on digital finance.

Based on the problem of comparison of the number of QRIS transactions (cashless) and cash transactions, this research purpose is to evaluate the use of QRIS payment using modified Technology Acceptance Model (TAM) with the scope discussed in this study focusing on the identification and evaluation of public acceptance factors in using QRIS payments and the respondents involved in this research are Jabodetabek people who have used QRIS payment.

Another reason this research was conducted is that QR code-based payments are also experiencing an upward trend based on several previous studies in China [3], Japan [4], Malaysia [5], and Thailand [6]. However, there are still few studies conducted in Indonesia. This research indicates that social influence, technology anxiety, experience, and compatibility influence intention to use indirectly through the variable perceived ease of use, perceived usefulness, and attitude towards QRIS payment. These findings contribute to the literature on QR payment and payment experience. These findings also provide insight to merchants when selecting an appropriate payment method and managing the customer payment experience.

This paper proceeds as follows. First, we outline the theoretical foundations of this paper in Section 2. We then build a research model and describe research methods in Section 3. Follow by the elaboration of questionnaire data, analysis results, and discussion in Section 4. In the final section of the paper, we conclude the finding of this paper.

## 2. Literature Review.

**2.1. QR Code Indonesia Standard (QRIS).** QRIS (QR Code Indonesia Standard) is a QR code payment standard for payment systems in Indonesia developed by Bank Indonesia and the Indonesian Payment System Association (ASPI). QR code is a shared delivery channel in payment transactions (the same as ATM and EDC). Parties involved in using QRIS.

- 1) Payment System Service Providers (PJSP): Principals, issuers, clearing operators, final settlement operators, funds transfer operators, electronic wallet operators, switching operators, and payment gateway operators.
- 2) National Payment Gateway Institution (GPN): Standard Agencies, Switching Agencies, and Services Agencies.
- 3) Supporting Operators: Parties that cooperate with merchants (Merchant Aggregator).

With the application of the QRIS system, customers can scan QR from all PJSPs, and technicians only need one QR code and a fund deposit account at one PJSP [7].

**2.2. Social influence.** Social Influence (SI) is the importance users attach to the perception of close relations to use a particular innovation based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model [8]. Thus, it can be hypothesized that

**H1:** social influence is positively related to perceived ease of use

**H2:** social influence is positively related to perceived usefulness

**2.3. Technology anxiety.** Technology Anxiety (TA) is the negative feelings of individuals when faced with using technology. It deals with the general perception of individuals about the use of technology. It has been tackled in various studies where technology anxiety is very common and therefore stands out as an essential factor to understand. If individuals are anxious about the use of technology, they cannot find it easy to use. The

reason is that anxiety is a powerful emotion that influences beliefs, attitudes, and behavior. Because technology anxiety is a feeling of discomfort when using technology and is an obstacle to technology adoption, as the experience grows, the negative effects may diminish [9]. Based on past studies using this variable [9,10], the following hypotheses are posited:

**H3:** technology anxiety is negatively related to perceived ease of use

**H4:** technology anxiety is negatively related to perceived usefulness

**2.4. Experience.** Customer experience defines as the experience with the environment and the relationship between customers and service providers. It depends on time, place, and the context that a customer is. However, it plays an essential role in creating value [8]. Because this variable is in the UTAUT model, the following hypotheses are posited:

**H5:** experience is positively related to perceived ease of use

**H6:** experience is positively related to perceived usefulness

**2.5. Compatibility.** Compatibility refers to the perception that the new technology is compatible with individual values, experiences, and needs. That consists of perceptions about the suitability of technology with individual needs and lifestyles. When individuals are exposed to new technology, they can provide an assessment according to their perceptions of whether this new technology is following their needs, lifestyle, and experience or not. Therefore, the perception of high compatibility with the needs and lifestyles of individuals will accelerate their adaptation to new technologies [9]. Based on past studies using this variable [9,10], the following hypotheses are posited:

**H7:** compatibility is positively related to perceived ease of use

**H8:** compatibility is positively related to perceived usefulness

**2.6. Technology Acceptance Model (TAM).** Several research models explain computer usage behavior, and TAM is one of the well-organized models in explaining the adoption of IS behavior [11]. Generally, the information systems researchers applied TAM to determining technology acceptance behavior for various Information Technology (IT) contexts. Three variables are applied to understanding the intention of users in deciding to use new IT, and those are Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude toward using (ATT). Based on past studies using TAM variables [9,10], the following hypotheses are posited:

**H9:** perceived ease of use is positively related to attitude toward using

**H10:** perceived usefulness is positively related to attitude toward using

**H11:** attitude toward using is positively related to intention to use

### 3. Research Model and Methods.

**3.1. Research model.** After formulating the 11 hypotheses in Section 2, a research model based on TAM was made and used the previous research model [9] as a reference for this study.

**3.2. Research methods.** This study uses a survey method conducted in the Jabodetabek area with respondents who have used QRIS payments. The questionnaire was distributed via Google form through an online method arranged on a Likert scale (1-5) where a scale of 1 means strongly disagree, and a scale of 5 strongly agrees. The number of questions in the questionnaire is 31, where each variable has 3 to 5 indicators. The statistical analysis technique used is Structural Equation Modeling (SEM) by running data with Smart PLS.

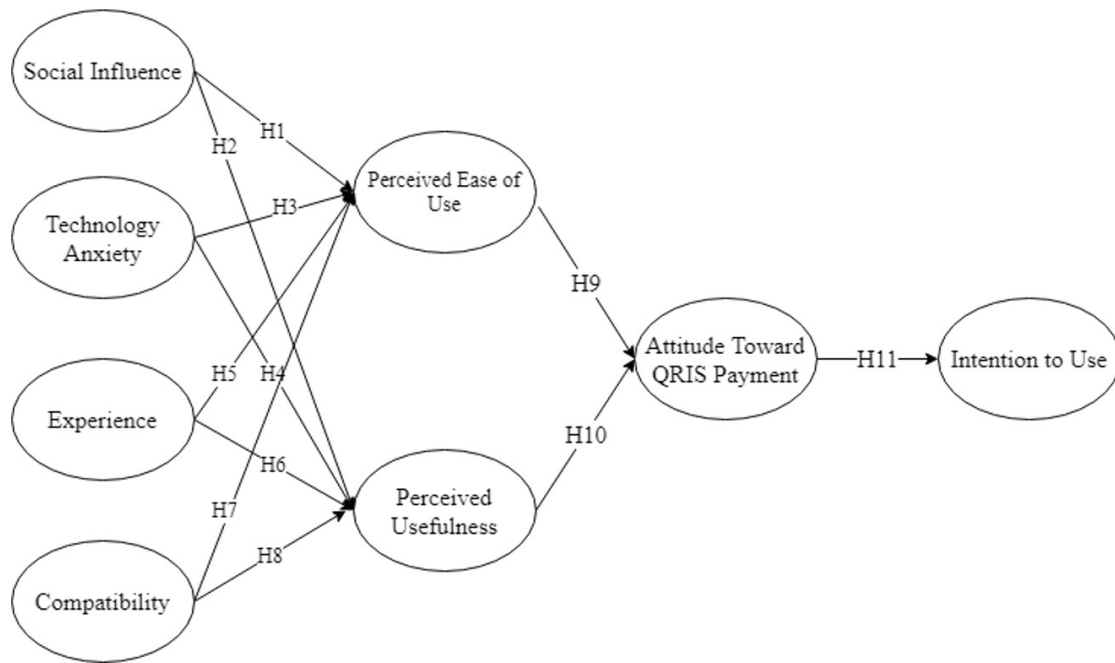


FIGURE 1. Conceptual framework model

#### 4. Empirical Analysis.

**4.1. Demographic analysis.** There are 400 respondents totally that selected as the sample of this research with the ratio of men (55%) and women (45%). With regards to the age, 23-39 years old (79%) as the major respondents followed by respondents below 23 years old (14%), 40-55 years old (5%), and 56-65 years old (2%). The most used application is OVO 44%, followed by Go-Pay 21%, ShopeePay 20%, LinkAja 6%, Dana 4%, and 5% of respondents use other applications.

**4.2. Reliability and validity analysis.** Using the Smart PLS tool analytic software, data analysis uses three measurements: Cronbach's alpha, composite reliability, and Average Variance Extracted (AVE) for convergent analysis. The results in Table 1 suggested that the entire construction has been satisfied because Cronbach's alpha score was above 0.60, composite reliability above 0.70, and AVE above 0.50 [12-14].

TABLE 1. Convergent validity analysis

Variable	Composite reliability	Cronbach's alpha	AVE
Social Influence (SI)	0.907	0.852	0.766
Technology Anxiety (TA)	0.888	0.832	0.664
Experience (E)	0.871	0.807	0.63
Compatibility (C)	0.856	0.749	0.667
Perceived Ease of Use (PEU)	0.861	0.678	0.756
Perceived Usefulness (PU)	0.877	0.813	0.641
Attitude toward QRIS payment (ATT)	0.882	0.821	0.651
Intention to Use (ITU)	0.88	0.819	0.648

Afterward, discriminant validity is tested by Fornell-Larcker Criterion and factors loading. The results suggested that the entire constructs have been satisfied. In the case of the Fornell Larcker Criterion, all variance ratings of the mean of the extracted square root show a value greater than correlation. And for loading factors, all construction values are greater than 0.50 [15].

**4.3. Structural model analysis.** Hypothesis testing is done by bootstrapping calculations using the SMART PLS application with a  $p$ -value  $\leq 0.005$  or a 5% error limit level so that a hypothesis can be accepted if the significance level meets these conditions. In addition, the significant relationship between variables can be seen from the path coefficient value. The path coefficient value range is  $-1$  to  $1$ , where  $0.1$  to  $1$  indicates a significant positive relationship, a value of  $0$  indicates no relationship between variables, values between  $-0.1$  to  $0.1$  indicate a less significant relationship, and a value between  $-1$  to  $-0.1$  indicates a negative relationship [16].

The result from hypothesis testing in Table 2 shows that H1, H4, and H7 are not supported because the  $p$ -value is bigger than  $0.005$ . The path coefficient value is between  $-0.1$  to  $0.1$ , which show social influence is not significant toward perceived ease of use, technology anxiety is not significant toward perceived usefulness, and compatibility is not significant towards perceived ease of use. And the other hypothesis is supported because the path coefficient value is bigger than  $0.1$  for H2, H5, H6, H8, H9, H10, and H11 which means social influence is significant toward perceived usefulness, experience is significant toward both perceived ease of use and perceived usefulness, compatibility is significant toward perceived usefulness, perceived ease of use is significant toward attitude toward using, perceived usefulness is significant toward attitude toward using, and attitude toward using is significant toward intention to use. H3 is supported because the path coefficient value is smaller than  $-0.1$ , which shows technology anxiety is significant toward perceived ease of use.

TABLE 2. Results of hypotheses test

Attributes	Hypothesis	$P$ -value	Path coefficient	Result
SI $\rightarrow$ PEU	H1	0.395	0.035	Not supported
SI $\rightarrow$ PU	H2	0.000	0.152	Supported
TA $\rightarrow$ PEU	H3	0.000	$-0.101$	Supported
TA $\rightarrow$ PU	H4	0.093	$-0.056$	Not supported
E $\rightarrow$ PEU	H5	0.000	0.453	Supported
E $\rightarrow$ PU	H6	0.000	0.306	Supported
C $\rightarrow$ PEU	H7	0.081	0.096	Not supported
C $\rightarrow$ PU	H8	0.000	0.325	Supported
PEU $\rightarrow$ ATT	H9	0.000	0.141	Supported
PU $\rightarrow$ ATT	H10	0.000	0.599	Supported
ATT $\rightarrow$ ITU	H11	0.000	0.591	Supported

Table 3 describes how exogenous variables could explain their endogenous variable. The perceived ease of use could be explained by the independent variables for about 33.4%, perceived usefulness could be described by the independent variables for about 44.5%, attitude toward using could be described by the independent variables for about 48.5%, and intention to use could be described by the independent variables for about 34.9%. Meanwhile, the remaining 66.6%, 55.5%, 51.5%, and 65.1%, respectively, could be explained by the other variables that were excluded in this research.

TABLE 3. Results of hypotheses test

	R square	R square adjusted
PEU	0.334	0.327
PU	0.445	0.439
ATT	0.485	0.482
ITU	0.349	0.348

**4.4. Discussions.** This research provides empirical results of analyzing the user acceptance of the QRIS payment system in Indonesia, especially in Jabodetabek. It uses variables in TAM, UTAUT, and previous research. Attitude toward QRIS payment has a significant effect on the intention to use. This result is in accordance with previous research conducted by [9], which shows that the better or more positive a person's attitude towards QRIS payment, the more it increases the intention to use.

Perceived usefulness and perceived ease of use have a significant effect on attitude toward QRIS payment. This result is in accordance with previous research conducted by [9], which shows that the greater the benefits and convenience of technology will make the person have a good or positive view of technology. And the results of research conducted by [10] show that the greater the benefits and ease of influencing the intention to use technology.

Social influence has a significant effect on perceived usefulness but does not affect perceived ease of use. This result is in line with previous research conducted by [8], that social influence directly influences behavioral intention. Thus, it can be said that social influence affects the perceived usefulness of QRIS payment but does not affect the perceived ease of using QRIS payment.

Technology anxiety has a significant effect on perceived ease of use but does not affect perceived usefulness. These results are in accordance with the literature review conducted by [9] but are different from the results of his research, which states that technology anxiety does not affect perceived ease of use and perceived usefulness. From the results of this study, it can be said that technology anxiety affects the perceived ease of using QRIS payments but does not affect the perception of the usefulness or benefits of QRIS payments.

Compatibility has a significant effect on perceived usefulness but does not affect perceived ease of use. This result is in accordance with previous research conducted by [9], where compatibility only affects perceived usefulness. Thus, compatibility affects the perceived usefulness of QRIS payment but does not affect the perceived ease of using QRIS payment.

Experience has a significant effect on perceived usefulness and perceived ease of use in accordance with the UTAUT model theory, which states that experience becomes a moderator for behavioral intention. This study indicates that experience affects the perceived usefulness of QRIS payment and affects the perceived ease of using QRIS payment.

The four independent variables (social influence, technology anxiety, compatibility, and experience) indirectly affect the use of QRIS payment because these four variables have a significant relationship to one or both variables' perceived usefulness and perceived ease of use. Perceived usefulness and perceived ease of use affect intention to use through attitude toward QRIS payment.

**5. Conclusions.** Social influence, technology anxiety, compatibility, and experience affect the use of QRIS payment indirectly because these four variables significantly affect one or both variables' perceived usefulness and perceived ease of use. Perceived usefulness and perceived ease of use affect intention to use through attitude toward QRIS payment. With details

- 1) Attitude toward QRIS payment has a positive effect on the intention to use.
- 2) Perceived usefulness and perceived ease of use have a positive influence on attitude toward QRIS payment, and the most influential factor is perceived usefulness.
- 3) Experience has a positive influence on perceived usefulness and perceived ease of use.
- 4) Technology anxiety has a negative effect on perceived ease of use.
- 5) Social influence and compatibility have a positive effect on perceived usefulness.

- 6) Social influence, technology anxiety, experience, and compatibility affect intention to use indirectly through the variable perceived ease of use, perceived usefulness, and attitude towards QRIS payment.

This research also contains some limitations and can still be developed for further study by expanding the number of respondents and using other moderating variables.

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