CHAPTER II

ANALYSIS OF THE ACCEPTANCE OF THE QUICK RESPONSE CODE INDONESIAN STANDARD (QRIS) PAYMENT SYSTEM USING THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT) MODEL

2.1   National Cashless Movement (GNNT)

Bank Indonesia (BI) launched the National Cashless Movement (GNNT) in 2014, aiming to create a safe, efficient, and smooth payment system that will encourage the national financial system to work effectively and efficiently. GNNT is also expected to minimize obstacles in cash payments, such as money not being received because it is worn/torn/unfit for circulation and increase efficiency during transactions where people do not need to carry large amounts of money. This way, it can increase the effectiveness of transactions, avoiding calculation errors or human error. In increasing GNNT, Bank Indonesia also issued the Indonesian Payment System (SPI) 2025 to support the digitalization of banking as the leading institution in the digital financial economy.

Bank Indonesia also makes efforts through an electronification program to encourage digital economic and financial integration. This program covers four areas: Electronification of Regional Government Transactions, Electronification of Social Assistance, Electronification of Transportation, and Electronification of Toll Roads. Through this program, Bank Indonesia aims to encourage a shift in people's transaction behaviour

from cash to non-cash. This program is expected to contribute to economic development in Indonesia through increasing financial inclusion, fiscal health, and economic efficiency.

2.2 QRIS

QR Code is a series of codes containing data or information, including the merchant's or user's identity, the amount of payment, and the currency, which can be read with certain tools during payment transactions. As a patent holder, the Denso Wave Inc. company introduced the QR Code for inventory tracking needs in 1994, and in the future, the QR Code will be free to use with reference to ISO/IEC18004. The characteristics of the QR Code's advantages are having a larger data capacity than a horizontal barcode, the ability to remain readable even if 30% of the Code is damaged or dirty, and the ability to be read from various directions.

QRIS is a payment QR Code standard for the Indonesian payment system developed by Bank Indonesia and the Indonesian Payment System Association (ASPI) with the characteristics of UNGGUL or Universal, Easy, Profit, and Direct. In general, how to transact using the QRIS payment system is as follows:

1. Select and open the payment application you want to use.

2. Scan the QRIS provided by the merchant and check the merchant's name again.

3. Before paying, fill in the transaction amount or double-check the payment amount listed.

Based on the type of transaction mechanism, the use of QR Code is divided into two:

1. Merchant Presented (Push Payment)

   The transaction is done by push payment, which is triggered by a transfer from the customer's account at the issuer. This transaction is divided into two: Merchant Presented Static Mode (QR Code can be printed and used forever without the need to update every transaction) and Merchant Presented Dynamic Mode (every new transaction, the QR Code is issued through an EDC or Electronic Data Capture machine).

2. Customer Presented (Pull Payment)

   The transaction is done by pull payment, where the merchant collects the payment to the customer's account through the acquirer. This transaction requires a QR, scanner, and POS (Point-of-Sale) cashier application.

As of January 2024, in Indonesia, there are already 116 companies that have a licence from Bank Indonesia and are operational using QRIS. Of the 116 companies, the following is a list of QRIS payment system organizers, both banks and non-banks:

Table 2.1 QRIS Payment System Service Provider (Banks)

No.	Company	Product
1	PT Bank Central Asia, Tbk	SakuKu, BCA MOBILE
2	PT Bank CIMB Niaga, Tbk	Octo Mobile (Previously GoMobile)
3	PT Bank DKI	JakOne
4	PT Bank Mandiri (Persero), Tbk	-
5	PT Bank Maybank Indonesia, Tbk	Maybank QR Pay
6	PT Bank Mega, Tbk	M-SMILE
7	PT Bank Nationalnobu, Tbk	Nobu ePay
8	PT Bank Negara Indonesia (Persero), Tbk	-
9	PT Bank Permata, Tbk	Permata Mobile X
10	PT Bank Rakyat Indonesia (Persero), Tbk	QRIS BRI
11	PT Bank Sinarmas, Tbk	SimobiPlus
12	PT Bank Danamon Indonesia, Tbk	QR Danamon
13	PT Bank Pembangunan Daerah Bali	QRIS BPD Bali (BPD bali mobile's feature)
14	PT Bank Syariah Mandiri	Mandiri Syariah Mobile
15	PT Bank KEB Hana Indonesia	MyHana Mobile Banking
16	PT Bank OCBC NISP, Tbk	ONe Mobile
17	PT Bank Pembangunan Daerah Sumatera Barat ('Bank Nagari')	Nagari Mobile Banking
18	PT Bank UOB Indonesia	TMRW
19	PT Bank Pembangunan Daerah Jawa Barat & Banten, Tbk	Digi Cash
20	PT Bank BRISyariah, Tbk	BRISPay

Source: Bank Indonesia's website

Table 2.2 QRIS Payment System Service Provider (Non-Banks)

No.	Company	Product
1	PT Airpay International Indonesia	ShopeePay
2	PT Dompet Anak Bangsa	Gopay
3	PT Espay Debit Indonesia Koe	Dana
4	PT Fintek Karya Nusantara	LinkAja
5	PT Telekomunikasi Indonesia, Tbk	t-money, QREN
6	PT Veritra Sentosa Internasional	Paytren
7	PT Visionet Internasional	OVO
8	PT Transaksi Artha Gemilang	OttoCash
9	PT Bluepay Digital International	Bluepay Cash
10	PT Nusa Satu Inti Artha	DokuPay
11	PT Bimasakti Multi Sinergi	SpeedCash
12	PT MNC Teknologi Nusantara	SPIN (Smart Payment Indonesia)
13	PT Finnet Indonesia	Finpay Money
14	PT. Buana Media Teknologi	GudangVoucher (GV e-money)
15	PT Netzme Kreasi Indonesia	E-Money

Source: Bank Indonesia's website

2.3 Mobile Payment

Mobile payment is payment for goods, services, and bills using mobile devices such as smartphones by utilising wireless and other communication technology. Smartphones can be used as an intermediary medium to pay purchase bills via electronic payment services. Payment by mobile payment uses a mobile credit card or e-wallet as an instrument (Dahlberg et al., 2008). Based on the buyer's location and usage situation, mobile payments are divided into two categories, namely proximity payments and remote payments. Proximity payments involve exchanging

information using Radio Frequency Identification (RFID) or barcode scanning, usually known as point-of-sale payments. Two examples of proximity payments are NFC-based payments and QR code payments. Remote payments are made via a web browser or smartphone applications, for example, using e-wallets, bank transfers, and so on (Qasim and Abu-Shanab, 2016). The following is one of the mobile payment methods in the form of QR code "QRIS" using the e-wallet application "OVO":

1. Make sure you already have an OVO application and account. If so, you can open the OVO application on a smartphone.
2. On the main page, select the "Scan" option.
3. Scan the QR Code by pointing your smartphone camera at the QR Code provided by the merchant.
4. Enter the amount to be paid.
5. After checking the transaction details, you can confirm the payment by entering your OVO PIN.
6. Finally, wait for the notification that the transaction has been successful.

2.4 UTAUT

Venkatesh et al. (2003) first developed the Unified Theory of Acceptance and the Use of Technology or UTAUT framework to predict technology acceptance in organisational environments. This framework targets populations with different views on adopting and using the latest systems. UTAUT was formed based on constructing eight information

technology system acceptance models by several previous researchers. These models are:

1. Theory of Reasoned Action oleh Fishbein and Ajzen (1975)

2. Technology Acceptance Model by Davis (1989)

3. Motivational Model by Davis et al. (1992)

4. Theory of Planned Behavior by Ajzen (1991)

5. Combined TAM and TPB by Taylor and Todd (1995)

6. Model of PC Utilisation (MPCU) by Thompson et al. (1991)

7. Diffusion of Innovation Theory by Moore and Benbasat (2001)

8. Social Cognitive Theory by Compeau et al. (1999)

According to Venkatesh et al. (2003), UTAUT has four main factors that influence the acceptance of information technology. These factors are:

1. Performance expectancy: This factor is related to the extent to which the individual feels that using the system will benefit him by improving his work performance.

2. The effort expectancy factor is an assessment of ease of use and is related to the use of the system.

3. The social influence factor is the level of individual confidence regarding the extent to which people in the environment believe they should use the new system.

4. The Facilitating Conditions factor is the level of individual confidence regarding the extent to which a person believes that the organisational and technical infrastructure exists to support the use of the system.

Apart from the four factors above, four other moderators are directly related to the primary factors. These moderators include age, gender, experience, and voluntariness, which are directly related to estimating the level of acceptance in terms of a person's or several people's behaviour when practising this technology. Bellow is the research model for UTAUT.
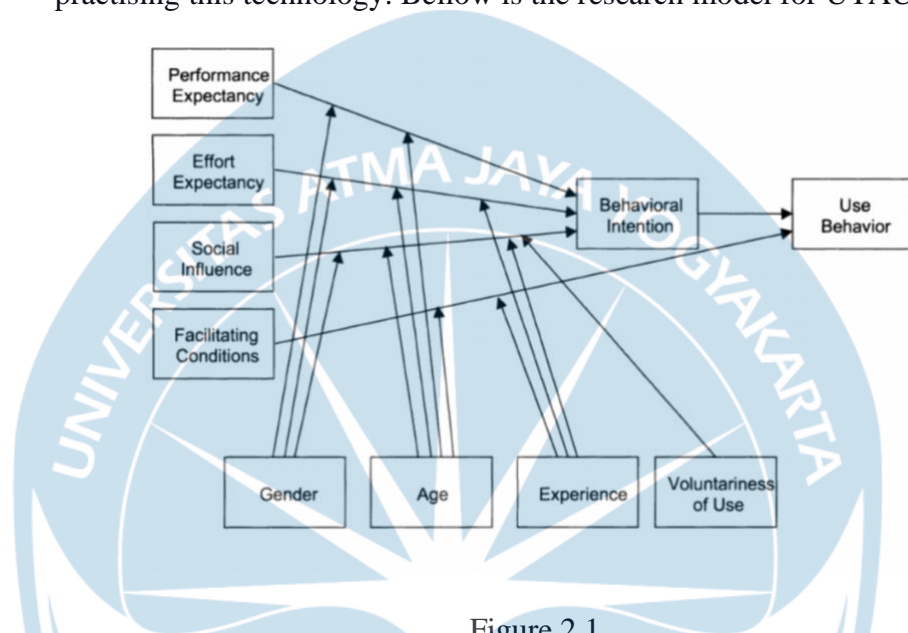

Figure 2.1

UTAUT Research Model

Source: Venkatesh et al. (2003)

2.5 Previous Studies

Sivathanu (2019) researched to answer the situation regarding the implementation of digital payment systems by the Indian government during the demonetization period and the future impact on digital payment systems in India. This research investigates consumers' actual use (AU) of digital payment systems during the demonetization period in India, where the 500 and 1,000 rupee notes in circulation were no longer valid. This cash

shortage is driving the adoption of digital payment systems. This research used the integrated theory of acceptance and use of technology (UTAUT 2) and the Innovation Resistance theory. The researcher chose the innovation resistance theory based on a study by Ram and Sheth in 1989, where in this research it was suggested to focus on understanding why people resist change and how people's habits and fear of trying something make them resist innovation. However, in this research, the price value variable from UTAUT 2 was not included, considering that during demonetization, digital payment system transactions were free due to government incentives. The researcher also added a hypothesis regarding cash stickiness as a link between behavioral intention and actual usage of digital payment systems.

Research by Chang et al. (2021) raises the topic of customer intensity when using the QR code method in mobile payments. With the aim of studying customer motivation in choosing QR codes as a means of payment, previous research has not yet really discussed the payment status of QR codes, which is one type of mobile payment method. In this research, the Facilitating Conditions variable was excluded, considering that smartphones are standard in society as a tool to support mobile payments, and the researchers added the attitude variable instead. This variable was added by considering fundamental theoretical models such as the Theory of Reasoned Action and the Theory of Planned Behavior, where attitude is a positive driver related to behavioral intention. For this research, the subjective norm variable is a social influence variable, the perceived usefulness variable is performance expectancy, and the ease-of-use variable

16

is an effort expectancy variable. These variables have the same meaning as UTAUT variables in general. This research also adds the variable perceived benefits, considering that with intense competition from third-party QR code payment providers, they will provide benefits in various forms to promote their applications. Then, researchers added the variable perceived security because payments using QR codes are non-physical; users may question the security of this payment system.

Previous research by de Sena Abrahão, R., Moriguchi, S.N., and Andrade, D.F. (2016) discusses intentions to adopt mobile payments by analyzing the Unified Theory of Acceptance and Use of Technology (UTAUT). This study aims to evaluate the intention to adopt mobile payment services in the future from the perspective of consumers in Brazil to clarify the relationship between critical fundamental factors before adopting such payment systems. In this research, researchers did not use Facilitating Conditions variables. Researchers added perceived risk and perceived cost variables by considering research from Martins, Oliveira, and Popovic (2014), which combined UTAUT with perceived risk variables in explaining internet banking users' behavioral intention and use behavior. The variable perceived cost is considered because it is felt that for current users, perceived cost is a variable that is not significant and is inversely proportional to previous research regarding the influence on behavioral intention.

Research by Kosim and Legowo (2021) discusses the factors influencing customer intentions in using the QR mobile banking method in

Indonesia. This research aims to analyze the factors influencing user interest using the UTAUT model and evaluate user acceptance of the QR payment system. The use of the QR code payment method during the pandemic has increased but has not shown good numbers and is still not in line with banking companies' expectations, even with the promotions provided, so this is the basis for this research. In this research, the model used is the UTAUT theory, which has been modified by adding the variables perceived value, perceived risk, perceived trust, perceived regulatory support, and Promoted benefits. The addition of these variables takes into account the use of the UTAUT model with modified variables in previous research, such as research by Al-Saedi et al. (2019), which states that perceived risk and perceived trust are variables that are often used to expand the UTAUT model in evaluating payment systems. Another consideration of using the modified variables is in research conducted by Madan and Yadav (2016). This modification of the UTAUT model was also used to analyze the e-wallet system by adding perceived regulatory support and promotional benefits variables, which significantly influenced behavioral intention.

Previous research conducted by Oliveira et al. (2016) studied the determinants of customer adoption and intentions in recommending technology or mobile payment itself. This research aims to identify the main factors in adopting and recommending mobile payments where these payments are experiencing rapid growth in many markets. This research combines the UTAUT 2 theory with the characteristics of innovation in the Diffusion of Innovation (DOI) theory, the perceived technology security,

18

and the intention to recommend constructs. Based on previous research, DOI theory can help predict the success rate and adoption rate of specific innovations. Meanwhile, the addition of the variable perceived technology security is based on the results of previous research, which shows that security issues are an obstacle to the intention to adopt technology related to financial information.

From the five previous studies, the hypothesis regarding "Performance Expectancy positively influences behavior intention to use digital payment systems" is not significant in research conducted by Kosim and Legowo (2021). In contrast, the research results by Sivathanu (2019), de Sena Abrahão, Moriguchi, and Andrade (2016), and Oliveira et al. (2016) showed that performance expectancy significantly impacts behavior intention in using digital payment systems. Apart from that, the hypothesis of "Facilitating Conditions positively influencing behavior and intention to use digital payment systems" is also not significant in the results of research by Kosim and Legowo (2021) and Oliveira et al. (2016), where Sivathanu (2019) accepted this hypothesis. Then, the hypothesis that "Effort Expectancy positively influences behavior and intention to use digital payment systems" is significant in research conducted by Sivathanu (2019), de Sena Abrahão, Moriguchi, and Andrade (2016), and Kosim and Legowo (2021); however, this hypothesis is not significant in Oliveira et al. (2016) research.

Table 2.3 Previous Studies

No	Researchers	Variable	Sample	Result
1.	Sivathanu (2019)	**Independent Variables:** Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Habit, Usage Barrier, Value Barrier, Risk Barrier, Traditional Barrier, and Image Barrier. **Dependent Variables:** Behavior Intention to Use Digital Payment Systems, Innovation Resistance to Use Digital Payment Systems, and Actual Usage of Digital Payment Systems. **Moderate Variable:** Consumer Stickiness to Cash Payment.	Consumers using any form of digital payment systems during the demonetization period using the convenience sampling method in Pune city and its suburbs.	1. Performance Expectancy positively influences Behavior Intention to use digital payment systems 2. Effort Expectancy positively influences Behavior Intention to use digital payment systems. 3. Social Influence positively influences Behavior Intention to use digital payment systems. 4. Facilitating Conditions positively influences Behavior Intention to use digital payment systems. 5. Hedonic Motivation positively influences Behavior Intention to use digital payment systems. 6. Habit positively influences Behavior Intention to use digital payment systems. 7. Usage Barrier positively influences the Innovation Resistance to use digital payment systems. 8. Value Barrier positively influences Innovation Resistance to use digital payment systems. 9. Risk Barrier positively influences Innovation Resistance to use digital payment systems. 10. Traditional Barrier positively influences Innovation Resistance to use digital payment systems. 11. Image Barrier positively influences Innovation Resistance to use digital payment systems.

20

				12. Behavior Intention to use digital payment systems positively influences Actual Usage of digital payment systems.
				13. Innovation Resistance to digital payment systems negatively influences the Actual Usage of digital payment system.
				14. Consumer stickiness to cash payment moderates the relationship between behavior intention and Actual Usage of digital payment systems.
2.	Chang et al. (2021)	**Independent Variables:** Subjective Norms, Perceived Usefulness, Perceived Ease-of-use, and Perceived Benefits. **Dependent Variables:** Customers' Intention to Adopt QR Code Payment and Customers' Attitudes to Adopt QR Code Payment.	Four hundred twenty-four valid responses were collected from diversified socio-economic backgrounds to validate the proposed framework.	1. Attitude positively affects customers' intention to adopt QR code payment. 2. Subjective norms positively influence customers' attitudes to adopt QR code payment. 3. Subjective norms positively influence customers' intention to adopt QR code payment. 4. Perceived usefulness positively influences customers' attitudes to adopt QR code payment. 5. Perceived usefulness positively influences customers' intention to adopt QR code payment. 6. Perceived ease-of-use positively contributes to Perceived usefulness. 7. Perceived benefits positively determine customers' attitudes to adopt QR code payment.
3.	de Sena Abrahão, Moriguchi, and	**Independent Variables:** Performance Expectation, Effort	Mobile customers of a telecommunic ations	1. Performance expectation has significant and positive relationship with the

	Andrade (2016)	Expectation, Social Influence, Perceived Risk, and Perceived Cost. **Dependent Variables:** Intention of Adopting Mobile Payment.	company that operates in southeastern Brazil, with a valid sample of 605 respondents.	intention of adopting mobile payment. 2. Effort expectation has significant and positive relationship with the intention of adopting mobile payment. 3. Social influence has positive and significant relationship with the intention of adopting mobile payment. 4. Perceived risk has negative and significant relationship with the intention of adopting mobile payment.
4.	Oliveira et al. (2016)	**Independent Variables:** Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, Compatibility, Innovativeness, and Perceived Technology Security. **Dependent Variables:** Behavioral Intention to Adopt.	Seven hundred and eighty-nine (789) students and alumni from universities in Portugal.	1. Performance expectancy positively influences the behavioral intention to adopt mobile payment. 2. Effort expectancy positively influences performance expectancy 3. Social influence positively influences the behavioral intention to adopt mobile payment. 4. Consumers with higher innovativeness levels have higher (**a**) compatibility, (**b**) effort expectancy, and (**c**) intention to adopt mobile payment. 5. Consumers with higher compatibility levels have higher (**a**) performance expectancy, (**b**) 6. effort expectancy, and (**c**) the intention to adopt mobile payment. 7. Perceived technology security positively influences the behavioral intention to adopt mobile payment. 8. Behavioral intention to adopt mobile payment

				positively influences behavioral intention to recommend mobile payment technology to others.
5.	Kosim and Legowo (2021)	**Independent Variables:** Performance Expectancy, Effort expectancy, Social Influence, Facilitating Condition, Perceived Risk, Perceived Trust, Perceived Regulatory, and Promotional Benefits. **Dependent Variable:** Behavior Intention. **Moderate Variables:** Age and Experience.	The population taken is the company's (PT ABC) customers in the DKI Jakarta area and it takes 403 samples.	1. Effect of performance expectancy behavior intention moderated by age. 2. Effort expectancy significantly affects behavior Intention. 3. Effect of effort expectancy on behavioral intention moderated by age. 4. Social influence significantly affects behavior intention. 5. Perceived risk significantly affects behavioral intention 6. Perceived trust significantly affects behavioral intention. 7. Perceived regulatory support significantly affects behavioral intention. 8. Promotional benefits significantly affects behavioral intention.

Source: Previous Research

2.6   Hypothesis Development

2.6.1   The Relationship Between Performance Expectancy and Behavior Intention

Performance Expectancy is a significant predictor of intention.

Performance Expectancy is the extent to which a person's confidence in

using a system will help improve their performance. From a theoretical perspective, the relationship between Performance Expectancy and Behavior Intention is moderated by gender variables and age variables (Venkatesh et al., 2003). In previous research by Sivanthanu (2019), Performance Expectancy positively affected Behavior Intention. It was shown that when cash was not available during the demonetization period, digital payment solutions became the choice for financial transactions because they provided convenience and efficiency to consumers. Research by Chang et al. (2021) also shows positive results between Performance Expectancy and Behavior Intention, as evidenced by public awareness of promotions related to payments via the QR code payment method and the benefits provided, encouraging them to develop a positive attitude towards using this technology. The research of de Sena Abrahão et al. (2016) and Oliveira et al. (2016) also showed that Performance Expectancy has a significant effect on Behavior Intention in adopting mobile payment with the results that mobile payment provides benefits in terms of time efficiency, convenience, and consumer experience in using this technology. Based on existing research and previous theories, researcher build the following hypothesis:

H_1: Performance Expectancy will positively influence the Behavior Intention of QR code payment method users.

2.6.2 The Relationship Between Effort Expectancy and Behavior Intention

Effort Expectancy is a person's level of ease when using a technology. Effort Expectancy has a positive effect on Behavior Intention, as proven by the results of research by Sivanthanu (2019). The reduction in effort proves that consumers must make before and after the demonetization period, where consumers do not need to queue at ATMs. This is also the same as the research results of de Sena Abrahão et al. (2016) and Kosim (2021), who stated that Effort Expectancy has a significant effect on Behavior Intention along with the results obtained that the ease of making payments via the QR code payment system and mobile payment system and the small amount of energy expended influence Behavior Intention. Based on existing research and previous theories, researchers build the following hypothesis:

H$_2$: Effort Expectancy will positively influence the Behavior Intention of QR code payment method users.

2.6.3 The Relationship Between Social Influence and Behavior Intention

Social Influence can be defined as a condition where people's perceptions of the people around them are important in their attitude toward adopting a technology. This variable influences an individual's Behavior Intention with three mechanisms: compliance, internationalization, and identification, which are related to the individual's response to the potential for increasing social status and changes in individual intention, which are

influenced by surrounding pressures (Venkatesh et al., 2003). Social Influence is positive and relevant to Behavior Intention, as evidenced by the results of research by Chang et al. (2021), de Sena Abrahão et al. (2016), Kosim (2021), and Oliveira et al. (2016). Apart from that, the results of research from Sivanthanu (2019) also show the significance of Social Influence on Behavior Intention as shown by the influence of people closest to consumers during the demonetization period, which gave rise to the emergence of Behavior Intention to adopt a digital payment system. Based on existing research and previous theories, researchers build the following hypothesis:

H$_3$: Social Influence will positively influence the Behavior Intention of QR code payment method users.

2.6.4 The Relationship Between Facilitating Conditions and Use Behavior

Facilitating Conditions are the extent to which individuals feel that the relevant infrastructure exists to assist the use of technology. The empirical results of predicting Use Behavior through previous research show that Facilitating Conditions directly impact Use Behavior. Results of research conducted by Sivanthanu (2019) showed that the adoption of digital payment systems was due to support from the Indian government for consumers during the demonetization period. These results indicate that Facilitating Conditions positively relate to Use Behavior in adopting digital

payment systems. Based on existing research and previous theories, researchers build the following hypothesis:

H₄: Facilitating Conditions will have a positive influence on the Use Behavior of QR code payment method users.

2.6.5 The Relationship Between Behavior Intention and Use Behavior

The theoretical framework proposed by Sheppard et al. (1988) became the basis for various models related to the relationship between intention and behavior. According to this theoretical foundation, the expectation is that when individuals have a Behavior Intention, meaning they express the intent or willingness to engage in a particular behavior, it is anticipated that this intention will significantly and positively influence their actual use of technology. In simpler terms, the belief is that if people intend to use a technology, they are likely to follow through and use it in practice (Venkatesh et al., 2003). Based on existing research and previous theories, researchers build the following hypothesis:

H₅: Behavior Intention will have a positive influence on the Use Behavior of QR code payment method users.