

CHAPTER I

INTRODUCTION

1.1 Background

The rapid development of the modern era and technology has driven significant progress in the era of digitalization and information, continuously evolving and giving rise to various new innovations (Julianto & Helvira, 2022). Advances in information and communication technology have changed the way individuals and businesses conduct transactions, shifting from conventional cash-based methods to more efficient, practical, and faster digital payment methods. This digitalization is marked by the increasing public accessibility to the internet and the development of technological devices that support digital payment systems (FM Magazine, 2024). This is because Indonesia is one of the countries with the largest number of internet users in the world, as illustrated in the following figure:

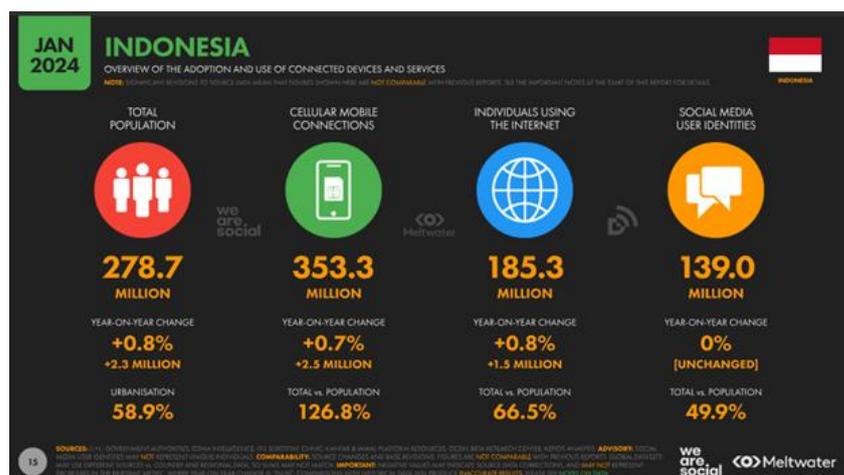


Figure 1.1 Internet Users in Indonesia in 2024

Source: (We Are Social, 2024)

As stated by the table, Indonesia is one of the countries with the largest internet user population in the world. As of January 2024, the number of internet users in Indonesia reached 185.3 million, showing consistent growth in recent years. Based on a report by We Are Social, the internet usage rate in Indonesia is estimated at 66.5% of the total population at the beginning of 2024. The total population of Indonesia was recorded at 278.7 million people in January 2024 (We Are Social, 2024).

The number of smartphone users in Indonesia has also been growing annually. In 2019, 39.98 million people were using smartphones, increasing to 85.59 million in 2020 and further rising to 110.17 million in 2021. This upward trend continued, reaching 124.74 million in 2022, 168.41 million in 2023, and finally 201.97 million in 2024 (Statista, 2024).

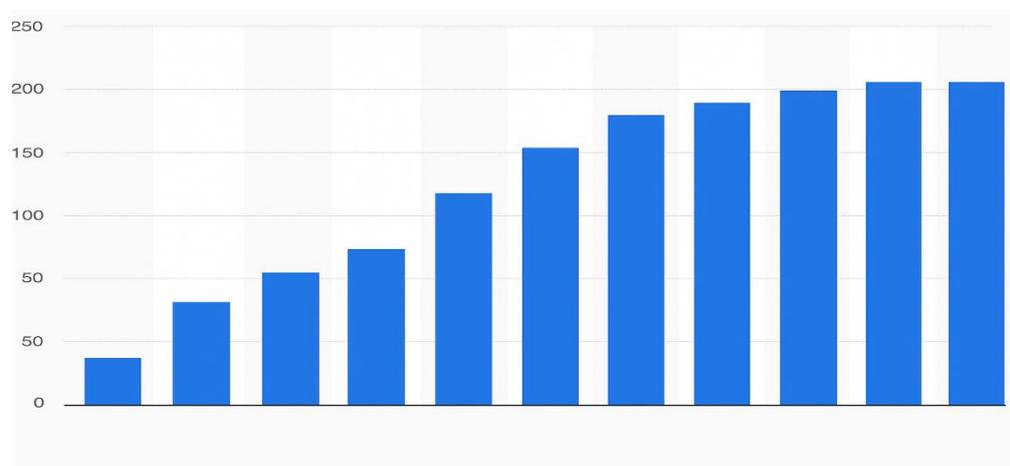


Figure 1.2 Smartphone Users in Indonesia in 2024

Source: (Statista, 2024)

This data is the proof of the expanding reach of smartphone usage in Indonesia, also influenced by the greater internet accessibility and the growing public demand for digital technology in various aspects of life.

With the increase in smartphone usage, digital payment system evolved significantly. To support cashless transactions, QRIS (Quick Response Indonesian Standard) was launched by Bank Indonesia on August 17, 2019, and officially implemented on January 1, 2020 (Bank Indonesia, 2024). QRIS is a national standard designed to facilitate QR code-based payments, enabling users to conduct transactions more efficiently, quickly, and securely.

QRIS was developed to use various QR code-based payment methods into a single standard system which can make transactions easier for both consumers and businesses. With QRIS, customers no longer need multiple payment applications, while merchants only need to provide a single QR code that can be used across all available digital payment platforms. In other hand, QRIS enhances transaction convenience by removing the need for cash

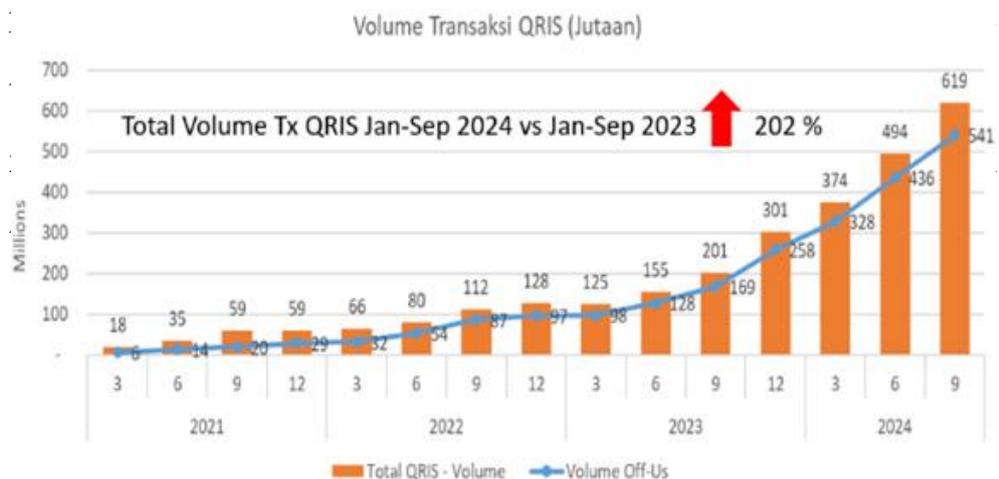


Figure 1.3 Transaction Volume Using QRIS

Source: (ASPI, 2025)

This figure shows the volume of QRIS transactions in 2024 increased by 202% compared to 2023. This growth indicates that more individuals and businesses are transitioning to QRIS-based digital payment systems. Ever since its introduction to the public, QRIS transaction volume has consistently increased year after year, with a significant increase in numbers between early 2023 and 2024 (ASPI, 2025)

The implementation of QRIS has significantly improved the efficiency of financial transactions in Indonesia. Before QRIS, QR code-based digital payments lacked a unified standard, often causing difficulties for both customers and merchants. The usage of QRIS as a national standard has made digital payment systems more inclusive and contributed to the growth of Indonesia's digital economy across various sectors (Bank Indonesia, 2024; Perbanas, 2024). In 2022, QRIS transactions surpassed 1.5 billion, representing a 40% increase from the previous year. Additionally, the number of merchants accepting QRIS payments surged dramatically, with over 30 million registered businesses by the end of 2023 (Perwitasari, 2023).

Technological advancements also transformed consumer behavior, as customers increasingly prioritize convenience and efficiency (Fadillah & Mayasari, 2024). This trend implies on how digital payment systems have become a part of modern lifestyles. The implementation of QRIS in the culinary industry has provided numerous benefits, ultimately enhancing customer satisfaction. With integrated digital payment systems, restaurants can collect customer transaction data, which can be used for business analysis

and data-driven marketing strategies (Alexandro et al., 2025). Such data helps restaurants identify purchasing patterns, and improve customer service by offering personalized incentives like cashback or digital discounts, which can also increase the customers visit frequency.

According to Bank Indonesia, QRIS-facilitated transactions exceeded one billion as of March 2025, representing a 173% year-on-year increase. This rise shows that more people are starting to use digital payment methods. One example is Jatinangor House Tembalang, a rapidly growing restaurant in Semarang City. This restaurant has fully integrated QRIS as its primary payment method to enhance customer satisfaction and easier transaction processes. QRIS transactions provide customers with a easy and convenient payment experience, strengthening previous findings (Rahmawati & Arfiansyah, 2023), which suggest that ease of transaction positively influences customer satisfaction.

Despite the increasing adoption of QRIS as a standardized digital payment method in Indonesia, many customers still experience inconsistencies in transaction convenience, such as slow system response, unclear payment confirmations, and occasional transaction failures. These issues have raised concerns about whether the convenience promised by QRIS is actually being delivered in real-world usage, especially in small to medium-sized businesses like Jatinangor House Tembalang.

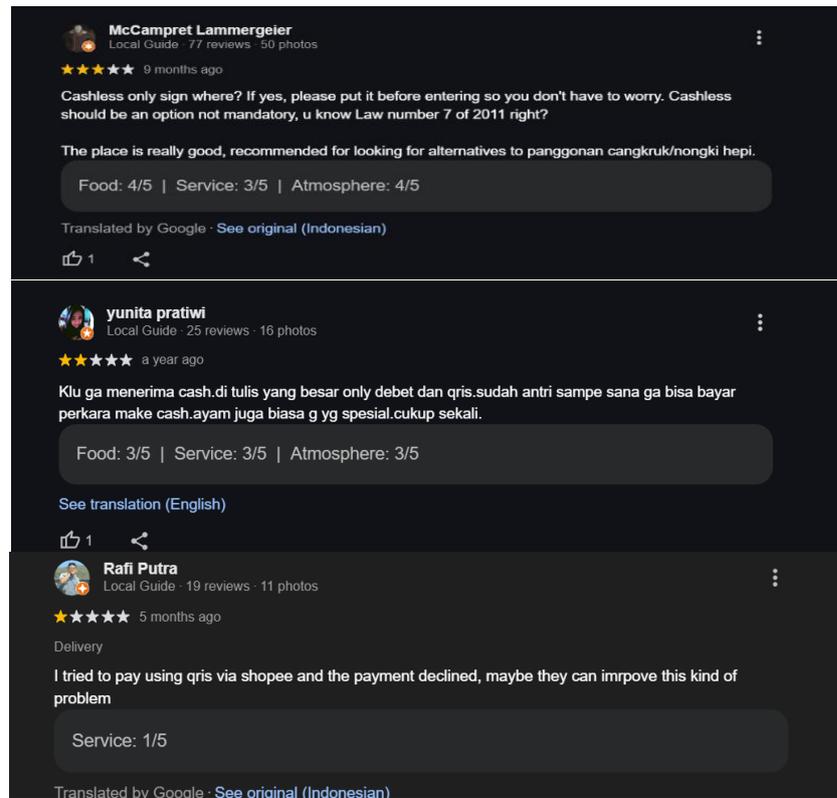


Figure 1.4 Customer Review on Jatinangor

Source: Google Review (2025)

Digital payment methods like QRIS are designed to offer speed, simplicity, and ease of use, it is surprising to find that some customers still express dissatisfaction when using these services. At Jatinangor House Tembalang, a number of customers appear hesitant or even refuse to use QRIS despite its intended convenience. This further strengthen the question if transaction convenience is one of the main advantages of using QRIS, why do some customers still prefer cash or feel less satisfied after a cashless transaction. The phenomena suggests that there may be a gap between the perceived convenience of the system and the actual experience felt by users prompting a deeper investigation into whether transaction convenience truly

plays a significant role in influencing customer satisfaction in the context of QRIS usage.

Security is another important factor in making sure of customer satisfaction when using QRIS for payments. A secure payment system allows customers to conduct transactions with confidence, without concerns about potential disruptions or errors. In some cases, user's perception of the ease of use of a technology or system can influence their willingness to adopt or continue using it, while security concerns are often a significant barrier to usage.

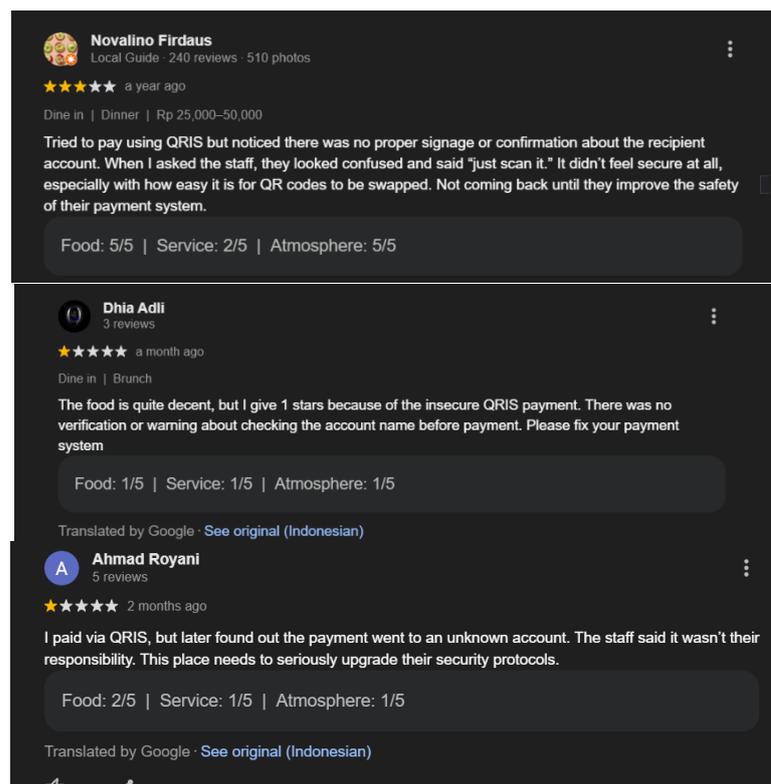


Figure 1.5 Customers Review About Security on Jatininggor

Source: Google Review (2025)

If a system is perceived as easy to use, it can build trust, but if it is perceived as not secure, users may be hesitant to engage with it, regardless of its ease of use. A system that prioritizes security may appear more complex or difficult to use, which can negatively impact user adoption if security measures hinder usability. A well-secured payment experience enhances user satisfaction by reducing unnecessary complexities and reducing transaction time. This aligns with the study conducted (Kurniawati & Azizah, 2023), which found that transaction security has a positive impact on customer satisfaction.

Restaurants and cafes that have adopted digital payment systems tend to attract more customers compared to businesses that still rely solely on cash transactions. QRIS enables businesses to reach a broader customer segment, particularly among younger generations who are more accustomed to digital payments. A study by (Yufi, 2024) found that customers who experience smooth and efficient transactions are more likely to remain loyal to a particular brand or business, which lead to long-term profitability for business owners.

Even though QRIS has made digital payments easier and more popular in Indonesia, many people still face issues that make them hesitate to use it. Problems like long transactions, confusing updates, and worries about security can leave customers feeling frustrated or unsure, especially those who aren't very tech minded. Not every business offers QRIS yet, and in some areas, people don't understand how to use it properly and safely. These issues

mean that the promise of QRIS-making payments quick, easy, and secure- doesn't always match what customers actually experience.

That's why it's important to study what really affects customer satisfaction and trust in QRIS, so businesses and developers can make digital payments work better for everyone. Based on the background discussed above, the researcher is interested in conducting a study titled: "The Influence of Transaction Convenience and Perceived Ease of Use Using Quick Response Code Indonesian Standard (QRIS) on Customer Satisfaction with Security as an Intervening Variable (Case Study on Jatinangor House Semarang Customers)."

1.2 Research Problem

Even though the rapid adoption of QRIS (Quick Response Code Indonesian Standard) as a digital payment solution in Indonesia, businesses and customers continue to face challenges in making optimal satisfaction and trust in these systems according to (Rachman et al., 2024) The increasing reliance on QRIS at establishments such as Jatinangor House Tembalang highlights the importance of understanding the factors that contribute to a positive payment experience. While transaction convenience and security have been widely recognized as key determinants of customer satisfaction According to (Rahmawati & Arfiansyah, 2023), the role of perceived ease of use like how simple and user-friendly customers find the QRIS system-has become increasingly relevant in today's fast-paced digital environment. However, technical issues, varying levels of digital literacy, and concerns

about transaction security can still hinder the overall customer experience. Therefore, it is essential to investigate how transaction convenience and perceived ease of use influence customer satisfaction, with transaction security acting as an intervening variable, to provide valuable insights for businesses seeking to enhance their digital payment services and better meet customer expectations. Based on the above phenomenon, the research problem is formulated as follows:

1. How does the convenience of QRIS transactions affect customer satisfaction?
2. How does the security of QRIS transactions affect customer satisfaction?
3. How does the perceived ease of use of QRIS affect customer satisfaction?
4. How does the convenience of QRIS transactions affect customer satisfaction with transaction security as an intervening variable?
5. How does perceived ease of use affect customer satisfaction with transaction security as an intervening variable?

1.2.1 Limitation of the Study

Considering the limitations of time and the researcher's knowledge, and to avoid errors in the most crucial aspects of the topic, this study will focus solely on the influence of transaction convenience using Quick Response Code Indonesian Standard (QRIS) on customer satisfaction, with security as an intervening variable, specifically in the context of Jatinangor House Tembalang customers. The limitations mentioned in Section 1.2.1: Limitation of the Study are as follows:

1. Time Constraints

Several limitations, mainly due to time constraints. With limited time to collect data, analyze it, and complete the report with only 2 months of in the making of this study. The short time frame also made it difficult to conduct a broader or more in-depth survey, which may limit how detailed or comprehensive the findings are.

2. Researcher's Knowledge

The research is limited by the researcher's own knowledge when it comes to the more technical aspects of QRIS and how they might influence customer satisfaction. Because of this, the study focuses only on a few key factor transaction convenience, perceived ease of use, and security while leaving out other possible influences that might also be important.

3. Narrowed Focus

This study is specifically focused on how those three variables relate to customer satisfaction at Jatinangor House in Semarang. It doesn't expand to external factors like marketing, management, or other business aspects, even though those might also play a role in shaping customer experiences.

1.3 Objectives and Benefits of the Research

This research aims to understand how transaction convenience and perceived ease of use influence customer satisfaction in using QRIS with security as an intervening variable. By focusing on QRIS usage at Jatinangor House Semarang, the study seeks to identify which factors play the most important parts in ensuring a positive customer experience.

1.3.1 Objective of the Research

Based on the problem formulation above, the objectives of this study are:

1. To determine the effect of transaction convenience using QRIS on customer satisfaction.
2. To determine the effect of perceived ease of use using QRIS on customer satisfaction.
3. To determine the effect of transaction security on customer satisfaction.
4. To determine the effect of transaction convenience on customer satisfaction through transaction security as an intervening variable.
5. To determine the effect of perceived ease of use on customer satisfaction through transaction security as an intervening variable.

1.3.2 Benefits of the Research

The expected benefits of this research, both theoretically and practically, are outlined as follows:

1. Theoretically

Theoretically, this research contributes to the application of knowledge gained during the academic process, particularly in the field of digital payment systems and customer satisfaction. It is expected to enhance the understanding of various aspects of digital payment systems, transaction convenience, security, and their impact on customer behavior.

- a. Expands knowledge in the field of digital payment systems, specifically in QRIS implementation.

- b. Enhances understanding of the relationship between transaction convenience, perceived ease of use, security, and customer satisfaction based on established theories.
- c. Supports academic learning by applying theoretical concepts to real-world practices in the financial technology sector.

2. Practically

The practical contributions of this research are directed towards several key stakeholders:

- a. For Businesses and Restaurants: Results of this research can help businesses, especially restaurants, understand how important it is to make transactions easy and secure to keep customers happy.
- b. For Researchers: This study gives useful information about how digital payment systems relate to customer satisfaction. It can also be a starting point for future research in the area of financial technology like QRIS etc., especially in growing countries like Indonesia.

1.4 Research Benefit

This research has several benefits, including academic development, practical Implications:

1. Practical Benefits

This research can be used as a reference for culinary business owners, particularly at Jatinangor House Tembalang, in understanding how the implementation of QRIS can enhance customer satisfaction.

Business owners can evaluate the extent to which transaction convenience using QRIS contributes to customer loyalty and operational efficiency.

2. Theoretical Benefits

This study is expected to contribute to the development of the digital economy and financial inclusion by showing how effective QRIS is in the culinary business. Since more and more businesses are starting to use QRIS, it's important to keep studying how it affects different types of industries especially those that involve direct interaction between sellers and customers, like restaurants and cafes. The results of this research can also be used to help improve how QRIS is used in other businesses that work in a similar way.

1.5 Theoretical Framework

1.5.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a widely used theory in the field of information technology to explain the factors influencing an individual's acceptance and use of technology. This model, as discussed by (Ardhana & Usman, 2024), has become a fundamental framework for numerous studies on digital technology adoption, including electronic payment systems. Over the past decade, TAM has been extended and validated in various contexts, including artificial intelligence and e-commerce, with studies confirming that perceived usefulness remains the strongest predictor of technology acceptance, while perceived ease of use also plays a significant

role by enhancing perceived usefulness and shaping attitudes (Kelly et al., 2023; Venkatesh & Bala, 2008; Wang et al., 2023).

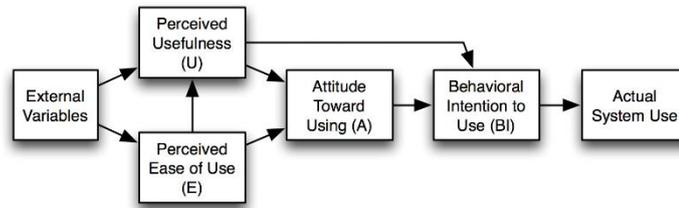


Figure 1.6 TAM Model

Source: IDTesis (2007)

TAM suggests that an individual's decision to adopt a technology is influenced by two primary factors:

1. Perceived Usefulness (PU)

Perceived Usefulness (PU) refers to the extent to which a person believes that using a particular technology will improve their efficiency and performance (Soedewa, 2021). In other words, the greater the perceived usefulness of a technology, the more likely an individual is to adopt it.

2. Perceived Ease of Use (PEOU)

Perceived Ease of Use (PEOU) is defined as the extent to which a person believes that the technology is easy to use without requiring significant effort. If a system is perceived as too complex or difficult to understand, users may refuse to adopt it, even if the technology offers significant benefits.

This model helps explain how individuals accept, adopt, and utilize information system-based technologies in their daily lives. TAM explains that both of these factors influence users' attitudes toward technology, which

then leads to determining their long-term intention to use it. If a technology is perceived as useful and easy to use, users are more likely to develop a positive attitude toward it and continue using it over time (Sholihah & Nurhapsari, 2023). In the case of digital payment systems like QRIS, perceived ease of use and perceived usefulness play a crucial role in determining the success of technology implementation. QRIS is designed to simplify payment transactions, making them more practical and efficient, thus reducing potential barriers that users might face.

1.5.2 Customer Satisfaction

1.5.2.1 Definition of Customer Satisfaction

According to (Tjiptono, 2015), customer satisfaction is the feeling or response a customer has after comparing what they expected with what they actually got from a product or service. If the product or service meets or goes beyond their expectations, customers usually feel satisfied. This satisfaction can affect whether they come back or recommend it to others. According to (Husen et al., 2021), customer satisfaction is the feeling of happiness or disappointment experienced by customers after comparing their expectations of a product or service with the results they receive. If the experience obtained meets or exceeds expectations, the customer will feel satisfied, but if it does not, they will feel disappointed.

(Hulu et al., 2022) stated that customer satisfaction is a subjective evaluation by customers of a product or service based on their experience while using it. In other words, customer satisfaction is determined not only

by the quality of the product or service but also by the experience of interaction with the service provider. In digital transactions using QRIS, customer satisfaction can be measured through the convenience, speed, and security of transactions offered by this payment system.

1.5.2.2 Customer Satisfaction Indicators

The customer satisfaction indicators used in this study are taken from (Tjiptono, 2015) because they offer a comprehensive model that takes considers both the affective and thought elements of satisfaction. Since they take not only the satisfaction of expectations but also the quality of the user experience, decision trust and personal fulfillment, these indicators are especially important for assessing how customers respond to technology-based services like the Quick Response Code Indonesian Standard (QRIS). Here are the customer satisfaction indicators according to (Tjiptono, 2015):

1. Satisfaction with Use

Satisfaction happens when the product or service meets or exceeds what the customer expected. If expectations are met, customers are happy; if not, they may feel disappointed.

2. Pleasant Experience

A satisfying customer experience is seen by comfort, ease, and enjoyment during the interaction with the product, service, or brand that includes emotional and functional aspects that give positive impression.

3. Right Choice

When customers feel they made the right decision in choosing a product or service, it shows alignment with their needs and preferences. This sense of assurance contributes significantly to their satisfaction.

4. Feeling Fulfilled

Satisfaction is also reflected in a sense of personal fulfillment when the product or service not only meets functional needs but also aligns with the customer's values, aspirations, or goals.

1.5.3 Transaction Convenience

1.5.3.1 Definition of Transaction Convenience

According to (Maharama & Kholis, 2018), transaction convenience refers to the ease and efficiency with which consumers can complete their purchases or financial transactions, encompassing factors such as speed, simplicity, accessibility, and reduced effort in the payment process. This concept highlights the importance of a smooth and hassle-free transaction experience, which significantly influences customer satisfaction and their intention to reuse a service or platform. According to (Ardhana & Usman, 2024), within the TAM model, Perceived Ease of Use is a key factor that determines user acceptance of technology. If a payment system is considered easy to use, users are more likely to adopt it in their daily lives. Ease of transactions includes various aspects such as accessibility, a user-friendly interface, fast transaction processes, and minimal technical obstacles in using the service QRIS, (Hamzah et al., 2025) as a digital

payment system, was developed to simplify payment processes through QR code scanning, eliminating the need for cash or credit cards.

1.5.3.2 Indicators Transaction Convenience

(Maharama & Kholis, 2018) state that in digital payment systems, transaction convenience has a significant impact on consumer behavior. A number of important metrics that show how quickly and easily customers can complete their transactions are used to determine transaction convenience. Among these indicators are:

1. Flexibility

This means that the system or technology should be adaptable to various user needs and situations. Users should be able to utilize the system in different contexts, whether on different devices or under different conditions, without significant limitations.

2. Ease of Learning

The system or technology should be quickly and easily understood by every user, even those without a technical background. The faster someone can master the use of the system, the higher its level of ease of learning.

3. Ease of Operation

A technology with ease of operation enables users to complete tasks quickly, efficiently, and without significant obstacles. An intuitive user interface, clear instructions, and a simple workflow are key elements that support ease of operation.

1.5.4 Perceived Ease of Use

1.5.4.1 Definition of Perceived Ease of Use

According to (Sholihah & Nurhapsari, 2023), perceived ease of use means how easy someone thinks it is to use a system or technology. If people feel that a system is simple and doesn't take much effort to learn or use, they're more likely to use it. This feeling helps decide whether someone wants to keep using the system or not. Over the past decade, the Technology Acceptance Model (TAM) has been widely extended and validated across various fields, including artificial intelligence and e-commerce, with recent studies confirming that perceived usefulness consistently remains the strongest predictor of technology acceptance. At the same time, perceived ease of use plays a crucial role by enhancing perceived usefulness and shaping users' attitudes toward the technology ((Kelly et al., 2023); Wang et al., 2023).

Researchers like (Venkatesh & Bala, 2008) expanded TAM into TAM3, showing that social influence factors (such as subjective norms) and cognitive instrumental processes (like job relevance and output quality) significantly impact how users perceive usefulness and ease of use, explaining up to half of the variance in users' intentions to adopt technology. This comprehensive approach helps organizations understand when and why people accept new systems, guiding better IT implementation and management.

More recent research in AI adoption further highlights the importance of perceived usefulness alongside psychological traits and mindsets. For example, (Saif et al., 2024) found that an individual's AI mindset and personality traits strongly influence attitudes toward AI, with perceived usefulness remaining the key driver of acceptance, while perceived ease of use supports this by making the technology feel more accessible. Similarly, studies in e-commerce and mobility technologies show that while perceived usefulness often leads adoption decisions, perceived ease of use can be the strongest factor in contexts where the technology's practical benefits are clear and straightforward to use (Li et al., 2022; (Huang et al., 2023). Altogether, these findings demonstrate that TAM remains a flexible and relevant model for understanding technology acceptance in today's rapidly evolving digital landscape.

1.5.4.2 Indicators of Perceived Ease of Use

The point to which consumers feel a technology or application easy, effortless, and comfortable to use is one of the indications of perceived ease of use, according to (Sholihah & Nurhapsari, 2023). These indications are specifically:

1. Easy to Learn

How easily users can understand and operate the QRIS system without needing special skills or training.

2. Clear and Understandable

The system displays information in a simple and clear format, helping users avoid confusion during transactions.

3. Easy to Operate

The level of simplicity in carrying out transactions using QRIS, allowing users to complete payments smoothly.

4. User-Friendly Interface

The QRIS system is designed in a way that users find comfortable and pleasant to use, even on the first try.

1.5.5 Transaction Security

1.5.5.1 Definition of Transaction Security

According to (Rahmawati & Arfiansyah, 2023), transaction security refers to how safe and protected a customer feels when making a transaction, especially when it involves personal or financial information. If customers believe their data is secure and there's no risk of fraud or misuse, they will feel more confident in using the system or service.

According to (Dluha & Ariska, 2021), security in digital transactions includes data confidentiality, user authentication, and protection against fraud or cyber threats. In digital payments, security is crucial as it is directly related to customer trust in using the service. According to (Anggraini et al., 2024), customers feel more comfortable using digital payment systems if they are confident that the system has strong data protection mechanisms, secure transaction verification, and clear privacy policies. Therefore, in the

QRIS system, transaction security is continuously enhanced through data encryption, tokenization technology, and stricter authentication systems to prevent unauthorized transactions.

1.5.5.2 Indicators of Transaction Security

The indicators of transaction security in the context of QRIS usage include a number of important factors that ensure the security and reliability of digital payment transactions, according to (Rahmawati & Arfiansyah, 2023). Among these indicators are:

1. Confidence

The extent to which customers feel assured that the QRIS payment system functions properly without issues or risks that could endanger their transactions.

2. Trust

The level of customer confidence in the reliability and credibility of the QRIS system in protecting data and ensuring secure transactions.

3. Confidentiality

The protection of customers' personal and financial information within the QRIS system to prevent unauthorized access or misuse.

1.5.6 Theoretical Approach

1.5.6.1 The Influence of Convenience on Customer Satisfaction

Transaction convenience is one of the key factors influencing the adoption of financial technology by customers. QRIS is designed to simplify the transaction process by requiring only a QR code scan, eliminating the

need for cash or physical payment cards. With a faster and more efficient mechanism, customers no longer have to spend time counting change or facing difficulties in cash payments. Additionally, a user-friendly payment system can enhance the customer experience, especially for those who prioritize efficiency in daily transactions (Puri et al., 2023).

Transaction convenience not only improves user experience but also encourages customers to use digital payment methods like QRIS more frequently. Research by (Rachmawati, 2022) indicates that convenience in digital payment systems has a significant relationship with customer satisfaction, particularly in the culinary and retail industries. With QRIS, customers can enjoy seamless transactions without the need to carry cash, which is often inconvenient. Furthermore, the adoption of QRIS by various merchants makes it easier for customers to use the same payment method in multiple locations, providing a sense of comfort and convenience in everyday life.

1.5.6.2 The Influence of Security on Customer Satisfaction

Security is a crucial aspect of digital payment systems as it directly affects customer trust in financial services. QRIS, as a technology-based payment method, is equipped with security standards developed by Bank Indonesia to ensure that transactions are conducted safely. The encryption and authentication systems implemented in QRIS are designed to protect user information from cyber threats. Customers who feel that their transactions are secure are more likely to continue using the service

consistently. Research conducted by (Al-Farrasi et al., 2025) indicates that trust in the security of a digital system directly contributes to user satisfaction and loyalty.

A high level of security in digital transactions also provides a positive psychological effect for customers, making them feel more comfortable and confident when making payments through QRIS. A study by (Nugroho et al., 2023) found that the higher the perceived security in transactions, the greater the level of customer satisfaction with the service. When customers are assured that they will not experience data misuse or unauthorized transactions, they are more likely to trust and continue using QRIS as their primary payment method.

1.5.6.3 The Influence of Convenience on Customer Satisfaction with Security as an Intervening Variable

Transaction convenience encourages customers to use QRIS more frequently, while security factors enhance customer trust in the service. However, transaction convenience alone is not sufficient to ensure customer satisfaction if security aspects are not considered. Research conducted by (Kurniawati & Azizah, 2023) states that although customers prioritize convenience in using digital payment systems, they still consider security factors before making a transaction. In other words, customers will feel more satisfied using QRIS if they experience not only ease of use but also security assurance in every transaction they perform.

1.6 Previous Research

The study conducted by (Rahmawati & Arfiansyah, 2023) aimed to analyze the factors influencing the decision to use QRIS among MSMEs in Surakarta City. Using a quantitative method based on multiple linear regression, this research collected data from 100 respondents, part of a population of 17,265 MSMEs. The main findings indicate that knowledge, ease of use, and user attitude significantly influence the decision to use QRIS, whereas security does not have a significant impact. These results suggest that ease of use and knowledge play a more critical role in encouraging business owners to adopt QRIS compared to security factors. This aligns with the Technology Acceptance Model (TAM), which emphasizes that perceived usefulness and ease of use are more determinant in technology adoption than other factors.

The study by (Kurniawati & Azizah, 2023) examined the influence of information quality, service quality, and transaction convenience on customer satisfaction, with security as an intervening variable. Using the PLS-SEM 4.0 method, this research collected data from KAI Access application users to analyze the relationships between the studied variables. The results show that information quality and service quality positively influence customer satisfaction, while transaction convenience also plays an essential role in increasing customer satisfaction. Additionally, security acts as an intervening variable, strengthening the relationship between the other variables and customer satisfaction.

The study by (Isra et al., 2024) explored the impact of knowledge and ease of use on user decisions and consumer satisfaction in QRIS transactions in Pekanbaru City. This study employed a quantitative method with hypothesis testing using SPSS version 21, with 100 respondents as the research sample. The findings indicate that knowledge and ease of transactions influence the decision to use QRIS; however, the impact of ease of use on user decisions is relatively weaker than that of knowledge. Furthermore, the study found that user decisions directly affect customer satisfaction.

The research by (Rahmah et al., 2024) focused on consumer satisfaction with QRIS as a digital payment tool. This study used a quantitative method, collecting data through questionnaires and interviews, analyzed using SPSS. The findings reveal that QRIS usage has a positive impact on customer satisfaction, particularly in terms of transaction convenience and reducing physical contact in payments. An interesting finding from this study is that QRIS is not only adopted by MSMEs and retail businesses but is also increasingly used in social transactions, such as zakat and infaq payments.

The study conducted by (Sahabuddin et al., 2024) investigated the impact of fintech (QRIS) on customer satisfaction, with transaction convenience as an intervening variable. This study utilized the Structural Equation Modeling (SEM) method, with 151 respondents as the research sample. The findings indicate that QRIS usage positively impacts customer satisfaction, where transaction convenience acts as a significant mediator.

This suggests that customers are more likely to be satisfied with digital payment services if they find the system easy to use and efficient in transaction processing.

The study by (Juan & Indrawati, 2023), aimed to analyze the influence of trust, perceived ease of use, and brand image on customer satisfaction in QRIS payments. Using a quantitative method with multiple regression analysis, the study surveyed 75 respondents. The findings reveal that trust does not have a significant impact on customer satisfaction, whereas perceived ease of use and brand image have a positive effect on customer satisfaction in QRIS payments.

The study by (Sholihah & Nurhapsari, 2023) explored the fast merging of digital payment adoption among MSMEs by examining users' intentions to use QRIS through the lens of the Technology Acceptance Model (TAM). Employing a quantitative approach, the study investigated key variables such as perceived usefulness, perceived ease of use, and behavioral intention. The results indicate that both perceived usefulness and perceived ease of use significantly influence users' intention to adopt QRIS, highlighting the importance of user-friendly and beneficial features in driving digital payment adoption within the MSME sector. The following table presents a summary of previous studies in this research:

Table 1.1 Previous Research

No	Researcher Name and Year	Research Title	Variables	Research Findings
1	Rahmawati dan Arfiansyah (2023)	Faktor-Faktor yang Mempengaruhi Keputusan Penggunaan QRIS Pada UMKM Kota Surakarta	Independent Variables: Knowledge, Perceived Ease of Use, User Attitude Dependent Variables: QRIS Usage Decision	Perceived Ease of use and knowledge influence MSME decisions to use QRIS, security doesn't affect the decision to use QRIS in MSMEs.
2	Kurniawati dan Azizah (2023)	Pengaruh Kualitas Informasi, Kualitas Layanan, dan Kemudahan Transaksi terhadap Kepuasan Pelanggan dengan Keamanan sebagai Variabel Intervening	Independent Variables: Information Quality, Service Quality, Transaction Convenience Dependent Variables: Customer Satisfaction	Information quality and service quality positively influence customer satisfaction, with security as an intervening variable.
3	Isra (2023)	Pengaruh Pengetahuan dan Kemudahan terhadap Keputusan Pengguna dan Kepuasan Konsumen dalam Melakukan Transaksi Non-Tunai QRIS di Kota Pekanbaru	Independent Variables: Knowledge, Ease of Use Dependent Variables: User Decision, Consumer Satisfaction	Knowledge and ease of use affect user decisions. User decisions mediate the relationship between knowledge, ease of use, and customer satisfaction.

No	Researcher Name and Year	Research Title	Variables	Research Findings
4	Rahmah (2024)	Penggunaan QRIS untuk Kemudahan Pembayaran Digital dari Perspektif Kepuasan Konsumen	Independent Variables: QRIS Usage Dependent Variables: Consumer Satisfaction	Transaction convenience using QRIS has a positive impact on customer satisfaction.
5	Sahabuddin (2024)	Fintech dan Kepuasan Pelanggan, Menggali Peran Kemudahan Transaksi melalui QRIS sebagai Variabel Intervening di Warung Sari Laut Mas Joko Kota Makassar	Independent Variables: QRIS Usage, Transaction Convenience Dependent Variables: Customer Satisfaction	The decision to transact using QRIS positively affects customer satisfaction, with security as an intervening variable.
6	Juan dan Indrawati (2023)	Pengaruh Kepercayaan, Persepsi Kemudahan Penggunaan, dan Brand Image terhadap Kepuasan Konsumen dalam Pembayaran Menggunakan QRIS	Independent Variables: Trust, Perceived Ease of Use, Brand Image Dependent Variables: Customer Satisfaction	Perceived ease of use and brand image influence customer satisfaction, but trust does not have a significant impact on customer satisfaction.

No	Researcher Name and Year	Research Title	Variables	Research Findings
7	Sholihah, E., & Nurhapsari, R. (2023)	Percepatan Implementasi Digital Payment Pada UMKM: Intensi Pengguna QRIS Berdasarkan Acceptance Model	Independent Variables: Perceived Usefulness, Perceived Ease of Use. Dependent Variables: Intention to Use	The study found that both perceived usefulness and perceived ease of use significantly influence MSME traders' intention to use QRIS, with the model explaining 68.6% of the behavioral intention.

1.7 Hypotheses

The study's hypotheses expect that one variable would positively influence or have an impact on another, suggesting that the interactions under examination are directional. Customer satisfaction, for instance, is predicted to be positively impacted by transaction convenience. A one-tailed test is the proper statistical technique to assess these hypotheses since they describe an expected increase or positive impact. This strategy is supported by the fact that the research only looks at whether the impacts are positive and significant, not if they could be negative or just different. Thus, a one-tailed test is used in this study's hypothesis testing to evaluate the suggested directional links:

H1: It is expected that transaction convenience (X1) has a positive and significant effect on customer satisfaction (Y).

H2: It is expected that perceived ease of use (X2) positively influences customer satisfaction (Y).

H3: It is expected that transaction convenience (X1) positively affects transaction security (Z).

H4: It is expected that perceived ease of use (X2) positively affects transaction security (Z).

H5: It is expected that transaction security (Z) has a positive and significant effect on customer satisfaction (Y).

H6: It is expected that transaction convenience (X1) has a positive effect on customer satisfaction (Y) through transaction security (Z) as an intervening variable.

H7: It is expected that perceived ease of use (X2) has a positive effect on customer satisfaction (Y) through transaction security (Z) as an intervening variable.

1.8 Research Model

The research model based on Variable:

1. Independent Variable 1:

Transaction Convenience (X1)

2. Independent Variable 2:

Perceived Ease of Use (X2)

3. Dependent Variable:

Customer Satisfaction (Y)

4. Intervening Variable:

Transaction Security (Z)

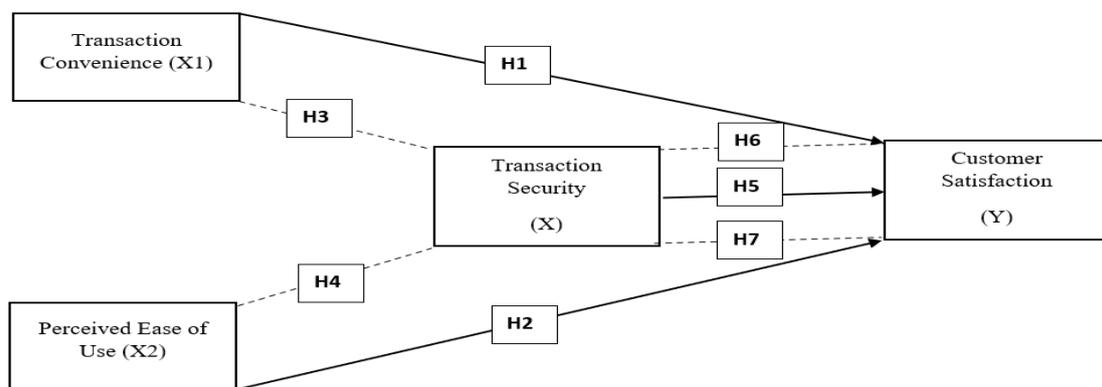


Figure 1.7 Research Model

Source: Canva Processed (2025)

According to (Maharama & Kholis, 2018), transaction convenience refers to the ease and efficiency with which consumers can complete their purchases or financial transactions, encompassing factors such as speed, simplicity, accessibility, and reduced effort in the payment process. This concept highlights the importance of a smooth and hassle-free transaction experience, which significantly influences customer satisfaction and their intention to reuse a service or platform.

1.9.2 Perceived Ease of Use (X2)

According to (Sholihah & Nurhapsari, 2023), perceived ease of use means how easy someone thinks it is to use a system or technology. If people feel that a system is simple and doesn't take much effort to learn or use, they're more likely to use it. This feeling helps decide whether someone wants to keep using the system or not.

1.9.3 Customer Satisfaction (Y)

According to (Tjiptono, 2015), customer satisfaction is the feeling or response a customer has after comparing what they expected with what they actually got from a product or service. If the product or service meets or goes beyond their expectations, customers usually feel satisfied. This satisfaction can affect whether they come back or recommend it to others.

1.9.4 Transaction Security (Z)

According to (Rahmawati & Arfiansyah, 2023), transaction security refers to how safe and protected a customer feels when making a transaction, especially when it involves personal or financial information.

1.9.5 Operational Definition of Variables

According to (Rahmawati & Arfiansyah, 2023), transaction security refers to how safe and protected a customer feels when making a transaction, especially when it involves personal or financial information. If customers believe their data is secure and there's no risk of fraud or misuse, they will feel more confident in using the system or service.

The operationalization of variables in this study aims to facilitate the development of measurement tools needed based on the proposed research concepts and the operational definitions of each research variable. The variables examined in this study include three types of variables, namely:

1. Independent Variable

The independent variable, also referred to as the stimulus variable, predictor variable, or antecedent variable, is a factor that affects, triggers, or contributes to changes in the dependent variable (Sugiyono, 2021).

I. Transaction Convenience (X1)

II. Perceived Ease of Use (X2)

2. Dependent Variable

The dependent variable, also called the outcome variable, criterion variable, or result variable, is the factor that is affected by or arises as a consequence of the independent variable (Sugiyono, 2021).

III. Customer Satisfaction (Y)

3. Moderating Variable

A moderating variable is a factor that affects the strength or direction of the relationship between the independent and dependent variables. Its presence can amplify, weaken, or alter the impact of the independent variable on the dependent variable (Sugiyono, 2021).

IV. Transaction Security (Z)

1.10 Operational Variable in the Research

Research variables are fundamental components in any scientific investigation, acting as the central elements that the researcher seeks to explore, analyze, and interpret. These variables can take the form of characteristics, attributes, or phenomena that are subject to measurement or observation within the context of a study. Clearly identifying and defining research variables is critical because they provide structure and direction to the research process, ensuring that the inquiry remains systematic and targeted.

By specifying research variables, researchers are able to formulate precise research questions and hypotheses, design appropriate methodologies, and select relevant data collection instruments. This clarity also facilitates accurate data analysis and interpretation, as each variable's role—whether as an independent, dependent, mediating, or moderating factor—can be properly understood and examined. Ultimately, a thorough understanding of research variables not only enhances the validity and reliability of the study's findings but also contributes to the overall significance and impact of the research, allowing for meaningful conclusions and recommendations to be drawn

The following are the operational definitions in this study, which explain how each variable will be specifically measured or identified during the research process:

Table 1.2 Operational Definition

Variable	Definition	Indicators	Instrument
Transaction Convenience (X1)	Transaction convenience refers to how easy a payment system is to use without excessive effort from the customer. Source: (Maharama & Kholis, 2018)	1. Flexibility 2. Ease of learning 3. Ease of operation	Likert Scale
Perceived Ease of Use (X2)	Perceived ease of use refers to how simple and effortless users feel it is to learn and operate a system or technology. Source: (Sholihah & Nurhapsari, 2023)	1. Easy to Learn 2. Clear and Understandable 3. Easy to Operate 4. User Friendly Interface	Likert Scale
Customer Satisfaction (Y)	Customer satisfaction is the feeling of pleasure or disappointment experienced by a customer after comparing their expectations of a product or service with the actual outcome. Source: (Tjiptono, 2015)	1. Satisfaction with use 2. Pleasant experience 3. Right choice 4. Feeling fulfilled	Likert Scale
Transaction Security (Z)	Transaction security refers to the protection of users' data and financial information in digital payment systems. Source: (Rahmawati & Arfiansyah, 2023)	1. Confidence 2. Trust 3. Confidentiality	Likert Scale

Source: Data Primary Processed, 2025

1.11 Research Method

1.11.1 Type and Research Design

This study employs a quantitative approach as it aims to analyze the impact of utilizing the Quick Response Code Indonesian Standard (QRIS) on customer satisfaction at Jatinangor House Tembalang. The data

collection technique is conducted through field surveys using a questionnaire as the primary instrument. The questionnaire is distributed to customers as a sample drawn from the overall population of visiting customers. The data obtained from respondents is then analyzed to examine the relationship between transaction convenience and security on customer satisfaction. According to (Sugiyono, 2019), quantitative research is suitable for examining specific populations or samples, collecting data using research instruments, and analyzing data statistically to test hypotheses.

1.11.2 Population and Sample

1. Population

According to (Sugiyono, 2021), a population is a broad area that includes items or subjects with specific qualities selected by researchers for investigation and findings. In this study, the population consists of customers of Jatinangor House Semarang Restaurant.

2. Sample

The sampling method used in this study is purposive sampling, a technique for determining samples based on specific considerations (Sugiyono, 2021). The purposive sampling technique is chosen because it is suitable for quantitative research or research that does not involve generalization (Sugiyono, 2021). In this study, the sample consists of:

1. At least 17 years old
2. Have purchased at Jatinangor House Tembalang 2 Times in the last 3 months

According to (Hair & Alamer, 2022), a good sample size ranges between 100-200.

1.12 Data Types and Sources

Data types refer to the nature or form of data collected and used in research, which can broadly be categorized as quantitative or qualitative data. In this study, quantitative research is employed, which involves collecting numerical data that can be measured and analyzed statistically to test hypotheses or answer research questions (Neuman, 2014). Data collection involves gathering information from both primary sources collected firsthand by the researcher and secondary sources, which include existing data obtained from various publications and records. The following are the data sources used in this study:

1.12.1 Primary Data

Primary data is defined as original data collected firsthand by the researcher for the specific purpose of addressing the research objectives or questions (Creswell, 2014). It is gathered directly from the source and has not been previously published or analyzed. In this study, the primary data is obtained through the distribution of questionnaires to customers in order to gather insights related to the research problem.

1.12.2 Secondary Data

Secondary data is defined as information that has already been collected, processed, and made available by other individuals or institutions for purposes other than the current research (Saunders et al., 2019). It is

typically gathered from sources such as government reports, academic journals, books, online databases, and organizational records. In this study, secondary data is obtained from relevant articles, news sources, books, websites, and scholarly journals related to customer satisfaction.

1.13 Measurement Scale

The measurement of the study utilizes the Likert scale to measure participants' responses, as it is a widely used tool for assessing attitudes and perceptions (Joshi et al., 2015). Likert scale is a method used to assess evaluation, perception, opinion, and attitude (Hardani et al., 2020). The survey utilizes a Likert scale ranging from 1 to 5. The following is the Likert scale table:

Table 1.3 Likert Scale

Description	Weight of Value
Strongly Disagree (STS)	1
Disagree (TS)	2
Moderate (M)	3
Agree (S)	4
Strongly Agree (SS)	5

Source: Data Primary Processed, 2025

1.14 Data Collection Method

This study employs three data collection techniques: observation, questionnaires, and documentation. The primary data collection method is a questionnaire distributed to customers to examine the impact of transaction convenience and security using QRIS. Additionally, the documentation technique is also used to complement the data obtained from the questionnaire.

1.15 Analysis Technique

The data processing method in this study uses the Structural Equation Modeling (SEM) approach. SEM is a further development of path analysis, where causal relationships between exogenous and endogenous variables can be determined more comprehensively using SmartPLS 3 software. By using SEM, not only can direct and indirect causal relationships between observed variables or constructs be detected, but the components contributing to the formation of these constructs can also be quantified. As a result, the causal relationships between variables or constructs become more informative, accurate, and comprehensive. The explanations are as follows:

1.15.1 Measurement Model (Outer Model)

1. Validity Test

a. Convergent Validity

At this stage, a test is conducted to assess the extent of the relationship between indicators and other latent variables by referring to the correlation level. According to (Hair & Alamer, 2022) the criterion used in this stage is the loading factor value, with a minimum threshold of 0.7. If the loading factor value exceeds 0.7, the questionnaire indicators are considered valid. Conversely, if the loading factor is below 0.7, the questionnaire indicators are deemed invalid. Therefore, this stage helps researchers evaluate the validity level of indicators in the questionnaire based on the loading factor values.

b. Discriminant Validity

The Fornell-Larcker criterion is the most commonly used method to test for discriminant validity, which guarantees that each construct in your research is actually different from the others. This method involves calculating each construct's Average Variance Extracted (AVE) first, then taking the AVE's square root. A construct's square root of the AVE must be greater than its highest correlation with any other construct in your model, according to the rule. If this need is satisfied, discriminant validity is confirmed because the concepts contrast with one another significantly. Conversely, if the AVE itself is 0.5 or above, indicating that the model explains at least half of the variation of its indicators, convergent validity is proven. In actuality, discriminant validity is verified if the square root of the AVE is greater than the correlations between concepts after calculating the AVE and its square root for each variable. This method is important for guaranteeing the accuracy and reliability of your study findings and is a standard in structural calculation modeling.

2. Reliability Test

a. Cronbach's Alpha

The reliability test is conducted by comparing the Cronbach's Alpha value with the significance level used. The standard for reliability testing states that a variable or research instrument is

considered reliable if the Cronbach's Alpha value is greater than 0.70 (Hair et al., 2017).

b. Composite Reliability

Reliability plays a role in measuring the consistency of research data, meaning that if data measurement is repeated, the results should be close to the same value. (Hair & Alamer, 2022) state that the expected Composite Reliability value should be greater than 0.70, which can then be assumed as a valid indication. If the value is lower than 0.70, it is considered invalid.

1.15.2 Structural Model (Inner Model)

1. Coefficient of Determination (R-Square/R²)

The coefficient of determination (R²) is a measure that indicates the accuracy level of a model. It explains the extent to which the dependent variable is influenced by the independent variable. The predictive relationship guidelines are as follows:

R² = 0.75 indicates a strong predictive accuracy.

R² = 0.50 indicates a moderate predictive accuracy.

R² = 0.25 indicates a weak predictive accuracy.

2. Path Coefficient

The path coefficient explains the hypothesized relationship between constructs. The path coefficient values range from -1 to +1 and are measured in standardized form. A value close to +1 indicates a strong

positive relationship, while a value close to -1 suggests a negative relationship. The path coefficient is obtained through testing using the bootstrap method.

3. Hypothesis Testing

Hypothesis testing is conducted to determine whether the hypothesis being tested should be rejected or accepted. To validate the hypothesis, a test is performed using the Bootstrapping method by comparing the t-statistic value and probability value. With a 5% significance level, the hypothesis testing criteria are as follows:

If $t\text{-statistics} > 1.96$ and $p\text{-value} < 0.05$, then H_a is accepted.

If $t\text{-statistics} < 1.96$ and $p\text{-value} > 0.05$, then H_0 is accepted