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Analysis of Factors Affecting the Intention to Use NFC-Based Payment System

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ABSTRACT

This study aims to examine the influence of prior experience on perceived ease of use and perceived usefulness, as well as the effects of both perception variables on intention to use QRIS Tap. A quantitative approach was employed, with the population consisting of NFC payment users in the Greater Jakarta area. The sample was selected using a purposive sampling method, involving 165 qualified respondents. Data were collected through an online questionnaire using a 6-point Likert scale, and analyzed using SmartPLS and Microsoft Excel. The results reveal that prior experience has a significant positive effect on both perceived ease of use and perceived usefulness. Furthermore, these two perception variables significantly and positively influence the intention to use QRIS Tap. Based on these findings, all four proposed hypotheses in this study are supported.

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INTRODUCTION

In several nations, the outbreak of COVID-19 hastened the advancement of cashless payment solution, such as contactless payment methods. Contactless payments are described by Balakrishnan & Eesan (2024) as a payment method that operates through NFC (Near-Field Communication) integrated to e-wallets, payment cards, and mobile phones. To use contactless payments, users simply need to hold their device or card close to the payment machine, and the balance will be automatically deducted. Based on data compiled by the Statista Research Department (2024), contactless payment usage increases in various parts of the world. In Europe, contactless transactions generate upwards of 30% of worldwide revenue, with a total market value reaching USD 29,815.2 million (Raje, 2024). Meanwhile, in China, contactless payments are dominant thanks to the popularity of Alipay and Tenpay, making the country a leader in digital payments (Statista Research Department, 2024).

In Indonesia, NFC-based contactless features are already available on VISA debit and credit cards. Several banks have issued debit and credit cards with contactless features, including CIMB Niaga (Global JCB, 2021), BCA (BCA.co.id, 2021; BCA, 2023), Mandiri (Philaret, 2023), and many others. Furthermore, contactless payment features are also available in several bank applications that integrate debit cards into their mobile banking applications, such as Livin' by Mandiri (Bank Mandiri, 2025).

The 2022 Visa Consumer Payment Attitude Study shows a 69% increase in contactless payment usage in Indonesia (Visa, 2022). A Visa (2024b) survey of 2,011 Indonesians from August to September 2024 found that more people are interested in using contactless mobile payments. Mobile contactless payments use NFC technology, allowing users to store money digitally and simply hold their smartphone close to the payment machine during transactions (Duka, 2024). This technology is considered more practical and secure than conventional payment methods because users no longer need to rely on cash or physical cards.

However, although the trend of contactless payments in Indonesia is increasing, its adoption rate is still comparatively lower than in other countries. Perdana (2023) stated that the adoption rate of contactless payments in Indonesia is only around 1.3%. This figure lags far behind neighboring countries such as Singapore (71%), Malaysia (64%), and Thailand (39%) (Visa, 2024a). This low adoption rate indicates that further efforts are needed to promote contactless payment technology adoption in Indonesia.

Amidst the low adoption rate of contactless payments in Indonesia, Bank Indonesia recently announced the launch of QRIS Tap, a QRIS innovation built on NFC technology that enables consumers to pay by only holding their phone near the payment terminal. This feature complements the QRIS ecosystem, which previously relied solely on QR code scanning (Subekti, 2024).

QRIS has been integrated into various e-wallet and mobile banking applications. Based on data obtained by Muhamad (2023) and Santika (2024), these two platforms have become the preferred digital payment method for Indonesians. Transactions using the QRIS feature in e-wallets and mobile banking continue to experience a yearly surge. From January to September 2024, QRIS transactions through these two platforms increased by 202% compared to the previous period, reaching a total of 619 million transactions (Asosiasi Sistem Pembayaran Indonesia, 2024). It shows that QRIS is being increasingly adopted in digital payments and is gaining acceptance within Indonesian society.

Given these conditions, QRIS Tap, as one of the new innovations from QRIS, has great potential for widespread use in the long term and is likely to be a key driver in accelerating the adoption of contactless payments in Indonesia. This potential is even more supported by the growing number of NFC-supported mobile devices (Riyanto & Pertiwi, 2023), as well as growing public interest in contactless mobile payment methods (Visa, 2024b). However, the extent to which QRIS Tap will actually be widely used and accepted by the public remains uncertain. Because of this, research is necessary to identify the factors that affect the QRIS Tap's usage intention.

Globally, studies of factors driving NFC payment's usage intention has been conducted in several countries, such as Malaysia (Malarvizhi et al., 2022; Wen & Nor, 2024), Pakistan (Zhang et al., 2023), and The Kingdom of Saudi Arabia (KSA) (Almaiah et al., 2022; Alrawad et al., 2023). However, Almaiah et al. (2022) stated that the number of studies specifically examining mobile-based NFC payment systems is still relatively small. In Indonesia itself, research focusing on this topic is also still rare. Most studies in Indonesia focus more on QR Code mobile payments. Research on NFC payments in Indonesia discusses contactless technologies such as credit cards (Nuraini & Andriani, 2020), but rarely on mobile technology. Therefore, research on QRIS Tap's usage intention is important to add the limited literature of NFC payment topics in Indonesia. With this research, it will also provide insights to helping developers and stakeholders in increasing the acceptance of this technology in the community.

To measure acceptance of QRIS Tap, this study integrates Technology Acceptance Model constructs, and prior experience as an external variable to test its influence on perceived ease of use and perceived usefulness. Previously, testing regarding the influence of prior experience variable has been widely explored in various technology fields, such as e-learning (Barz et al., 2024; Jimenez et al., 2021; Purnomo & Lee, 2013) and artificial intelligence (García-Alonso et al., 2024). In the context digital payments, prior experience variables have received little attention in research. Several previous studies have examined prior experience's effect on perceived usefulness in the context of e-wallets (Purwanto et al., 2019). Rahman et al. (2025) also integrated prior experience variable in a study on intention to use online zakat payment usage intention. However, research specifically discussing prior experience in NFC-based

mobile payment technology, especially in Indonesia, is still very limited.

Examining prior experience in the context of NFC-based payments is important because prior experience can influence how someone perceives a new technology's ease of use and usefulness, which ultimately impacts their usage intention. In the context of QRIS Tap, prior experience is a crucial factor because individuals' experience with similar technologies leads to the belief that QRIS Tap is easy and useful, and these perceptions will increase the desire to utilize QRIS Tap.

Furthermore, this research was motivated by inconsistencies in previous research findings. While some studies, such as Wen & Nor (2024) show that perceived ease of use significantly influences intention to use NFC payment, others, like Zhang et al. (2023) reported insignificant effect. Furthermore, research conducted by Aljawder & Abdulrazzaq (2019), Kaakour & Jnad (2025), Kim & Kim (2022), and Wen & Nor (2024) reported a significant effect between perceived usefulness and intention to use, but not with Setiawan & Siregar (2023).

These differences in results emphasize the importance of further exploring the effect of each variables more closely, as well as the necessity of addressing other external factors that may influence these perceptions. This study presents a novel approach by integrating prior experience as an external variable in the context of QRIS Tap's acceptance. With this approach, this research is expected to enhance understanding of the determinants influencing usage intention of NFC-based payment systems, while simultaneously contributing to the advancement of academic literature concerning the adoption of technologies such as QRIS Tap.

LITERATURE REVIEW

Theoretical and Conceptual Background

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was originally formulated by Fred D. Davis (Wen & Nor, 2024; Zhang et al., 2023). Initially, the model suggested that usage intention of a technology stems from attitude toward using it, which is shaped by perceptions of usefulness and ease of use (Davis, 1986). Further evolution of TAM, however, removed the attitude component because it was found to be a weak predictor of intention (Abdullah et al., 2016; Davis, 1989). In its updated form, both perceived usefulness and perceived ease of use have a direct impact on usage intention (Abdullah et al., 2016; Venkatesh et al., 2003; Wen & Nor, 2024). Venkatesh & Davis (1996) further emphasized that external factors, often called antecedents, are important drivers shaping these two perceptions. In this research, prior experience is integrated as the external variable to provide a deeper insights of the determinants of QRIS Tap usage intention.

Intention to Use QRIS Tap

Based on Wicaksono (2023), intention to use is the initial stage in the technology adoption process, and without it, someone's likelihood of actually adopting the technology is very low. It is also related to individual's desires to utilize a technology in the upcoming period due to the drive to achieve a specific goal. A person's intention increases when they have "attention" to an object, which results in a desire to learn more, study it, and explore it further (Ratnawati & Malik, 2024). According to Wen & Nor (2024), intention relates to the desire to perform a future action based on perceptions and personal beliefs, and a psychological state indicating the readiness and wilingness to be involved in an action. In this study, intention to use QRIS Tap refers to an individual's level of willingness and desire to use QRIS Tap for transactions.

Prior Experience

A person's previous technology experience can influence future acceptance of a new technology, as those who have previously used or interacted with a technological system possess practical knowledge that shapes their intention to adopt similar systems in the future (Taylor & Todd, 1995). Similar prior experience will encourage more effective learning because it facilitates the association between prior knowledge and new information (Agarwal & Prasad, 1999). Zhang & Ghorbani (2004) stated that prior experience is determined by knowledge of technologies and experiences using technology that offer similar services. When an individual has used or is familiar with a similar service, it can make it easier for someone to understand and use new technology, especially if the two technologies have similar functions or interfaces, as their prior knowledge can help them understand new contexts or situations, and the similarity between a new technology and their previous experience will make the individual adapt quickly (Zhang & Ghorbani, 2004). Barz et al. (2024) supported this, stating that people who have previously used similar technologies could find a system simple to use and beneficial for their tasks since they can leverage their prior knowledge.

Purnomo & Lee (2013) stated that prior experience is an individual's past experience using a technology, where affective aspects such as enjoyment and comfort in using a technology in the past will shape positive perceptions of new technologies that are similar to those of the past. Individuals who had this experience tend to feel comfortable in using it and this feeling of comfort will form a positive perception of new technology that offers similar functions (Ayu et al., 2022). Supported by Rahman et al. (2025) where they defined prior experience as past interaction with or use of online zakat payment services, individuals exposed to these services tend to build feeling of familiarity and

comfort with the system. This positive experience fosters a positive perception of the ease, usefulness of similar online payment systems, thus contributing to an increased intention to use similar zakat payment technologies. Teoh & Tan (2020) stated the greater an individual's experience in using e-learning technology, the more familiar they are with the system and the easier it is for them to use it, as prior involvement with e-learning technology can help them acquire sufficient knowledge to use new e-learning technology.

Previous experience with products similar to a technology can serve to strengthen its perceived usefulness. When someone has previous experience using a technology-based product similar to an e-wallet, they tend to have a stronger perception of the benefits of the new e-wallet, a perception based on their past beliefs and behaviors (Purwanto et al., 2019). Individuals with prior experience tend to quickly grasp understanding about the benefits and about how to use the technology, which contributes to positive views about its easy usage and usefulness (Gupta & Yang, 2024; Mailizar et al., 2021). Individuals who are accustomed to using a specific technology tend to feel more comfortable and confident when adopting new innovations (Susanti et al., 2021). Previous experience helps individuals understand and operate new technologies more easily, thus strengthening perceived ease of use. Individuals with prior experience with similar technologies tend to better recognize the advantages of new technologies because they already have prior references (Wicaksono, 2023).

Accordingly, this study defines prior experience as the extent to which an individual has previous experience with NFC-based payment technology.

Perceived Ease of Use

Perceived ease of use is closely related to the perspective on the simplicity of using a technology, where individuals who hold this perception will have a stronger intention to use it (Davis, 1989). It is synonymous with beliefs regarding how effortless the system is to use, which is considered to enhance users' willingness to use it and explore its features (Monica & Japarianto, 2022). It is also related to how consumers assess the complexity of using a new technology (Türker et al, 2022). To add on, it is also related to how individual feels comfortable using mobile technology for NFC payments, without experiencing difficulty or requiring a complex learning process (Wen & Nor, 2024).

Wen & Nor (2024) indicate that perceived ease of use acts as an important determinant of NFC payments' usage intention. When individuals perceive that payments using NFC technology can be done without difficulty and do not require a complex learning process, this will increase their usage intention. The opinion of Wen & Nor (2024) supports Keni et al. (2020) who emphasized that a person's intention depends on how difficult or time-consuming the learning process is. If users perceive a mobile payment application or service as difficult to understand and time-consuming to learn, there's a high possibility that they won't choose to use it and stick with conventional payment system that's simpler and more effective.

Accordingly, this study defines perceived ease of use as individual's assessment of how easy or complicated the QRIS Tap payment technology is to use.

Perceived Usefulness

Perceived usefulness describes the assurance that work performance will be enhanced by utilizing a system (Davis, 1989; Nuraini & Andriani, 2020). It relates to the viewpoint that employing a certain technology will provide benefits and improve one's quality of life, which leads individuals, when introduced to a new technology, to examine its form, function, and advantages in depth, evaluate its significance in their daily activities, and decide to adopt it if they believe it can offer efficiency compared to previous methods (Keni et al., 2020). It also relates to the benefits offered, requiring the technology to deliver more value than current payment methods to be accepted, with transaction speed identified by Almaiah et al. (2022), as a key advantage in NFC payments, allowing users to simply wave their device over the payment machine without requiring physical contact. Perceived usefulness also denotes how much a system is considered relevant to enhancing productivity and effectiveness, and is often associated with a system that is practical, convenient, and efficient, and when individuals perceive that these aspects are fulfilled, their likelihood of using the system increases (Wen & Nor, 2024). Accordingly, this study defines perceived usefulness as an individual's belief that using QRIS Tap will provide significant benefits or added value to their activities.

Empirical Review and Hypothesis

Relationships Between Prior Experience and Perceived Ease of Use

Previous experience can shape how potential users evaluate the simplicity of a new system, as they tend tend to rely on knowledge and experience gained from previous technology use to assess the ease of use of new technologies, which leads to the decision to use them (Ayu et al., 2022). Past experience using similar technologies can strengthen perceived ease of use because such experience contributes to developing one's knowledge of the technology (Mailizar et al., 2021). Individuals who are accustomed to using technology tend to find it easier to apply similar technologies (Ngabiyanto et al., 2021).

H1: Prior experience positively influences perceived ease of use QRIS Tap

Relationships Between Prior Experience and Perceived Usefulness

Prior experience with technology-based payment products, such as e-wallets, contributes greatly in shaping the perceived usefulness of GoPay as a payment method, as consumers who are accustomed to using similar types of electronic payment methods tend to have higher perceived usefulness of similar technologies (Purwanto et al., 2019). In the educational context, Mailizar et al. (2021) found that experience using e-learning during professional development programs contributes to positive assessments of e-learning's benefits. This experience develops knowledge that influences how individuals view e-learning's ease of use and usefulness. Individuals who are familiar with a technology tend to judge similar technologies as useful based on prior experience (Ngabiyanto et al., 2021).

H2: Prior experience positively influences perceived usefulness QRIS Tap

Relationships Between Perceived Ease of Use and Intention to Use QRIS Tap

NFC mobile payment that are considered to have clear, easy-to-understand, uncomplicated procedures and require minimal effort ultimately drive an individual's desire to use the system (Wen & Nor, 2024). Supported by Ratnawati & Malik (2024), the perception of payment technology being easy to understand, learn, and operate can increase the intention to use it for transactions. When users perceived system as easy to use and not time-consuming, they are more likely to use it (Keni et al., 2020).

H3: Perceived ease of use positively influences intention to use QRIS Tap

Relationships Between Perceived Usefulness and Intention to Use QRIS Tap

The perspective that NFC payment is useful will make individuals have the intention in using it (Kaakour & Jnad, 2025). This opinion is supported by Wen & Nor (2024) who stated that NFC mobile payments that are perceived as fast and efficient will increase the likelihood of users using them in the future. The findings of Wen & Nor (2024) support Keni et al. (2020), stating that systems that provide added value, improve work quality, performance, and effectiveness will increase the likelihood of individuals using the system. According to Kim & Kim (2022) individuals tend to use technology that is perceived to increase efficiency and ease of transactions. A system is more likely to be used if the perception that it can improve their performance is high (Aljawder & Abdulrazzaq, 2019).

H4: Perceived usefulness positively influences intention to use QRIS Tap

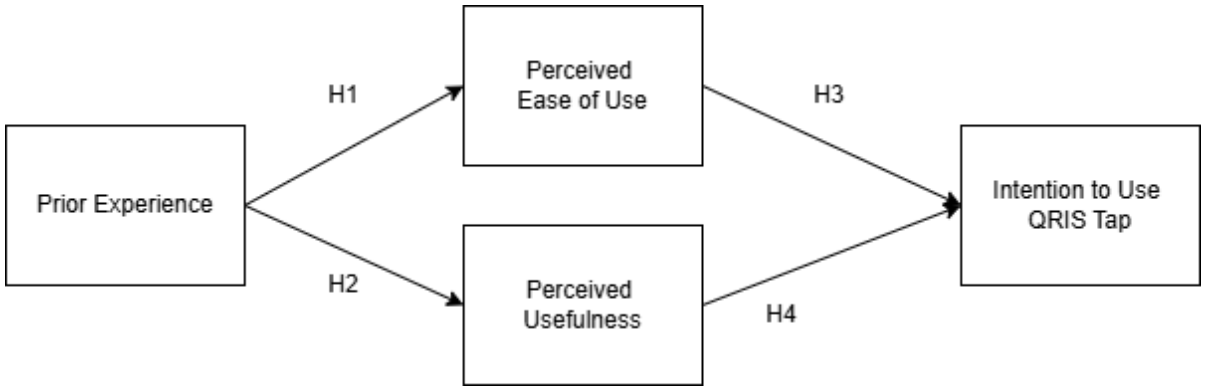

Figure 1. Conceptual Model of the Research
Source: Authors (2025)

RESEARCH AND METHODOLOGY

NFC payment users in Jakarta, Bogor, Depok, Tangerang, Bekasi or so called Greater Jakarta (Jabodetabek) are chosen as this study's population. They're individuals who have previously made transactions using NFC-based payment technology. This group is categorized as potential users of QRIS Tap because they already have experience using NFC-based payment technology and therefore have the potential to adopt QRIS Tap, which relies on similar technology.

The sample was recruited using purposive sampling, as part of nonprobability sampling (population is unknown and infinite), where the sample is determined based on predetermined criteria or aspects.

In the sampling process, the researcher determined the sample using the following criteria: 1) Owning a smartphone with NFC capabilities, and 2) Users of digital payment applications (e-wallets or mobile banking). This criterion applies because QRIS Tap is integrated with e-wallets and mobile banking. Therefore, only individuals with NFC-enabled smartphones and e-wallet and mobile banking accounts can use this technology.

Cochran's formula (1997) was used to determine sample size, as referenced in the journal by Avakiat & Roopsuwankun (2021). This is because this formula is applicable in estimating sample size when the population is large and unknown, resulting in a minimum required sample of 138. In this study, a total of 168 respondents who

have previously transacted using an NFC payment system were selected.

The complete list of items used to analyze the data collected is presented below.

Table 1. Measurement Items

Construct	Measurement Items	Source
Intention to Use	I consider using QRIS Tap.	Türker et al. (2022); Lew et al. (2020); Liébana-Cabanillas et al. (2020); Chin et al. (2020); Zhang et al. (2023); Wen & Nor (2024); Alswaigh & Aloud (2021)
	I am likely to use QRIS Tap shortly.	
	I am willing to use QRIS Tap in the future.	
	I intend to use QRIS Tap when the opportunity arises.	
	Given the opportunity, I will use QRIS Tap.	
	I will frequently use QRIS Tap in the future.	
	I intend to recommend QRIS Tap to my family or friends.	
Prior Experience	I have frequently used NFC-based payment technology in transactions.	Pal & Patra (2021); Gupta et al. (2023); Zhang & Ghorbani (2004); Humida et al. (2022); Abdullah et al. (2016); Humida et al. (2022); Lee et al. (2013); Rizun & Strzelecki (2020) Capasa et al. (2022); Angela et al. (2018)
	I often use NFC-based payment technology similar to QRIS Tap.	
	I am very familiar with the use of NFC-based payment technology.	
	I am familiar with NFC-based payment technology similar to QRIS Tap	
	I have substantial knowledge of using NFC-based payment technology.	
	I have extensive technical knowledge about NFC-based payment technology similar to QRIS Tap.	
	I have extensive information about NFC-based payment technology similar to QRIS Tap.	
	I am comfortable using NFC-based payment technology.	
	Using NFC-based payment technology is more convenient for me than other payment methods.	
	I enjoy the experience of using NFC-based payment technology.	
	I feel competent using NFC-based payment technology.	
Perceived Ease of Use	I think the interaction with QRIS Tap will be clear.	Türker et al. (2022); Hanafiah et al. (2024): Venkatesh & Davis (2000); Zhang et al. (2023)
	I think the interaction with QRIS Tap will be clear and understandable.	
	In my opinion, using QRIS Tap does not need a lot of mental effort.	
	In my opinion, it will be easy to use QRIS Tap.	
	In my opinion, it will be easy to follow all the steps of operating QRIS Tap.	
	In my opinion, it will be easy to become skillful at using QRIS Tap.	
	In my opinion, it will be easy to learn how to use QRIS Tap.	
Perceived Usefulness	I think QRIS Tap is a useful mode of payment.	Wen & Nor (2024); Türker et al. (2022); Zhang et al. (2023); Alswaigh & Aloud (2021); Cabanillas et al. (2020)
	I think using QRIS Tap will make transaction process easier.	
	I think QRIS Tap will allow me to make payment faster.	
	I think using QRIS Tap will speed up my transactions, for example, when purchasing public transportation tickets.	
	I think using QRIS Tap will improve my performance.	
	I think using QRIS Tap will increase my efficiency when making transactions.	
	I think using QRIS Tap will increase my productivity.	
	Overall, I think using QRIS Tap will be advantageous.	

Source: Authors (2025)

RESULT AND DISCUSSION

Result

Respondent Characteristics

The respondents in this study consist of 165 NFC payment users in Greater Jakarta, namely individuals who have previously conducted transactions using NFC-based payment technology. The demographic characteristics examined in this study include gender, age group, domicile, highest education level, occupation, and the type of

NFC-based payment technology previously used.

Table 2. Respondent Characteristics (N = 168)

Characteristics	Description	Frequency	Percentage
Gender	Male	85	51.5%
	Female	80	48.5%
Age Group	Gen Z (Born between 1997-2012)	96	58.18%
	Gen Y (Born between 1981-1996)	58	35.15%
	Gen X (Born between 1965-1980)	11	6.67%
Area	Jakarta	92	55.76%
	Bogor	12	7.27%
	Depok	14	8.48%
	Tangerang	23	13.94%
	Bekasi	24	14.55%
Education Level	Senior high school or equivalent	72	43.64%
	D1/D2/D3	13	7.88%
	D4 / Bachelor's Degree	71	43.03%
	Master's Degree	9	5.45%
Profession	Student	65	39.39%
	Private Sector Employee	55	33.33%
	Entrepreneur	19	11.52%
	Civil Servant / Government Employee	17	10.30%
	Unemployed	7	4.24%
	Other	2	1.21%
Types of NFC Payment Used	Electronic money cards (e.g. e-money, Brizzi, Flazz)	150	90,9%
	Mobile contactless (Tap-to-Pay by Bank Mandiri, Mega, or other similar applications.)	64	38,8%
	Contactless credit / debit cards	57	34,5%
	Smartwatch NFC	32	19,4%

Source: Authors (2025)

Regarding gender, the majority of participants in this study were male, totaling 85 individuals (51.5%), while female respondents accounted for 80 individuals (48.5%).

From an age perspective, Generation Z (1997–2012) makes up the predominant respondents in this study (96 respondents or 58.18%). This was followed by Millennials, born between 1981 and 1996, making up 35.15% (58 respondents) of the participants. The smallest proportion was Generation X, born between 1965 and 1980, with only 11 respondents (6.67%).

In terms of domicile, most respondents resided in Jakarta, with 92 individuals (55.76%). The next largest group was from Bekasi, totaling 24 respondents (14.55%), followed by Tangerang with 23 respondents (13.94%), Depok with 14 respondents (8.48%), and Bogor with 12 respondents (7.27%).

Regarding education level, most respondents had completed senior high school or its equivalent, totaling 72 individuals (43.64%). This was followed closely by respondents with a diploma IV or bachelor's degree (S1), amounting to 71 individuals (43.03%). In addition, 13 respondents (7.88%) held a diploma I/II/III, while 9 respondents (5.45%) had a master's degree (S2).

In terms of profession, the predominant group of respondents were students, totaling 65 individuals (39.39%), with the next largest group being private-sector employees with 55 respondents (33.33%), entrepreneurs or self-employed individuals with 19 respondents (11.52%), and civil servants or government employees with 17 respondents (10.30%). Furthermore, 7 respondents (4.24%) reported being unemployed, while 2 respondents (1.21%) selected "other" occupations, such as driver and web engineer.

Regarding the type of NFC-based payment technology used, the majority of respondents reported having used electronic money cards (such as e-money, Flazz, Brizzi, and similar products) for transactions, totaling 150 respondents (90.9%). This indicates that electronic money cards are the most commonly used NFC-based payment method among the respondents. In addition, 64 respondents (38.8%) reported having used mobile contactless payment, such as Tap to Pay via smartphones (e.g., Tap to Pay by Bank Mandiri, Bank Mega, or similar applications). Moreover, 57 respondents (34.5%) stated that they had used contactless debit or credit cards, while 32 respondents

(19.4%) reported having used NFC-enabled smartwatches for transactions.

Analysis of Common Method Bias (CMB)

This study calculated the inner VIF values to check CMB issue, based on Borjigin et al. (2024), Kock (2015), and Zhang et al. (2023). In Table 3, all inner VIF values range from 1.000-1.918, which are beneath the acceptable benchmark of 3.3 (Kock, 2015), confirming that this research does not suffer from common method bias.

Table 3. ***Inner VIF***

	Intention to Use	*Perceived Ease of Use*	*Prior Experience*	*Perceived Usefulness*
Intention to Use				
Perceived Ease of Use	1.918			
Prior Experience		1		1
Perceived Usefulness	1.918			

Source: Authors (2025)

Evaluation of Outer Model

Convergent and discriminant validity were measured as part of the validity test to evaluate construct validity. This study examined the outer loading values in addition to the Average Variance Extracted (AVE) in order to demonstrate convergent validity.

Table 4. ***Outer Loading***

	Intention to Use	*Perceived Ease of Use*	*Prior Experience*	*Perceived Usefulness*
ITU1	0.782			
ITU2	0.927			
ITU3	0.920			
ITU4	0.909			
ITU5	0.912			
ITU6	0.912			
ITU7	0.935			
PEOU1		0.849		
PEOU2		0.885		
PEOU3		0.879		
PEOU4		0.845		
PEOU5		0.870		
PEOU6		0.870		
PEOU7		0.888		
PEXP1			0.800	
PEXP10			0.871	
PEXP11			0.875	
PEXP2			0.822	
PEXP3			0.821	
PEXP4			0.830	
PEXP5			0.810	
PEXP6			0.774	
PEXP7			0.793	
PEXP8			0.819	
PEXP9			0.815	
PU1				0.907

PU2	0.878
PU3	0.886
PU4	0.880
PU5	0.873
PU6	0.915
PU7	0.869
PU8	0.906

Source: Authors (2025)

As shown in Table 4, all indicators for the four constructs have outer loading values ≥ 0.708 which meets the criteria from Hair et al. (2021).

Table 5. ***Construct Reliability and Validity***

	Cronbach's Alpha	*rho_A*	*Composite Reliability*	*Average Variance Extracted (AVE)*
Intention to Use	0.961	0.965	0.968	0.812
Perceived Ease of Use	0.946	0.947	0.956	0.756
Prior Experience	0.952	0.955	0.958	0.675
Perceived Usefulness	0.962	0.963	0.968	0.791

Source: Authors (2025)

Referring to Table 5, all constructs achieve AVE values higher than 0.5, which meets the convergent validity criterion suggested by Hair et al. (2021).

Table 6. ***Cross Loading***

	Intention to Use	*Perceived Ease of Use*	*Prior Experience*	*Perceived Usefulness*
ITU1	0.782	0.517	0.538	0.594
ITU2	0.927	0.705	0.622	0.773
ITU3	0.920	0.674	0.609	0.744
ITU4	0.909	0.615	0.549	0.753
ITU5	0.912	0.650	0.542	0.760
ITU6	0.912	0.632	0.617	0.749
ITU7	0.935	0.633	0.575	0.775
PEOU1	0.555	0.849	0.615	0.591
PEOU2	0.621	0.885	0.644	0.633
PEOU3	0.596	0.879	0.602	0.574
PEOU4	0.672	0.845	0.582	0.595
PEOU5	0.585	0.870	0.611	0.595
PEOU6	0.630	0.870	0.572	0.624
PEOU7	0.624	0.888	0.623	0.597
PEXP1	0.559	0.529	0.800	0.542
PEXP10	0.592	0.619	0.871	0.655
PEXP11	0.583	0.673	0.875	0.664
PEXP2	0.526	0.510	0.822	0.536
PEXP3	0.565	0.614	0.821	0.593
PEXP4	0.523	0.607	0.830	0.541
PEXP5	0.470	0.563	0.810	0.499
PEXP6	0.484	0.537	0.774	0.482
PEXP7	0.459	0.522	0.793	0.465

PEXP8	0.515	0.579	0.819	0.626
PEXP9	0.503	0.523	0.815	0.601
PU1	0.728	0.623	0.630	0.907
PU2	0.733	0.628	0.671	0.878
PU3	0.731	0.573	0.583	0.886
PU4	0.701	0.647	0.616	0.880
PU5	0.702	0.593	0.563	0.873
PU6	0.786	0.627	0.614	0.915
PU7	0.720	0.583	0.615	0.869
PU8	0.724	0.645	0.628	0.906

Source: Authors (2025)

Referring to Table 6, all measurement items correlate more highly with its designated construct than with any other construct, achieving values above 0.7, which means that each indicator meets the discriminant validity criteria based on the Cross Loading approach.

Table 7. ***Fornell-Larcker Criterion***

	Intention to Use	***Perceived Ease of Use***	***Prior Experience***	***Perceived Usefulness***
Intention to Use	0.901			
Perceived Ease of Use	0.704	0.870		
Prior Experience	0.642	0.698	0.821	
Perceived Usefulness	0.819	0.692	0.692	0.889

Source: Authors (2025)

Table 7 reveals that the AVE square roots across all constructs are greater than their corresponding inter-construct correlations, thereby satisfying the Fornell-Larcker approach to establishing discriminant validity.

Table 8. ***Heterotrait-Monotrait Ratio***

	Intention to Use	***Perceived Ease of Use***	***Prior Experience***	***Perceived Usefulness***
Intention to Use				
Perceived Ease of Use	0.736			
Prior Experience	0.670	0.732		
Perceived Usefulness	0.850	0.725	0.717	

Source: Authors (2025)

Referring to Table 8 above, all construct-to-construct HTMT ratios fall within the range of 0.670–0.850, which is below the recommended cutoff of 0.9. Hence, the model fulfills the HTMT criterion proposed by Hair et al. (2021).

Table 9. ***Cronbach's Alpha & Composite Reliability***

	Cronbach's Alpha	***rho_A***	***Composite Reliability***	***Average Variance Extracted (AVE)***
Intention to Use	0.961	0.965	0.968	0.812
Perceived Ease of Use	0.946	0.947	0.956	0.756
Prior Experience	0.952	0.955	0.958	0.675

Perceived Usefulness	0.962	0.963	0.968	0.791

Source: Authors (2025)

Referring to Table 9 above, all constructs attain Cronbach's Alpha and Composite Reliability values exceeding 0.7, demonstrating excellent reliability of the constructs (Hair et al., 2021).

Evaluation of Inner Model

The following are the R-Square values for each endogenous variable in this study.

Table 10. ***R-Square***

	R Square	***R Square Adjusted***
Intention to Use	0.707	0.704
Perceived Ease of Use	0.488	0.485
Perceived Usefulness	0.479	0.476

Source: Authors (2025)

Based on R^2 result in Table 10 above, intention to use QRIS Tap's R^2 value is 0.704, indicating that perceived ease of use and perceived usefulness explain 70.4 percent of the variation in the intention to use QRIS Tap, and the rest, 29.6 percent is accounted for by variables outside the model. This value is classified as moderate, as categorized by Hair et al. (2021). For perceived ease of use, the R^2 value is 0.485 (weak), which means that prior experience explains 48.5 percent of the variation in the perception of ease of use, and the rest, 51.5 percent is accounted for by variables outside the model. Similarly, for perceived usefulness, the R^2 value is 0.476 (weak), indicating that prior experience explains 47.6 percent of the variation in the perception of usefulness, and the rest, 52.4 percent is accounted for by variables outside the model.

Table 11. ***F-Square***

	Intention to Use	***Perceived Ease of Use***	***Prior Experience***	***Perceived Usefulness***
Intention to Use				
Perceived Ease of Use	0.124			
Prior Experience		0.952		0.920
Perceived Usefulness	0.722			

Source: Authors (2025)

In Table 11, the f^2 values indicate that prior experience exerts a large effect on both perceived ease of use (0.952) and perceived usefulness (0.920), according to Hair et al. (2021). Perceived ease of use exerts a small effect (0.124), while perceived usefulness exerts a large effect (0.722) on the intention to use variable.

Table 12. ***Q-Square***

	SSO	**SSE**	**Q^2 (=1-SSE/SSO)**
Intention to Use	1155	508,041	0,560
Perceived Ease of Use	1155	740,637	0,359
Prior Experience	1815	1815	
Perceived Usefulness	1320	844,088	0,361

Source: Authors (2025)

Based on Table 12, Q^2 value of intention to use equals to 0.560, which falls into the large category (Hair et al., 2021). Meanwhile, Q^2 value of perceived ease of use equals to 0.359 (moderate), and perceived usefulness is

0.361 (moderate).

Table 13. ***Hypothesis Testing and Path Coefficient***

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Result
Perceived Ease of Use -> Intention to Use	0.264	0.266	0.133	1.991	0.047	Supported
Prior Experience -> Perceived Ease of Use	0.698	0.694	0.076	9.218	0.000	Supported
Prior Experience -> Perceived Usefulness	0.692	0.688	0.075	9.170	0.000	Supported
Perceived Usefulness -> Intention to Use	0.637	0.635	0.132	4.825	0.000	Supported

Source: Authors (2025)

Based on hypothesis assessment displayed in Table 13, prior experience has a positive and significant effect on perceived ease of use (path coefficient = 0.698; t = 9.218 > 1.96; p = 0.000 < 0.05), emphasizing the greater the prior experience using NFC-based payment technology, the greater the perceived ease of use of QRIS Tap.

Furthermore, prior experience and perceived usefulness also shows a positive and significant effect (path coefficient = 0.692; t = 9.170 > 1.96; p = 0.000 < 0.05), emphasizing the greater the prior experience using NFC-based payment technology, the greater the perceived usefulness of QRIS Tap.

Perceived ease of use and intention to use shows a positive and significant effect (path coefficient = 0.264; t = 1.991 > 1.96; p = 0.047 < 0.05), emphasizing that as perceived ease of use of QRIS Tap increases, so does the intention to use it.

Finally, the relationship between perceived usefulness and intention to use also shows a positive and significant effect (path coefficient = 0.637; t = 4.825 > 1.96; p = 0.000 < 0.05), emphasizing that as perceived usefulness of QRIS Tap increases, so does the intention to use it.

Discussion

Drawing from the findings of this research, prior experience has a positive and significant effect on perceived ease of use. Prior experience in using NFC-based payment technology helps individuals more quickly understand how QRIS Tap works, feel confident in using it, and have a positive perception regarding the easy steps to operate it. This study's result aligns with Ayu et al. (2022), Mailizar et al. (2021), Ngabiyanto et al. (2021), and Gautam et al. (2021). Potential users utilize the knowledge and experience gained from previous use of similar technologies to assess a new system's ease of use. This occurs because individuals tend to use their past experiences as a reference when evaluating new technologies (Ayu et al., 2022). In this study, QRIS Tap is a new NFC technology evaluated as easy to use, based on respondents' previous experience using NFC-based payment systems. Therefore, individuals with experience with similar technologies tend to have an easier time understanding and operating QRIS Tap. The more often individuals interact with similar technologies, they're more likely to have a viewpoint that a technology is easy to use (Ngabiyanto et al., 2021). Experienced individuals tend to have more favorable impression regarding how easy the technology is to use, because they utilize knowledge gained from previous experience to assess new system (Mailizar et al., 2021). In this study, respondents utilized knowledge gained from prior experience with similar NFC technology that influence how they viewed QRIS Tap as an easy-to-use technology.

Next, prior experience also has a positive and significant effect on perceived usefulness. These findings indicate that prior experience with NFC-based payment technology helps individuals form positive usefulness perception of QRIS Tap, in terms of transaction speed, ease in transacting, and perceived benefits of the technology.This results align with Mailizar et al. (2021), Ngabiyanto et al. (2021), Purwanto et al. (2019), Salloum et al. (2024). Individuals with prior experience who's used to using technology-based products similar to the new technology tend to have strong perceptions of the advantage the new technology, based on their past beliefs and behaviors (Purwanto et al., 2019). Prior experience contributes to positive assessments of the technology's benefits because it develops knowledge that influences how individuals perceive the new technology as easy and useful (Mailizar et al., 2021). Individuals who are familiar with previous technology tend to recognize its benefits (Ngabiyanto et al., 2021). This is also evident in the context of QRIS Tap, where individuals with prior experience

with NFC-based payment technology tend to recognize the advantages of QRIS Tap. The more frequently a person uses technology, the more their perception of its benefits increases (Salloum et al., 2024).

Furthermore, perceived ease of use has a positive and significant effect on intention to use. The perception that QRIS Tap is easy to learn, use, and follow its operating steps, makes it easy for users to become skilled, require less mental effort, and has clear and easy-to-understand interactions will encourage high intentions to use QRIS Tap. These findings aligned with Keni et al. (2020), Ratnawati & Malik (2024), and Wen & Nor (2024). Technology that is regarded as easy to learn, thoroughly understand, and operate can increase the intention to use it (Ratnawati & Malik, 2024). Perceptions regarding how much time must be spent to learn and understand new technology determines intention in using it. (Keni et al., 2020). Individual's intention will be high if they have perception that the technology can be used efficiently and without requiring complex learning, and involves few steps in its operation (Wen & Nor, 2024). This study concurs with previous findings, showing QRIS Tap's usage intention is formed when individuals have the perception that individuals can use it easily without complex learning and operation.

Lastly, perceived usefulness has a positive and significant effect on intention to use. Ease of transactions, transaction speed, and the perception that using QRIS Tap will provide real benefits are the main factors that contribute in forming the intention. These findings aligned with Aljawder & Abdulrazzaq, (2019), Kaakour & Jnad (2025), Keni et al., (2020), Kim & Kim (2022), and Wen & Nor (2024). A stronger perception leads to a greater usage intention for NFC mobile payments. (Kaakour & Jnad, 2025). According to Wen & Nor (2024), technology that is perceived as easy, fast, and efficient will increase the likelihood of individuals being open to the use of new technologies. Individuals will have an interest in using new technology if they have a view that the technology can speed up the completion of their tasks or activities compared to previous methods (Keni et al., 2020). Therefore, when new technologies such as QRIS Tap are introduced, individuals tend to consider to use it, only if it's believed to complete the task faster. If it's perceived to increased efficiency and give ease in transactions, the higher their desire to use it. (Kim & Kim, 2022). The stronger the perception of a system's ability to enhance performance, the more likely it is to be used (Aljawder & Abdulrazzaq, 2019).

CONCLUSION

This study concludes that prior experience has a positive and significant effect on perceived ease of use (H1 accepted), indicating that greater prior experience with NFC-based payment technology increases the ease of use perception QRIS Tap. Furthermore, prior experience has a positive and significant effect on perceived usefulness (H2 accepted), meaning that greater prior experience enhances usefulness perception of QRIS Tap. In addition, perceived ease of use positively and significantly influences intention to use (H3 accepted), suggesting that higher ease of use perception increases the usage intention of QRIS Tap. Finally, perceived usefulness positively and significantly influences intention to use (H4 accepted), implying that higher usefulness perception strengthens the usage intention of QRIS Tap.

Based on these findings, several implications can be drawn for both theory and practice. Theoretically, this study delivers theoretical value to the enhancement of the Technology Acceptance Model (TAM) by demonstrating that past experience with similar technologies influences the perception of ease and usefulness of new systems, which ends up fostering the intention to use them. Practically, service providers should highlight pleasant experiences in their communication and promotional strategies. Emphasizing similarities between QRIS Tap and other NFC technologies familiar to potential users in Greater Jakarta can help strengthen perceptions of ease and usefulness. This approach may encourage them to view QRIS Tap not as a new or difficult technology, but as a practical solution that feels familiar from their past experiences. Furthermore, it is also encouraged for QRIS Tap service providers to enhance the user-friendliness of the system and ensuring that the interaction process is clear and intuitive, so that potential users can confidently navigate and complete transactions. Improving the clarity of interaction flow and system interface can further strengthen perceptions of ease of use, which in turn can positively influence the intention to use QRIS Tap. Service providers of QRIS Tap are also encourage to highlight the benefits of QRIS Tap in speeding up transactions, simplifying processes, and providing added value, across all promotional channels. Emphasizing how QRIS Tap can contribute to time efficiency and convenience will also help potential users recognize its value, which further drive their intention to use it.

This study's approach is purely quantitative. Furthermore, the scope of the variables analyzed in this study is relatively limited, so it cannot represent all factors that may contribute to shaping the phenomenon under study. In further studies, it is recommended that exploration not only focus on prior experience, but also consider other external variables.

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