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Adoption of QRIS Payment System by Generation Z: Technology Acceptance Model (TAM) Approach

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ABSTRACT: The adoption of QRIS as a digital payment option has surged significantly, particularly among Generation Z. This research seeks to analyze how factors from the Technology Acceptance Model (TAM) influence Generation Z's adoption of QRIS in Surabaya. A quantitative method was utilized with a purposive sampling technique, engaging 170 participants, and data analysis was conducted using SmartPLS 4.0. The study's findings show that Perceived Ease of Use affects Perceived Usefulness and Attitude Toward Using. Additionally, Perceived Usefulness influences Attitude Toward Using and Behavioral Intention to Use, while Attitude Toward Using affects intention, and intention affects actual use. These results enhance the significance of perceived convenience and utility in promoting the adoption of digital payment technology.

KEYWORDS: Attitude Toward Using, Behavioral Intention to Use, Perceived Ease of Use, Perceived Usefulness, QRIS

I. INTRODUCTION

The development of information technology has changed numerous elements of life, including financial payment methods. Innovations in financial technology (fintech) have accelerated Indonesia's transition toward a cashless society, where financial transactions are conducted electronically. An example of innovation is the Quick Response Code Indonesian Standard (QRIS), a QR code payment system developed by Bank Indonesia in collaboration with the Indonesian Payment System Association (ASPI), officially launched in 2019.

QRIS was launched to streamline the previously disjointed digital payment systems. This system allows users to complete payments effortlessly by scanning one universal QR code that works on various platforms. QRIS is developed to cater not only to large corporations but also to micro, small, and medium enterprises (MSMEs) and individual consumers, including younger audiences like Generation Z, identified as digital natives.

Based on data from Bank Indonesia, the volume of QRIS transactions has seen a considerable rise, particularly in East Java, climbing from 26.6 million transactions in Q3 2022 to 165.4 million transactions in Q3 2024. Surabaya was noted as the area with the highest contribution, accounting for 42.9% of the total QRIS transaction volume in East Java, demonstrating that urban populations, particularly the youth, are beginning to embrace this digital payment system.

However, when compared to other digital payment methods such as e-wallets (e.g., GoPay, OVO, Dana), QRIS is still not a primary choice. A 2023 report from the Financial Services Authority (OJK) stated that e-wallets ranked first with a usage rate of 81%, while QRIS only ranked sixth with 31% of total payment methods used. This fact indicates an interesting phenomenon: although QRIS has similar features to e-wallets in terms of convenience and efficiency, it has not yet fully gained the trust or high interest of users, especially among Generation Z.

A pertinent method for grasping the elements that affect the uptake of technology such as QRIS is the TAM developed by Davis (1989). TAM highlights that there are two main aspects that affect users' acceptance of technology: PU and PEOU, which in turn impact Attitude Toward Using, Behavioral Intention to Use, and finally Actual System Use.

Numerous earlier studies have explored the application of TAM in relation to the adoption of fintech. Several studies indicated that PEOU and PU significantly influence intentions and attitudes towards the adoption of digital payment technologies. However, several studies have shown inconsistent or minimal results, affected by the user context and technology type. This underscores the need for more focused research, particularly concerning QRIS and the Generation Z group in Indonesia.

Given this context, the goal of this study is to investigate how TAM elements impact Generation Z's use of QRIS. Assessing the effects of PU, PEOU, Attitude, and Behavioral Intention on Generation Z's decision to use QRIS for regular financial transactions is the primary goal of this study. The findings of this research aim to provide value both academically and practically, particularly for

stakeholders in the digital payment sector and regulators, in formulating effective strategies to enhance QRIS adoption among young users, who are crucial for driving Indonesia's digital economic transformation.

II. LITERATURE REVIEW AND HYPOTESIS DEVELOPMENT

Technology Acceptance Model (TAM)

One popular paradigm for describing technology adoption is TAM. This theory explains how users respond when presented with a completely new technology within a company or organization (Davis, 1989). This theory modifies belief, attitude, intention, and user-behavior relationship. TAM is frequently employed to examine how people embrace new technologies and the factors that affect the choice, acceptance, and intention to utilize an innovation (Purwanto & Budiman, 2020).

Perceived Usefulness (PU)

PU indicates the degree to which a user views a technology as beneficial (Davis, 1989). The perceived utility is vital in affecting how users adopt technology. The greater the benefit a technology provides to users, the more probable its acceptance will be. Thus, in developing technology, it is crucial to design it with its advantages considered to help users in their tasks and deliver the advantages they require

Perceived Ease of Use (PEOU)

PEOU denotes an individual's assessment of how simple it is to utilize a specific system, suggesting it demands minimal effort (Davis, 1989). When individuals view technology as simple to use and manage, they are more inclined to embrace it. The likelihood that a technology will be adopted by users increases with its ease of use. Consequently, the advancement of technology should prioritize user-friendliness to facilitate ease of use and support users in completing their tasks

Attitude Toward Using

Attitude toward use refers to an individual's favorable or unfavorable emotions when engaging in a behavior they plan to execute (Davis, 1989). Depending on how the technology is utilized, an individual's attitude toward its use signifies whether they will embrace its use in a positive or bad way. Attitudes depend on an individual's assessment, which can represent personal standards that lead to positive or negative values, where direct experience with a particular product shapes attitudes related to the intention to consume it (Utami et al., 2022).

Behavioral Intention to Use

Behavioral intention to use indicates the inclination of attitudes or actions to persist in utilizing a technology (Davis, 1989). The extent of technology utilization can be seen in the user's perspective on it, including their drive to keep using it and the urge to inspire other users. As stated by (Andy et al., 2021), the intention to use is shaped by cultural, social, personal, and psychological elements. Psychological factors affecting consumer choices consist of opinions, beliefs, and attitudes, which can shape consumer decisions, resulting in consumer interest and ultimately, a wish to utilize it.

Actual System Use

Actual system usage refers to the actual conduct when utilizing a system. A type of external psychomotor response assessed by an individual through actual involvement is known as actual system use. In line with usage, actual utilization is assessed according to the frequency of use and repeated engagement, determined by the duration spent interacting with the technology or the frequency of its usage (Andy et al., 2021). As technology usage increases, its influence on productivity and efficiency in different areas of life also rises. Thus, the higher the number of users engaging with technology, the larger the potential for enhancements and innovations that can elevate the quality of the user experience.

Perceived Ease of Use on Perceived Usefulness

PEOU and PU are two fundamental elements in TAM. The relationship between these two variables can be understood through user experience; intuitive technology design and simple operational processes enable users to more quickly understand how the system works. This leads to a rise in their view of the technology's effectiveness. Research conducted by Jatimoyo et al. (2021) and Wahyudi et al. (2021) shows that PEOU has a significant effect on PU.

H1: Perceived Ease of Use has a positive impact on Perceived Usefulness in the use of QRIS in generation Z. Perceived Ease of Use on Attitude Toward Using

TAM claims that the PEOU significantly influences attitude. The simplicity of a technology can influence a person's feelings about using it. When technology is easy to use, it significantly improves users' pleasure in using that technology. Conversely, if users have trouble or frustration when using technology, negative attitudes such as boredom or dissatisfaction can arise. Research conducted by Setyawati (2020), Wahyudi et al. (2021), and Utari & Pertiwi (2021) shows that PEOU has significant effect on attitude toward using the technology.

H2: Perceived Ease of Use has a positive impact on Attitude Toward Using in the use of QRIS in generation Z. Perceived Usefulness on Attitude Toward Using

PU can influence a person's attitude in accepting new technology because of the increased performance resulting from using the technology. A user's level of satisfaction with a technology or system can be assessed or predicted by its benefits. If a technology offers numerous benefits, it will significantly increase user satisfaction. Research conducted by Setyawati (2020), Aprilia & Santoso (2020), and Utari & Pertiwi (2021) shows a significant effect between PU and attitude toward use.

H3: Perceived Usefulness has a positive impact on Attitude Toward Using in the use of QRIS in generation Z.

Perceived Usefulness On Behavioral Intention to Use

PU significantly influences a person's choice to embrace technology. When users see a technology as offering tangible advantages, like saving time, easy access to information, or boosting productivity, they tend to develop favorable intentions toward utilizing that technology. Research conducted by Sulistyowati & Dermawan (2024), Wardiani & Purwanto (2022), and Pertiwi et al. (2022) shows that perceived usefulness positively influences behavioral intention to use.

H4: Perceived Usefulness has a positive impact on Behavioral Intention to Use in the use of QRIS in generation Z. Attitude Toward Using on Behavioral Intention to Use

A person's positive or negative assessment of a specific action, influenced by their beliefs regarding the outcomes of that action, is known as their attitude toward behavior. When people maintain an optimistic outlook on a behavior, they usually show greater dedication to it. A heightened positive outlook on using a technology significantly boosts their intention to embrace that technology. Research conducted by Aprilia & Santoso (2020) and Setyawati (2020) shows that the Attitude Towards Using variable has a significant effect on Behavioral Intention.

H5: Attitude Toward Using has a positive impact on Behavioral Intention to Use in the use of QRIS in generation Z. Behavioral Intention to Use on Actual System Use

A person's preparedness to engage in a particular action, such as using a technology or system, is reflected in their behavioral intention. A person's level of technology use in an application can be anticipated based on their perception of the application, including the frequency of use and the need for the technology. Research conducted by Aryanto & Farida (2021) and Rohman et al. (2023) shows a significant influence between the behavioral intention use variable and actual use.

H6: Behavioral Intention to Use has a positive impact on Actual System Use in the use of QRIS in generation Z.

III. RESEARCH METHODS

The method of research employed in this study is quantitative. The data utilized are primary data gathered by distributing questionnaires that employ a Likert Scale as the response interval scale. The sampling method employed is purposive sampling, focusing on Generation Z individuals aged 17-28 years, residing in Surabaya, who are currently using or have previously used QRIS as a means for financial transactions. A total of 175 participants completed the survey, but only 170 were utilized as they met the criteria. The information gathered in this research was examined utilizing the SEM-PLS approach with assistance from SmartPLS 4 software. The assessments conducted included the outer model to evaluate the validity and reliability of the data, as well as the inner model to examine the R-Square value and the connections among variables.

IV. RESULTS AND DISCUSSIONS

This study involved 170 respondents categorized by gender, age, and occupation. Based on gender, most respondents were female (60.6%), while the majority were male (39.4%). Based on age group, most respondents were aged 21-24 (55.3%), a productive age group accustomed to using technology in their daily activities. Based on occupation, most respondents were students (57.6%).

Outer Model

Table 1. *Outer Loading*

	Perceived Usefulness (X1)	*Perceived Ease of Use* (X2)	*Attitude Toward Using* (Z)	*Behavioral Intention to Use* (Y1)	*Actual System Use* (Y2)
X1.1	0.891				
X1.2	0.883				
X1.3	0.885				
X1.4	0.907				
X2.1		0.843			
X2.2		0.814			
X2.3		0.818			
X2.4		0.815			
Z1			0.865		
Z2			0.879		
Z3			0.859		
Y1.1				0.869	
Y1.2				0.868	
Y1.3				0.847	
Y2.1					0.886
Y2.2					0.844
Y2.3					0.866

Source: Data Processed, 2025

According to the findings in the table above, every indicator in this research demonstrated an outer loading value exceeding 0.7. As stated by Hair et al. (2017), this figure shows that each element within the variables of PU, PEOU, attitude toward using, behavioral intention to use, and actual system use has satisfied validity criteria.

Table 2. ***Construct Reliability & Validity***

	Cronbach's alpha	Composite reliability	Average Variance Extracted (AVE)
Perceived Usefulness (X1)	0.914	0.939	0.795
Perceived Ease of Use (X2)	0.842	0.894	0.677
Attitude Toward Using (Z)	0.835	0.901	0.752
Behavioral Intention to Use (Y1)	0.826	0.896	0.742
Actual Use System (Y2)	0.833	0.899	0.749

Source: Data Processed, 2025

According to the findings in the table above, as stated by Hair et al. (2017), every variable in this research exhibited an AVE value exceeding 0.5. Consequently, in summary, the factors in this research can be considered to possess strong validity. Additionally, regarding Cronbach's alpha and composite reliability, Hair et al. (2017) indicated that all variables in this research exhibited values higher than 0.7. Consequently, on the whole, the factors in this research can be regarded as dependable.

Inner Model

Table 3. ***R-Square***

	R-square
Perceived Usefulness	0.369
Attitude Toward Using	0.672
Behavioral Intention to Use	0.649
Actual Use System	0.377

Source: Data Processed, 2025 According to the table provided, it is evident that:

a. The Perceived Usefulness Variable's R-Square value is 0.369, indicating that 36.9% of this variable can be accounted for by the PEOU variable. It can be determined that the structural model for these variable falls under the "weak" model category, with the remaining 63.1% affected by other factors not accounted for in the model

b. The Attitude Toward Using variable's R-Square value is 0.672, indicating that the PEOU variable accounts for 67.2% of this variable's explanation. In conclusion, the structural model for this variable falls under the "moderate" model category, and the other 32.8% is affected by external factors not represented in the model.

c. The Behavioral Intention to Use variable's R-Square value is 0.649, indicating that the PEOU variable accounts for 64.9% of its explanation. It can be inferred that the structural model for this variable falls within the "moderate" model category, with the remaining 35.1% affected by other factors not accounted for in the model.

d. The Actual System Use variable's R-Square value is 0.377, indicating that the PEOU variable accounts for 37.7% of this variable. It can be inferred that the structural model for this variable falls under the "weak" model category, with the other 62.3% being affected by factors not incorporated in the model.

Hypothesis Testing

Table 4. *Path Coefficients (Mean, STDEV, T-Values)*

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Perceived Ease of Use -> Perceived Usefulness	0.608	0.606	0.057	10,574	0.000
Perceived Ease of Use -> Attitude Toward Using	0.422	0.425	0.054	7,872	0.000
Perceived Usefulness -> Attitude Toward Using	0.491	0.486	0.062	7,962	0.000
Perceived Usefulness -> Behavioral Intention to Use	0.464	0.462	0.062	7,473	0.000
Attitude Toward Using -> Behavioral Intention to Use	0.398	0.395	0.068	5,831	0.000
Behavioral Intention to Use -> Actual Use System	0.614	0.601	0.093	6,612	0.000

Source: Data Processed, 2025

A. The Influence of Perceived Ease of Use on Perceived Usefulness

The research results indicate that Generation Z's view of QRIS's usefulness is affected by how easy they think it is to use. In other words, the stronger Generation Z's confidence in the simplicity of QRIS, the more likely they are to view QRIS as a useful system for efficiently and flexibly handling their financial tasks. This outcome is consistent with research by Jatimoyo et al. (2021), which found that the application's usability increases users' perceptions of its value. Additionally, another research by Wahyudi et al. (2021) revealed that PEOU positively and significantly influences PU.

B. The Influence of Perceived Ease of Use on Attitude Toward Using

The research results indicate that the PEOU affects Generation Z's attitudes toward QRIS. This means that as Generation Z finds QRIS easier and more adaptable to use, the chances of forming a positive attitude toward utilizing QRIS for everyday digital transactions rise. The findings of this research correspond with Setyawati's (2020) study, indicating that PEOU affects attitudes toward utilizing GoPay. Moreover, other research by Wahyudi et al. (2021) and Utari & Pertiwi (2021) similarly indicates that PEOU positively and significantly influences attitudes toward using.

C. The Influence of Perceived Usefulness on Attitude Toward Using

The study's findings suggest that perceived usefulness influences Generation Z's attitudes toward QRIS usage. In other words, the more Generation Z recognizes the advantages of QRIS, such as transaction efficiency, the more favorable their attitudes become toward adopting QRIS as a digital payment option. This result aligns with the research done by Setyawati (2020), which indicates that perceived usefulness affects attitudes toward using. In addition, research conducted by Aprilia & Santoso (2020) and Utari & Pertiwi (2021) also shows a significant influence between PU and attitudes toward using.

D. The Influence of Perceived Usefulness on Behavioral Intention to Use

The research results indicate that perceived usefulness affects Generation Z's intention to adopt QRIS. This implies that as Generation Z acknowledges the benefits of QRIS, especially in terms of efficiency, their intent to regularly use QRIS in daily activities rises. This result aligns with the study carried out by Sulistyowati and Dermawan (2024), which showed that PU has a significant effect on the intention to use the GoPay e-wallet. Moreover, studies by Wardiani & Purwanto (2022) and Pertiwi et al. (2022) revealed that PU positively and significantly influences the interest in utilizing the Jenius application.

E. The Influence of Attitude Toward Using on Behavioral Intention to Use

The findings of the research show that attitude toward usage influences behavioral intention to utilize QRIS among Generation Z. This suggests that the more favorable Generation Z's perceptions of QRIS are like feeling pleased or at ease while using it the greater their inclination to regularly incorporate QRIS into their daily routines. This result aligns with the study by April ia and Santoso (2020) which shows that attitudes toward using OVO have a significant influence on behavioral intention to use. In addition, another study conducted by Setyawati (2020) shows that attitude toward using has a significant effect on behavioral intention.

F. The Influence of Behavioral Intention to Use on Actual System Use

The findings of the research show that attitude toward usage influences behavioral intention to utilize QRIS among Generation Z. This suggests that the more favorable Generation Z's perceptions of QRIS are like feeling pleased or at ease while using it the

greater their inclination to regularly incorporate QRIS into their daily routines. This result aligns with the study by April ia and Santoso (2020) which shows that attitudes toward using OVO have a significant influence on behavioral intention to use. In addition, another study conducted by Setyawati (2020) shows that attitude toward using has a positive and significant effect on behavioral intention.

V. CONCLUSIONS

Based on the examination of the impact of elements in TAM on QRIS adoption by Generation Z in Surabaya City, it can be determined that PEOU positively affects PU and attitude towards usage. Additionally, PU impacts attitudes and behavioral intentions towards usage, which subsequently affect actual system use. This suggests that the younger generation is likely to embrace payment technologies like QRIS when they find the technology user-friendly and truly beneficial for their everyday activities. This finding highlights the need to enhance education and user experience to reinforce the perception of QRIS's ease and advantages. Consequently, service providers should enhance the technical features and communication of QRIS to stay competitive with other digital payment options and foster broader acceptance among the digital generation.

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