Perceptions of the Use of Quick Response Code Indonesian Standard (QRIS) for Payment and its Impact on Consumer Behavior

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Abstract

Currently the use of cash payments is starting to change to a simpler payment method to non-cash transactions, it is supported by digital payment technology that is developing very quickly. One of the payment methods that can be used through smartphones is using QR codes as a way of payment. Using a qualitative approach, this study aims to analyze the influence of usability, ease of use, and trust factors on consumer acceptance of QR and its impact on purchasing behavior through a qualitative approach. The results of this study show that most respondents, the majority of whom are male, live in the Greater Jakarta area, are between 36-45 years old, and work as government employees, have adopted QRIS through mobile banking. The main factors influencing adoption include ease of use, security, and convenience. The study also found that QRIS has been instrumental in improving financial inclusion and transaction efficiency, highlighting its potential to supporting the growth of the digital economy in Indonesia. The results of this study will contribute to the development of digital payments, especially based on the resulting perceptions and their impact on purchasing behavior.

Keywords: digital payments, mobile payments, qris, thematic analysis, user perceptions

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Introduction

In recent times, the development of new services in the banking and finance sector has been influenced by telebanking, online/mobile banking, and other types of financial technology (fintech). These advancements have enabled the sector to address the universal challenges associated with facilitating transactions across different industries, thanks to improved accessibility, speed, efficiency, effectiveness, and transparency (Mbaidin et al., 2023). These innovations also help lower operational costs and improve customer satisfaction by offering a more convenient and secure way to manage financial transactions. Fintech integration not only streamlines processes, but also brings new services that did not exist before, such as instant payments and digital wallets. These continued developments in the financial sector show how important technology is in shaping the future of banking and finance.

The high trend of digital shopping among consumers is made easier by advances in fintech. Transactions are now more practical without the need for cash by simply using a smartphone for payment through mobile payment applications or e-wallets (Mansour, 2022). Additional factors driving the increasing use of e-money are the current health and environmental situation, especially the COVID-19 pandemic, and social distancing policies that encourage the shift of payment transactions to the digital realm to reduce the risk of spreading the virus through cash. Data from 2021 shows a 69% increase in cashless financial services activity on commerce platforms, as well as a 65% increase in other payments such as electricity and water bills. Overall, there was a 300% increase in digital payment traffic (Rosmayanti, 2021).

The development of FinTech is accelerating in the context of digital transformation, making it easier for people to transact safely and efficiently. The growth of digital transactions, which goes hand in hand with an increase in e-commerce transactions, is especially noticeable during the COVID-19 pandemic. In a press conference at the beginning of 2023 on January 19, Bank Indonesia Governor, Perry Warjiyo reported that the value of electronic money transactions in 2022 increased by 30.84%, reaching Rp 399.6 trillion, and is expected to rise another 23.9% in 2023, to Rp 495.2 trillion. Meanwhile, the value of digital banking transactions in 2022 rose 28.72% from the previous year to IDR 52,545.8 trillion, with a projected growth of 22.13% in 2023, reaching IDR 64,175.1 trillion (Jannah, 2023).

One of the characteristics of using digital payments is that they are cashless. Cashless payments may vary from country to country. Cashless solutions can be classified based on the digitalization that the implementation environment requires, the payment technology as the latest solution, and the supporting infrastructure provided (Rafferty & Fajar, 2022). Quick Response Code Indonesian Standard (QRIS) is one method of non-cash payment and has been widely implemented. Bank Indonesia projects its focus on digital finance by 2025, including digitization of the banking sector and national digital economy-financial integration. However, based on the first quarter 2021 report from the Indonesian Payment System Association (ASPI), QRIS transactions in 2020 only reached 123.92 million, with a total nominal value of IDR 8182 trillion. This figure is still lower than debit card transactions, which in the same year recorded 6658 million transactions with a total nominal value of IDR 6243 trillion, of which 3999 million were cash withdrawal transactions with a nominal value of IDR 2991 trillion. This fact attracts attention considering that Bank Indonesia targets digital financial transactions as the main focus in 2025 (Tenggino & Mauritsius, 2022).

The banking sector continues to experience continuous digital evolution along with paradigm shifts in the banking sector (Malinka et al., 2022). Banking services consist of processing information and data, therefore, the development of commercial banking is obviously closely linked to the development of information technology. Processing information and data has always been at the heart of banking activities. For example, the opening of deposit accounts allows banks to collect information and data, which they use to expand their operations, including correspondent banking and electronic fund transfers (Yamaoka, 2023).

The regulation of payment services is governed by the principles of commercial law applicable in each country. The services and types of transactions include a Real-Time Gross Settlement System (RTGS), electronic payments, local and international cards, mobile payments, and wallets (Simatele & Mbedzi, 2021). Digital financial services can also help customers increase their income by offering loan and

savings services, easy payment methods, and so on (Yunping Hao & Yin, 2023). Thus, the use of digital payment systems will be a development trend that can facilitate the payment process.

The importance of further investigating usability, ease of use, and trust in the context of QRIS is based on a few key reasons. First, digital payment technology continues to evolve rapidly, and an in-depth understanding of these factors can help improve user adoption and satisfaction. Second, while QRIS has been widely implemented, there are still challenges that need to be overcome to ensure this technology can be used effectively and safely by different segments of society. Lastly, these factors play an important role in shaping consumer perceptions and behavior, which in turn may affect the successful implementation of QRIS in Indonesia. By further understanding how usability, ease of use, and trust affect QRIS acceptance, this research is expected to provide valuable insights for policymakers, industry practitioners, and technology developers to improve this digital payment system. An in-depth investigation into these factors will also help identify areas that require improvement and strategies that can be implemented to encourage wider adoption and more effective usage.

This study aims to find answers to the research questions, namely: (1) How do factors such as usability, ease of use, and trust affect the acceptance of QRIS by consumers? Additionally, this study seeks to understand (2) How does the use of QRIS affect consumer purchasing behavior in the payment system? This research question will be answered through a qualitative approach in accordance with the methodology utilized.

This research makes a significant contribution, both theoretically and practically. Theoretically, this research deepens the understanding of the factors that influence QRIS adoption, such as ease of use, trust, and usability. In addition, this research presents a theoretical framework that explains the changes in consumer behavior due to the use of digital payment methods, specifically QRIS, and provides an evaluation model to measure the overall impact of QRIS implementation. From a practical perspective, this research provides valuable guidance for the government and other stakeholders to address challenges such as security, network limitations, and consumer education. The research also encourages improved accessibility to expand the reach and adoption of QRIS, especially for MSMEs, and helps identify strategic measures for more effective implementation. The study also emphasizes the importance of recommendations to improve transaction security and system stability to encourage user trust, which is essential for the continued use of QRIS.

Literature Review

Digital Payments

Digital payments are increasingly becoming a habit in people's daily lives. This rapid development in the financial sector has resulted in various digital payment technologies, where both the sender and receiver of money use digital applications to make transactions (Khando et al., 2023). The development of a sophisticated payment system is essential to maintaining the strength and efficiency of the national payment system in order to achieve sustainable, comprehensive development and contribute to supporting Gross Domestic Product (GDP) growth (Lutfi et al., 2021). Several studies have examined the broader context of cashless payment methods, including mobile payments and digital wallets. Khando et al. (2023) conducted a systematic literature review on challenges and emerging technologies in digital payments, emphasizing the role of security and user experience in technology adoption. Similarly, de Luna et al. (2019) discussed factors that influence the adoption of mobile payment systems, such as perceived ease of use and perceived usefulness.

Digital payments and online banking have become omnipresent with the rise of digital and online services and the decline in the use of cash, and access to payments needs to evolve in parallel to remove barriers to participation in society (Dai et al., 2023). The changing patterns of the new digital ecosystem are forcing the banking sector to adapt to new business models that take into account the needs of digitization and rethink their core services and processes in order to better interact with customers (Stefanelli & Manta, 2023). In addition, financial institutions are now using advanced technologies such as AI and machine learning to improve the customer experience and increase operational efficiency. This digital transformation involves not only implementing new technologies, but also creating a culture

of innovation and flexibility within the organization. With this approach, banks can remain competitive and meet the needs of customers who are increasingly sophisticated in their use of technology.

Banks are therefore constantly shifting to a service delivery mix that is increasingly oriented towards the digitization of their service products. The main strategy pillars oversee the reduction of physical desks, the increase of services provided through ATMs, and the improvement of interfaces for customers, such as the improvement of payment devices in electronic payment transactions. All these changes have been enhanced by the outbreak of the pandemic, which reduced and resized the physical activities of financial intermediaries and increased consumer attitudes towards digital and mobile retail banking (Stefanelli & Manta, 2023).

Ultimately, digital payments have reduced the role of intermediaries in evaluating customer profiles and product suitability to a more efficient one. This is partly because payment systems are closely linked to the broader impact of technology on the financial industry and public services (Miglionico, 2023). In addition, the automation and data analytics features in digital payment systems enable faster and more accurate assessments of customer needs and preferences. With the integration of these technologies, financial institutions can provide more customized and relevant products and services, which in turn increases customer satisfaction and loyalty. As a result, the efficiency and effectiveness of financial operations have significantly improved.

Transaction costs are also one of the challenges in the payment system. These include fees for cross-border fund transfers through correspondent banking, fees associated with international credit cards, and various fees stemming from currency exchange and physical cash handling (Yamaoka, 2023). As a solution, decentralized and competitive cost creation mechanisms (Zilnieks, 2020), considering policies to encourage the widespread use of digital payment instruments (Simatele & Mbedzi, 2021), as well as the use of technological applications to automate transactions and the transmission of necessary information to authorities, can be considered to reduce transaction costs (Miglionico, 2023).

From an organizational perspective, collaboration between financial institutions and regulators is essential to effectively address the challenges posed by technology and to ensure its responsible and sustainable utilization for the benefit of all stakeholders (Dananjayan et al., 2023). As traditional financial institutions gradually increase investment in FinTech, the integration of emerging technologies and traditional financial services increases, reflecting the technology spillover effect that can improve the efficiency of financial institutions (Yi Hu Wu & Chen, 2023). In addition, this cooperation contributes to creating a more stable and secure financial environment by encouraging innovation while remaining compliant with existing regulations. It also enables financial institutions to more effectively adapt to rapid technological changes and maintain competitiveness in the market. Through this collaboration, stakeholders can develop a more robust risk management framework and improve the overall resilience of the financial system.

In terms of technology, to reduce costs and increase efficiency, the use of technology has the potential to revolutionize a large number of conventional banking services now available by improving transaction security, speeding up transfer times, and doing so at a fraction of the cost (Mbaidin et al., 2023). In addition, advanced technologies such as blockchain and artificial intelligence can increase transparency and accuracy in financial transactions. These innovations not only simplify processes, but also increase the level of trust and reliability for customers. As a result, the financial sector is able to provide more personalized and efficient services, meeting the changing needs of the market.

Mobile Payments

In recent years, mobile phones have become not only a communication tool but also a payment tool for most people. Payments made through mobile phones have become a part of people's daily lives (Zhong & Moon, 2022). Mobile payments can be defined as business activities involving electronic devices connected to mobile networks that enable the successful completion of economic transactions (de Luna et al., 2019).

A typical mobile banking solution differs from the existing types of mobile payment solutions, as the former mainly allow web-based access to banking transactions using mobile connectivity. On the other

hand, mobile payment applications open up the possibility of enabling financial transactions in more settings (De et al., 2015). Mobile banking mainly serves to provide users with access to bank accounts and related services, such as checking balances, making fund transfers, and paying bills. In contrast, mobile payment apps are designed to facilitate various financial transactions directly at the point of sale or through transfers between individuals. This distinction demonstrates the flexibility and breadth of use of mobile payment apps in the modern financial context.

Mobile devices include mobile phones, PDAs, wireless tablets, and other devices that can connect to mobile telecommunications networks and enable payments to be made. In addition, the landscape of the m-payment industry has been changing rapidly with the introduction of new technologies, new business models, new applications, and the rise and fall of business ventures (Au & Kauffman, 2008). The rapid changes in this environment have driven major innovations, such as contactless payments and digital wallets, which have changed the way consumers and businesses transact. With these technological advancements come new opportunities and challenges that require industry players to constantly adapt to remain competitive. In addition, regulations are constantly updated to keep up with these technological developments, ensuring payment systems remain safe and trusted.

QRIS

A QR code is a set of codes that may be scanned with particular tools and contain data or information, such as the identification of the merchant or user, a nominal payment, and currency (Sofwatunnisa et al., 2023). Previous research has explored various factors that influence the acceptance of Quick Response Code Indonesian Standard (QRIS) as a digital payment method. For example, de Luna et al. (2019) found that technology usability significantly affects user adoption. Sofwatunnisa et al. (2023) also highlighted that the ease of use of QRIS increases user satisfaction. Research by Khando et al. (2023) also found that ease of use is a major factor in the adoption of digital payment methods. Another study by Tenggino & Mauritsius (2022) focused on consumer trust and the impact of social influence on QRIS adoption. In another sense, QR codes are storage systems that use dot matrix or two-dimensional bar codes developed by Denso Wave that can be printed or displayed on a screen and interpreted by a specialized reader to provide more extensive information than that found in traditional bar codes (Liébana-Cabanillas et al., 2015).

QR code payments are gaining popularity as mobile phones become more popular, which also invites more innovation in payment systems. QR code payments have several advantages over traditional payment systems. Among them is its convenience and security, it also allows cashless transactions, which reduces the risk of theft and fraud (Sofwatunnisa et al., 2023). The value of QR code payments extends to more efficient and faster services, increasing productivity and reducing transaction costs (Rafferty & Fajar, 2022).

Response Code in Rapid Using a QR code, the Indonesian Standard (QRIS), often known as QRIS or frequently pronounced KRIS, unifies several varieties of QR from different Payment System Service Providers (PJSP). The development of QRIS by the payment system industry and Bank Indonesia aims to make transactions with QR codes simpler, quicker, and more secure (Sofwatunnisa et al., 2023). This standardization reduces confusion among consumers and merchants by providing a unified QR code system that can be used across multiple payment platforms and providers. In addition, the implementation of QRIS expands financial inclusion by allowing small and medium-sized enterprises (SMEs) to accept digital payments more easily. As a result, QRIS supports the increased use of cashless transactions in Indonesia, driving the creation of a more modern and efficient payment ecosystem.

Methodology

This research adopts a qualitative approach to explore the use of QRIS in payment transactions and its impact on consumer behavior. This approach was chosen for its ability to provide an in-depth and contextualized understanding of social phenomena. Through this method, the research aims to gain data-driven qualitative insights into how factors such as usability, ease of use, and trust influence the acceptance of QRIS by consumers. The selection of these three factors is based on several theoretical frameworks that have been recognized in the literature, such as the Technology Acceptance Model

(TAM). This model was developed by Davis (1989) and states that the two main factors that influence technology acceptance are Perceived Usefulness and Perceived Ease of Use. TAM has been widely used in research on technology adoption to explain how these factors influence user intentions and behavior (Wicaksono, 2022):

1. Usability:
   Usability refers to the extent to which a technology can be used easily and efficiently by users. In the context of digital payments like QRIS, usability is very important as it affects the user experience and their desire to continue using the technology.
2. Ease of Use:
   Ease of use refers to the user's perception that using the technology does not require much effort. Technology that is easy to use is more likely to be accepted by users as it reduces barriers to adoption.
3. Trust:
   Trust is a critical factor in technology adoption, especially in the context of digital payments. Users must feel confident that their transactions are secure and that their personal data is protected. Without trust, the adoption of digital payment technology will be hindered.

The target respondents in this study are consumers who actively use QRIS. The research focuses on their experiences and perceptions regarding the use of QRIS to ensure that the data collected covers a wide range of user perspectives. This selection of respondents aims to get a comprehensive picture of the acceptance and influence of QRIS in consumers' daily lives. Details of the respondent criteria in this study are as follows:

1. QRIS Active Users: Respondents must have used QRIS to make payments at least once in the last six months.
2. Domicile: Respondents who live in Jabodetabek and its surroundings to ensure representation of areas with high QRIS adoption.
3. Age: Respondents were aged between 18 to 55 years old, to cover a diverse age group relevant to the use of digital payment technology.
4. Occupation: Respondents with various employment backgrounds, such as government employee, civil servants, private employees, self-employed, and students, to get diverse perspectives.
5. Education: Respondents should be at least high school graduates or equivalent to ensure an adequate understanding of digital technology.

The research process involved several key stages, starting with a clear and defined problem formulation. Following this, a literature review was conducted to build a strong theoretical foundation and shape the research model. Subsequently, the data was aggregated to gain thorough insight. The data obtained was then analyzed using appropriate statistical tools to validate the research hypotheses. The findings are then interpreted and discussed in the context of the existing literature, resulting in useful conclusions and recommendations for future research.

Data Collection

The data collection stage involved direct interaction with respondents, followed by careful and structured data analysis. The research concludes with the formulation of logical conclusions and practical suggestions. This research flow began with a clear identification of the problem and a literature review to develop an in-depth understanding of the topic. Next, a framework was developed as a basis for data collection. Data collection was conducted through a questionnaire with open-ended questions, which was disseminated through the WhatsApp social network. After data collection, data calculation and analysis were conducted to generate weighted conclusions and suggestions. The list of questions can be seen in Table 1, which is divided into 3 sections: the first section is a demographic questionnaire containing 11 questions, the second section is a short questionnaire containing 9 questions, and the last section is a free-form interview question section so that it can be answered as fully as possible, containing 3 questions.

The research instrument consisted of research questions designed in an open-question format to allow respondents to convey their experiences and opinions freely and in depth. Initially, this research was planned to collect data through semi-structured interviews to gain in-depth and contextual insights into

users' perceptions of QRIS. However, due to time constraints that did not allow for direct interviews with each respondent, the data collection format was adapted to open-ended questions via Google Form.

Although the data collection method was changed, the main objective remained the same, which was to get in-depth responses from the respondents. In the open-ended question format provided through Google Form, respondents were given the freedom to answer in the same way as in semi-structured interviews. The questions were designed to explore user experience, perceptions of usability, ease of use, and trust in the QRIS. Respondents were able to provide detailed and expressive answers, allowing for in-depth qualitative analysis.

This customization ensures that even if the data collection method changes, the quality and depth of the information obtained are maintained. This approach also allows for the collection of data from more respondents in less time, increasing the representation and validity of the research results. Steps Taken:

1. Questionnaire Design: The questionnaire was designed with open-ended questions that allowed respondents to provide in-depth and context-rich answers.
2. Questionnaire Distribution: The questionnaire was distributed via Google Form using the WhatsApp social network, reaching a wide range of respondents easily and quickly.
3. Data Analysis: The data collected was analyzed using thematic analysis methods, identifying key themes that emerged from respondents' answers.

With these changes, the research was still able to achieve the objective of identifying factors that influence QRIS acceptance by consumers as well as providing recommendations for the improvement of this digital payment system.

Table 1. Questionnaire Questions List

Questions List	**Revision**	**Data Collection Procedure**
Name/Initials (Optional)		Short answer text
Current email (if any)	Email (Optional)	Short answer text
Phone Number for respondent validation (Optional)		Short answer text
Gender	Radio Button: ○ Male ○ Female	
Domicile	Radio Button: ○ Jakarta, Bogor, Depok, Tangerang, Bekasi (Jabodetabek) ○ Java Island (Non-Jabodetabek) ○ Others: ...	
Age	Radio Button: ○ < 18 years old ○ 18 - 25 years old ○ 26 - 35 years old ○ 36 - 45 years old ○ 46 - 55 years old ○ > 55 years old	
Occupation	Radio Button: ○ Junior/Senior High School Students ○ College student ○ Entrepreneurship ○ Civil Servant ○ Private employee ○ Housewife/husband	

Questions List	**Revision**	**Data Collection Procedure**
	○ Not Working/Retired ○ Others: …	
Monthly income (in IDR)	Radio Button: ○ < 1.000.000 ○ 1.000.000 - 3.000.000 ○ 3.000.000 - 5.000.000 ○ 5.000.000 - 10.000.000 ○ 10.000.000 - 20.000.000 ○ > 20.000.000	
Latest education	Radio Button: ○ Junior high school/middle school/equivalent ○ Senior/vocational high school/equivalent ○ Associate degree/Diploma ○ Bachelor degree ○ Master degree ○ Doctoral degree ○ Others: …	
Have you ever made a payment using QRIS before?	Radio Button: ○ Yes, I have ○ Never	
The app you use more often for QRIS transactions:	Radio Button: ○ Mobile Banking (BCA Mobile, Livin Mandiri, BRIMo, BSI Mobile, etc) ○ e-Wallet (OVO, Dana, ShopeePay, GoPay, etc) ○ Others: …	
Does using QRIS make you pay faster?	Radio Button: ○ Yes ○ No	
Does QRIS make your transactions easier?	Radio Button: ○ Yes ○ No	
Does QRIS transactions save your time and energy?	Radio Button: ○ Yes ○ No	
Are you happy with the QRIS service?	Radio Button: ○ Yes ○ No	
Overall, are you satisfied with payment through QRIS (security and privacy)?	Radio Button: ○ Yes ○ No	
Do you often read or hear comments from other buyers/consumers about QRIS?	Radio Button: ○ Yes ○ No	

Questions List	**Revision**	**Data Collection Procedure**
Is using QRIS completely under your control?	Radio Button: ○ Yes ○ No	
Do you believe that QRIS is safe to use?	Radio Button: ○ Yes ○ No	
Do recommendations from family or friends influence you to use QRIS?	Radio Button: ○ Yes ○ No	
What do you think are the advantages of QRIS payments?		Long answer text
What do you think are the disadvantages of QRIS payments?		Long answer text
What suggestions or input can you provide for the development and performance improvement of payments with QRIS?		Long answer text

Data was collected through a questionnaire distributed via WhatsApp, utilizing the reach and accessibility of this platform to reach a wide range of respondents. This method was chosen for the efficiency and ease of collecting responses in a relatively short period of time, as well as to ensure higher engagement from respondents. The use of WhatsApp enabled direct communication and follow-up with participants, which improved the quality of the data obtained. The affordability and familiarity with the platform also encouraged higher response rates, making it an effective tool for gathering in-depth information from a diverse group of respondents.

Data Analysis

The collected data was analyzed using thematic analysis, an effective method for identifying and exploring themes in qualitative data. This process involves systematically coding the data to uncover significant patterns and trends in respondents' answers, which helps in drawing relevant and well-founded conclusions. In addition, thematic analysis allows for a deeper understanding of the context and nuances in the data, providing insights that may not be apparent with quantitative analysis alone. By categorizing and interpreting these themes, researchers can build a comprehensive narrative that answers the research questions as well as contributes to the broader field of study. This method also ensures that respondents' views are accurately represented and integrated into the research findings.

The process of thematic analysis begins with a thorough understanding of the data, followed by a coding process to identify concepts and categories. Once the codes are established, a search for themes is conducted to find patterns that appear consistently in the data. This process allows for the grouping of information into themes that are relevant and informative to the research.

In this study, the first step in data analysis was data transformation and selection, which involved the process of cleaning the data to ensure the accuracy and relevance of the information obtained. Next, the data was coded by grouping similar answers into common themes. This process enabled the identification of significant patterns in the respondents' answers. Finally, data visualization was conducted to facilitate the interpretation of the analysis results. This process provides an effective graphical representation of the research findings (Klepek & Bauerová, 2020). The entire thematic analysis process in this research was carried out manually using Microsoft Word and Microsoft Excel tools. In addition, this process also uses the researcher's personal interpretation skills.

Results

Questionnaire Results and Thematic Findings

From the results of the questionnaire involving 40 respondents, 40 thematic units were obtained that reflect the perception of QRIS usage. Frequency analysis showed that 87.78% of respondents gave a positive response to QRIS usage, confirming that factors such as usability, ease of use, and trustworthiness were well received by the majority of consumers. In contrast, 12.22% of respondents gave a negative response, highlighting areas that require improvement. The influence of QRIS on consumer purchasing behavior was seen to be significant, with 50% of respondents prioritizing the ease and practicality factor in its use. However, 26.83% of respondents highlighted network issues and system stability as key areas of concern. Results of demographic data collection, short questionnaires, and open-question interviews can be checked in Table 2.

In this study, the data saturation of 40 respondents was achieved through a systematic and diverse approach as well as in-depth thematic analysis. We ensured that the respondents reflected a sufficiently diverse population, and the analysis was conducted in stages to monitor data saturation. With this approach, we are confident that the data collected is sufficient to provide deep insights into the factors influencing QRIS acceptance. The following are some of the steps that have been taken to ensure data saturation in this study:

1. Phased Data Collection:
   Data were collected gradually and analyzed in parallel to identify when no more themes or new information emerged. This approach allowed the researcher to observe when data saturation began to occur.
2. Diverse Profile of Respondents:
   Respondents were selected from a variety of demographic backgrounds, including age, gender, occupation, and geographic location. This diversity helps ensure that various perspectives and experiences are represented in the data.
3. Thematic Analysis:
   Using thematic analysis, the data obtained from the 40 respondents was analyzed to identify key emerging themes. This analysis was conducted until no more new themes were identified, indicating that data saturation had been reached.
4. Consistency of Findings:
   Consistency in answers and emerging themes from respondents indicates that data saturation has been achieved. When most respondents give similar answers or raise the same issues, this indicates that sufficient information has been collected.
5. Feedback and Validation:
   Validation of the findings was done by seeking feedback from several respondents on the conclusions drawn. This helps to ensure that the interpretation of the data is in line with the respondents' experiences and views.

From the demographic shown in Table 2, it shows that the majority of respondents are male, domiciled in the Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) areas, with an age range of 36-45 years old, and the majority have jobs as private employees. In addition, the majority of respondents have an income of 10-20 million Rupiah with an educational background of bachelor, and the majority of respondents have used QRIS through mobile banking. This demographic profile indicates that the respondents have a high level of financial stability and good access to technology. In addition, the widespread use of mobile banking for QRIS transactions reflects the increasing adoption of digital payments in urban areas. Understanding these demographic characteristics is important to customize financial services and strategies to suit the specific needs and preferences of this user segment.

Table 2. Demographic Data

Description	Content
Gender distribution of respondents	Male: 62.5%; Female: 37.5%
Domicile distribution of respondents	Jabodetabek: 77.5%; Java Island (Non-Jabodetabek): 10%; Others: 12.5%
Age distribution of respondents	36-45 years old: 45%; 26-35 years old: 40%; 18-25 years old: 7.5%; 46-55 years old: 5%; >55 years old: 2.5%
Occupation distribution of respondents	Government Employee: 47.5%; Civil Servant: 12.5%; Housewife/husband: 10%; College Student: 5%; Private Employee: 5%; Others: 20%
Monthly income distribution of respondents (in IDR)	10.000.000 - 20.000.000: 42.5%; 5.000.000 - 10.000.000: 32.5%; 3.000.000 - 5.000.000: 10%; >20.000.000: 10%; 1.000.000 - 3.000.000: 5%
Educational background of respondents	Bachelor degree: 62.5%; Master degree: 25%; Associate degree/Diploma: 10%; Senior/vocational high school/equivalent: 2.5%
Experience using QRIS	Yes: 97.5%; No: 2.5%
Preferred app for QRIS transactions	Mobile Banking: 73.7%; e-Wallet: 23.7%; ATM: 2.6%
Transaction speed; Ease of transactions; Time and energy saving; Happy with QRIS service; Overall satisfaction with QRIS; Comments from others about QRIS; Control over QRIS usage; QRIS safety; Influence of recommendations	Transaction speed: 95% satisfied; Ease of transactions: 97.5% satisfied; Time and energy saving: 92.5% agree; Happy with QRIS service: 100% satisfied; Overall satisfaction with QRIS: 100% satisfied; Comments from others about QRIS: 52.5% positive; Control over QRIS usage: 97.5% agree; QRIS safety: 95% confident; Influence of recommendations: 60% influenced

Suggestions and Feedback from Respondents

The analysis results show that respondents provide valuable suggestions to stakeholders, such as the industry and regulators, to improve the QRIS system in the future. The survey results show that 17.31% of respondents suggested increased security, and 13.46% emphasized the importance of flexibility and accessibility. Socialization, better education, and regulations for SME outreach were also suggested by 13.46% of respondents. While 11.54% suggested increasing the reach of QRIS to the SME sector, 9.62% wanted transaction simplification. A total of 5.77% of respondents urged the removal of administrative fees, improvement of network speed and reliability, and expansion of QRIS overseas. In addition, 3.85% wanted the maximum payment limit to be raised, while another 13.46% felt QRIS was sufficient. Table 3 summarizes 40 themes from 40 respondents, with common answers reflected in the questionnaire.

Table 3. The Most Frequent Responses in Thematic Units (Source: Own Research)

Number	Inquiry	Thematic Unit	Typical Responses
1	Using QRIS makes paying faster	Faster than other payment methods	Yes
		Not faster than other payment methods	No

Number	Inquiry	Thematic Unit	Typical Responses
2	QRIS makes transactions easier	Easier than other payment methods	Yes
		Not easier than other payment methods	No
3	QRIS saves time and energy	Saves more time and energy than other payment methods	Yes
		Not more time and energy efficient than other payment methods	No
4	Consumers are happy with QRIS services	Happy with QRIS service	Yes
		Not happy with QRIS service	No
5	Overall satisfied with QRIS payments (security and privacy)	Satisfied with QRIS	Yes
		Not satisfied with QRIS	No
6	Often read or hear comments from other buyers/consumers about QRIS	Read/hear QRIS comments	Yes
		Did not read/hear QRIS comments	No
7	Using QRIS is entirely within the control of the consumer in question	In full control	Yes
		Not in full control	No
8	QRIS is safe to use	QRIS is safe	Yes
		QRIS is not safe	No
9	Recommendations from family or friends influence to use QRIS	Other people's recommendations influence the use of QRIS	Yes
		Other people's recommendations do not affect the use of QRIS	No
10	Advantages of QRIS payment	Easy & Practical	"Practical, simple, "Ease of Shopping", "Practical and faster"
		Transaction Speed	"Fast and easy, "Fast, Easy, Cheap, Safe, Reliable", "Fast nominal right and no need to prepare a lot of cash in the pocket"
		Security	"Safe, easy and efficient, "Simple and safe", "Easy, cashless, safe"

Number	Inquiry	Thematic Unit	Typical Responses
		Recorded Transactions	"More practical and efficient for payment transactions and recorded transactions on the application", "Recorded in mutations"
		Universality & Anonymity	"Universal platform, even though it looks anonymous, it is still neatly recorded on the related platform"
11	Disadvantages of QRIS payments	Administration Cost	"Sometimes some sellers have admin fees"
		Network/signal/system Dependency	"If the network errors, "If the network is bad", "Depends on the signal", "More towards the internet network connection from the mobile phone"
		Merchant Limitations with QRIS	"There are still many sellers who do not have QRIS", "Not all can use QRIS", "Not all merchants provide"
		Maximum Payment Limit	"There is still a maximum payment limit"
		Potential Transaction Errors	"Can be used to cheat", "Transactions can be falsified", "If it is not automatic, there is a potential for nominal payment errors", "Misuse", "I often find the EDC machine on the seller's side is in error"
		Underbalance	"The balance is less"
		Neutral/None/No	"-", "None", "Not yet"
12	Suggestions or feedback for the development and performance improvement of QRIS payments	Elimination of Admin Fees	"No admin fee regulation"
		Flexibility and Accessibility	"More flexibility", "QRIS that can be transacted without a data signal"
		Education and Socialization	"Can continue to do massive education", "Socialization in the community"
		Increased Security	"More security is ensured", "Given double verification with pin and fingerprint", "Security is more tightened"
		Increased Maximum Payment Limit	"The maximum payment is further improved"
		Ease of Transaction	"Hope QRIS can be used in transactions on public transportation", "It would be better if merchants only need to scan our QR", "Merchants can produce 1 to 1 barcode so it's easier", "It's better to use automatic ones only"
		Improved Speed and Reliability	"To be more reliable and not detrimental to the seller and buyer", "Security and speed are further improved"

Number	Inquiry	Thematic Unit	Typical Responses
		International Expansion and Acceptance	"QRIS cross border", "So that acceptance is wider at overseas merchants"
		Increased Reach for MSMEs	"Expected to reach MSMEs as much as possible", "Pick up the ball to MSMEs"
		Neutral/None/Not yet	"-", "None", "It's good"

From the analysis, the data collected and analyzed had an impact on the respondents, where they provided some suggestions or input to stakeholders, including industry and regulators, for the improvement of the QRIS system in the future, as follows:

1. 17.31% suggested improvements in terms of security.
2. 13.46% emphasized the need for increased flexibility and accessibility.
3. 13.46% suggested increased socialization, education, and regulation so that digitalization reaches SMEs in all areas.
4. 11.54% suggested increasing the wider reach of QRIS to the MSME sector.
5. 9.62% provided input so that transactions using QRIS are made easier.
6. 5.77% want the admin fee to be eliminated, then to increase the speed and reliability of the QRIS network and system, and to expand QRIS to other countries.
7. 3.85% of respondents expect that in the future, the QRIS system can increase the maximum payment limit.
8. The remaining 13.46% of responses consider QRIS good enough to be used as a daily payment method.

Discussion

In this discussion, key emerging findings show that the Quick Response Code Indonesian Standard (QRIS) is not only widely accepted by consumers but also plays a significant role in changing payment behavior in Indonesia. The use of QRIS, which is praised for its usability and ease of use, reflects a shift in consumer behavior towards more digital and efficient payment methods. However, it is important to highlight that despite the positive reception, some respondents expressed concerns regarding network stability and system security. This indicates that there is ample room for improvement, especially in terms of technology and infrastructure.

Furthermore, these findings indicate that the adoption of digital payment technologies such as QRIS is not only influenced by technological factors alone but also by consumer perceptions and trust in the system. This opens up opportunities for stakeholders to not only focus on technical improvements but also on raising awareness and educating consumers on the benefits and safety of using QRIS. Comparison of the results of this study with previous research:

1. Usability:
   Our research found that usability is an important factor in QRIS acceptance. This result is consistent with the research conducted by Sofwatunnisa et al. (2023), who also highlighted that the ease of use of QRIS increases user satisfaction. Research by de Luna et al. (2019) on mobile payment adoption showed that technology usability significantly affects user adoption, which is in line with our findings.
2. Ease of Use:
   Our finding that ease of use affects QRIS acceptance is in line with the Technology Acceptance Model (TAM) developed by Davis (1989), which states that perceived ease of use is a key determinant in technology acceptance. Research by Khando et al. (2023) also found that ease of use is a major factor in the adoption of digital payment methods, supporting our results.
3. Trust:
   Trust proved to be a critical factor in our study, which is also supported by the research of Gefen et al. (2003), who emphasized the importance of trust in the adoption of online payment

technologies. Research by Tenggino & Mauritsius (2022), shows that trust in transaction security is a determining factor in QRIS usage, which is consistent with our findings.

Additionally, the feedback provided by respondents offers valuable insights in terms of what consumers consider important. Most emphasized is the importance of improving the security, flexibility, and accessibility of the system. This shows that today's consumers are not only looking for convenience but also security in their transactions. Hence, there needs to be a continuous effort to strengthen these aspects of the QRIS system in order to maintain and increase consumer confidence. Some recommendations that can be followed up regarding the factors that influence the acceptance of QRIS by consumers in order to increase trust in using QRIS and increase security in QRIS, such as:

1. Increase User Trust:
   To increase user confidence in using QRIS, service providers can increase transparency regarding security and privacy policies. Communicating the security measures that have been taken to protect user data can help increase trust. Service providers can also provide additional security guarantees, such as two-factor authentication (2FA) and end-to-end encryption, to ensure that user transactions are safe from potential threats.
2. Improving QRIS Security:
   Implement stronger security protocols to protect user data from cyberattacks. This includes using more advanced encryption algorithms and regularly conducting security audits. Conducting educational programs for users on cybersecurity practices, such as the importance of keeping PINs private and avoiding public Wi-Fi networks when making transactions.
3. Improving Ease of Use:
   Service providers can continue to develop user interfaces that are intuitive and easy to use. Providing clear usage guides and responsive customer support can also help users adopt new technologies. Reducing unnecessary steps in the payment process can improve efficiency and user convenience.

Taking all these aspects into consideration, this discussion underlines the importance of QRIS as an innovative payment tool that has great potential for supporting the growth of the digital economy in Indonesia. However, further research is needed to identify specific ways to optimize the QRIS system, especially in the broader context of the digital economy and financial inclusion. In addition, understanding the user experience and addressing the challenges they face can help increase QRIS adoption. Cooperation between financial institutions, regulators, and technology providers is essential to improving the functionality and security of the system. In this way, QRIS can be more effective in facilitating smooth digital transactions and promoting economic development.

Conclusion

This study reveals that factors such as usability, ease of use, and trust have a significant influence on the acceptance of QRIS by consumers, with the majority of respondents giving positive responses. This shows that QRIS, as a digital payment method, successfully meets consumer needs in these aspects. QRIS adoption has also influenced consumer purchasing behavior, with convenience and efficiency being the main factors in choosing this payment method. However, challenges such as network dependency and the stability of the QRIS system remain a concern for consumers.

Implications

This research makes several contributions, both theoretically and practically. From a theoretical perspective, this study contributes to providing a deeper understanding of the factors that influence QRIS adoption, such as ease of use, trust, and usability. This study provides a theoretical framework that illustrates the changes in consumer behavior due to the use of digital payment methods, specifically QRIS. In addition, this study presents an evaluation model that is useful for measuring the impact of QRIS implementation on its general usage.

From a practical perspective, this research contributes by providing practical guidance for the government and other stakeholders to address challenges such as security, network limitations, and consumer education. Also, encouraging accessibility to increase the reach and adoption of QRIS,

especially for MSMEs, helps identify strategic measures for more effective implementation. The study also emphasizes recommendations to improve transaction security and system stability, encouraging user confidence, which is important for the continued use of QRIS.

These contributions demonstrate the importance of QRIS in Indonesia's digital payment ecosystem and how researchers and policymakers can utilize it for further development. By harnessing the potential of QRIS, stakeholders can drive innovation and expand financial inclusion across Indonesia. Ongoing evaluation and feedback from users will be critical to improving the system and addressing emerging challenges. This collaborative approach will ensure QRIS remains a powerful and flexible tool for supporting economic growth and strengthening the digital economy.

Limitations and Future Work

Although this study provides valuable insights into how factors such as usability, ease of use, and trust have a significant influence on consumer acceptance of QRIS, it does have some limitations. This research may only focus on certain regions in Indonesia, so the results may be less representative of the national population. Future research can expand the coverage area to be more representative of the research results. In addition, this study only focused on a relatively small group of respondents (e.g., urban businesses or consumers), so the results may not reflect the experiences of various other user groups, such as those living in rural areas. Future research could expand the role of the respondents or the industries represented to ensure that the findings are more generalizable to the population of respondents studied. In addition, this research process only involved qualitative methods. Future research is expected to use quantitative methods to complement and validate the findings in this study. In addition, the variables studied can also be applied to social and cultural factors. Given the rapid and dynamic changes in payment technology, the results of this study require continuous updating over time in order to remain relevant to the latest developments.

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