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The Adoption of an Integrated QR Code Payment System of Indonesian MSME: An Extended Tam Approach

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KEYWORDS
Perceived Ease-of-Use, Attitude Towards Usage, Self-Efficacy, Extended TAM, QR Payment

ABSTRACT
Following the outbreak of COVID-19, the Indonesian government is promoting the use of QR codes, especially for electronic payments through QRIS. This study addresses the gap in previous research by incorporating the role of individual differences, specifically self-efficacy, in predicting user behavior. This study aims to identify factors influencing the adoption of QR codes by MSMEs, quantify the influence of these factors, develop a conceptual model that extends the Technology Acceptance Theory, and provide practical recommendations to increase the adoption of QR Code payment technology among Indonesian MSMEs. To better understand QRIS adoption, this study utilized an online survey to collect data from 467 micro businesses in Jakarta that adopted QRIS. Our findings from SEM-PLS show that self-efficacy does not mediate between intention to use and QRIS adoption. However, self-efficacy positively influences QRIS adoption. In addition, this study found that trust positively influences attitude towards use and attitude towards use influences intention to use QRIS.

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INTRODUCTION

Before the onset of the COVID-19 pandemic, most of the Indonesian populace preferred cash-based transactions over cashless payments (Azali, 2016). Cashless payments entail financial transactions conducted without the involvement of physical currency (Bilińska-Reformat & Kieżel, 2016). In response to the COVID-19 pandemic, governmental authorities advocated for a transition towards cashless transactions, which granted a positive reception from the public and Micro, Small, and Medium Enterprises (MSMEs) as they adapted to the new average era, particularly in the realm of transactional processes (Muller & Kazantsev, 2021).

In the context of Indonesia, the Quick Response Code Indonesia Standard (QRIS) represents a common method for conducting cashless payments. QRIS is a comprehensive system integrating various QR code formats from different payment system service providers (PJSP) within Indonesia into a unified QR code (Abebe & Lessa, 2020). Developed in early 2020 through collaborative efforts between the payment system industry and the central bank, Bank Indonesia, QRIS aims to streamline and enhance the transaction process by rendering QR code-based payments more accessible, faster, and secure. Nevertheless, despite its potential, QRIS has yet to achieve full-fledged implementation in commercial enterprises, particularly among MSMEs. As of April 2023, 25.4 million of the estimated 66 million MSMEs had adopted QRIS as a viable payment option (Dhagarra et al., 2020).

This research centres on examining Micro, Small, and Medium Enterprises (MSMEs) operating at the micro business scale within DKI Jakarta province. Jakarta has displayed indications of being an early adopter of cashless payment systems, which have been facilitated by Third-Party Payment Providers (Rafferty & Fajar, 2022). Moreover, data obtained from Bank Indonesia reveals that micro business scale is dominant among DKI Jakarta MSMEs that use QRIS in 2022.

The Technology Acceptance Model (TAM) by Davis (1989) has been widely used by prior researchers on purchasing behavior (Ramdani & Sutarman, 2024). The Technology Acceptance Model addresses external variables influencing perceived usefulness and ease of use. In numerous prior studies on consumer behaviour, trust has emerged as a significant factor impacting online shopping experiences. Trust plays a crucial role in online transactions involving debit cards, credit cards, bank transfers, and similar methods. Additionally, in the Technology Acceptance Model, an individual's intention to use technology is influenced by their attitude towards its usage, as well as the direct and indirect impacts of their perception of how easy it is to use and how useful it is perceived to be (Almaiah et al., 2022). Furthermore, this study contributes by extending the TAM with trust and determining the moderating effect of self-efficacy to analyze its relationship with the actual use of QR payment (QRIS).

The concept of self-efficacy was identified as a research gap in the study. The author argues that previous research on adopting the use of QRIS Payment has considered the role of individual differences, such as self-efficacy, in predicting user behavior (Shaikh et al., 2020). The researchers stated that there is a significant gap in the mobile payments literature regarding actual usage, as usage models are primarily based on intention to use (Azali, 2016). Mobile payments are a relatively new technology that is still in its early stages of widespread adoption. However, there needs to be more sufficient research investigating habits' influence on this technology (Ambalov, 2021). In addition, there still needs to be more studies that focus on adopting mobile payment from a merchant' perspective (Moghavvemi et al., 2021). Thus, to fill the gap, this study developed a model to explore factors affecting the adoption of QR Payment (QRIS) by MSMEs in Indonesia. The primary aim of this research paper is to assess merchants' attitudes concerning the usability of QRIS, incorporating factors such as perceived usefulness, perceived ease of use, and trust as the element of self-efficacy (Almajali et al., 2022).

The research benefits include contribution to the literature by providing a better understanding of the adoption of QR Code payment technology among Indonesian MSMEs, as well as practical relevance by providing guidance for stakeholders in improving marketing strategies and related policies.

The research aims to identify factors that influence the adoption of QR Code by MSMEs, measure the influence of these factors, develop a conceptual model that extends the Theory of Technology Acceptance, and provide practical recommendations to increase the adoption of QR Code payment technology among Indonesian MSMEs. As such, this research is expected to make a meaningful contribution in advancing the understanding and implementation of QR Code payment technology at the MSME level in Indonesia.

METHOD

This empirical study uses quantitative techniques to examine the relationship between components of the Extended Technology Acceptance Model (TAM) and additional variables, such as perceived usefulness, perceived ease of use, trust, intention to use, self-efficacy, and actual use QRIS payment system. The type of primary data used is primary data obtained by distributing questionnaires electronically to MSME business owners. Sampling was carried out using non-

probability sampling. The nonprobability sampling technique used was purposive sampling. The criteria for respondents in this research are micro-scale MSMEs in DKI Jakarta that have implemented QR Payment (QRIS) as their payment system of choice. 539 respondents were collected from September 13, 2023 to December 11, 2023. Furthermore, data about these respondents underwent a data cleaning process to obtain a refined sample size of 467. The tool used to test the hypothesis is the partial least squares structural equation model (PLS-SEM).

RESULT AND DISCUSSION

Respondent Profile

The study examined a sample of respondents of MSMEs on the scale of micro-businesses in DKI Jakarta that have implemented QR Payment (QRIS) as their payment system option. The study received diverse business types, majorly from culinary business with 34.7% (n=162), fashion business with 30% (n=140), and creative products business with 12.6% (n=59). In terms of the length of time the business has been operating, dominantly 3-5 years for 61.9% of respondents (n=289), followed by less than three years of business operation for 28.7% (n=134). The number of workers represented the largest group at 84.3% (n=394) with less than ten workers, as the study is limited to only micro businesses. In terms of the length of time, they are using QRIS as a payment system, dominantly for 6 to 12 months of usage with 51.4% (n=240), followed by less than six months with 27.8% (n=130) (Barry & Jan, 2018).

Table 1: Respondent Profile

Profile	Results
Type of Business	Culinary = 34.7% (n = 162)
	Fashion = 30% (n = 140)
	Education = 4.5% (n = 21)
	Automotive = 4.1% (n = 19)
	Agribusiness = 2.8% (n = 13)
	Tour & Travel = 2.8% (n = 13)
	Creative Products = 12.6% (n = 59)
	Technology = 1.9% (n = 9)
	Beauty = 4.5% (n = 21)
	Health = 0.2% (n = 1)
	Etc. = 1.9% (n = 9)
Business Tenure	< 3 years = 28.7% (n = 134)
	3-5 years = 61.9% (n = 289)
	5-10 years = 8.6% (n = 40)
	> 10 years = 0.8% (n = 4)
Number of Worker	< 10 people = 84.3% (n = 394)
	10-19 people = 14.6% (n = 68)
	20-100 people = 1.1% (n = 5)
	> 100 people = 0% (n = 0)
QRIS Payment Duration	< 6 months = 27.8% (n = 130)
	6-12 months = 51.4% (n = 240)
	1-2 years = 17.6% (n = 82)
	> 2 years = 3.2% (n = 15)
Sex of the Respondent (owner/manager)	Male = 69.6% (n = 325)
	Female = 30.4% (n = 142)
Last Education of the Respondent (owner/manager)	Elementary School = 0% (n = 0)
	Middle School = 0.2% (n = 1)
	High School = 34.7% (n = 162)
	Diploma = 3.2% (n = 15)
	Bachelor's Degree = 60% (n = 280)
	Master's Degree = 1.9% (n = 9)
	Doctoral Degree = 0% (n = 0)

Model Fit Measure

The assessment of model fit was conducted employing two evaluative models: the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI) (Sahoo, 2019). A model exhibits a satisfactory fit when the SRMR value is below 1.00 (Taasoobshirazi & Wang, 2016).

Table 2: Model Fit

	Saturated Model	Estimated Model
SUMMER	0.068	0.091
d_ULS	1.622	2.922
d_G	0.445	0.504
Chi-square	1205.080	1266.350
NFI	0.769	0.757

Table 2 illustrates that the SRMR value is 0.068, indicating that the model is adequately fit for observation. Furthermore, the Normed Fit Index (NFI) is an additional measure of suitability (Kozakiewicz et al., 2022). NFI values range between 0 and 1, with a value close to 1 signifying a good fit. The calculated NFI value in this study is 0.769. Given that this value falls within the acceptable range between 0 and 1, it can be concluded that the model demonstrates a good fit.

Our study focuses on the audience of merchants in DKI Jakarta who have adopted QRIS as a payment method, ranging from those using it for less than six months to over two years. Consequently, our research showcases a clear connection among various suggested possibilities based on the assembled audience. To assess the associations between the independent and dependent variables, such as perceived usefulness, perceived ease-of-use, trust, attitude towards usage, intention to use, actual use, and self-efficacy in this study, the data analysis results from PLS-SEM are presented in Table 3 below.

Table 3: Final Causal Model Coefficients

	Original Sample (0)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|0/STDEV|)	P Values	Conclusion
H1: PU -> ATU	0.247	0.238	0.145	1.705	0.088	Rejected
H2: PEOU -> ATU	-0.117	-0.108	0.136	0.862	0.389	Rejected
H3: TR -> ATU	0.606	0.612	0.077	7.916	0.000	Accepted
H4: ATU -> ITU	0.900	0.901	0.035	25.909	0.000	Accepted
H5: ITU -> AU	0.050	0.044	0.105	0.470	0.638	Rejected
H6: SE x ITU -> AU	0.021	0.022	0.044	0.470	0.638	Rejected
SE -> AU	0.825	0.837	0.117	7.038	0.000	

Table 3 shows that hypotheses H3 and H4 are accepted by showing P values < 0.05 with a positive relationship. While numerous researchers commonly investigate trust concerning the intention to use or adopt technology, they frequently neglect to explore the relationship between trust and attitude. This study finds that trust is an essential factor influencing user attitudes towards QRIS payment (Saripudin et al., 2023). This study also proves that attitude plays a positively significant role in the intention to use QRIS, consistent with the results from (Kasilingam, 2020). However, while true for trust and attitude, we found that H1, H2, H5, and H6 are rejected by showing a P value > 0.05. There is no significant relationship between perceived usefulness and perceived ease of use towards attitude. This finding may indicate that businesses' attitudes regarding a QRIS payment system are independent of its usefulness and how easily they perceive it to be used. This finding would suggest that people do not sometimes have a favourable attitude about something even when they realize its potential benefit and perceived ease of use. It might imply that variables other than perceived usefulness and ease of use, such as trust, are more critical in determining attitudes in this specific situation. More investigation or careful study of particular contextual aspects would be required to obtain a more profound comprehension of the dynamics shaping attitudes in this environment.

The study suggests no significant relationship exists between intention to use and the actual use of QRIS payment. The result may imply that the businesses desire to adopt QRIS but are encountering challenges or situations that prevent the QRIS payment from being implemented. By that, it would suggest that variables other than purpose—like outside obstacles, natural user experience, or unanticipated difficulties—are essential in influencing the uptake and application of QRIS payment systems. This research, however, has anticipated that gap by incorporating the role of individual difficulties, specifically self-efficacy, in predicting the adoption. Self-efficacy is a construct that reflects an individual's evaluation of their ability to execute a specific task successfully. However, the result shows that self-efficacy did not mediate between the intention to use and the adoption of QRIS. The discovery implies that people's faith in their competence to use the technology did not substantially impact the relationship between their intention and its adoption. However, as seen in Table 5, self-efficacy positively influences the adoption of QRIS. While self-efficacy independently contributes to QRIS adoption, it may not always play a role in converting intention to actual adoption. This finding would suggest that, regardless of their initial aim, businesses with greater levels of self-efficacy are more likely to embrace QRIS. More research may be required to fully comprehend the precise mechanisms by which intention to use and self-efficacy influence QRIS adoption.

CONCLUSION

In this study, we investigate the parameters influencing MSMEs in Indonesia's actual adoption of QR Payment (QRIS), considering elements like perceived usefulness, perceived ease of use, trust, and self-efficacy. This study found that the perceived usability and ease of use do not affect attitudes towards QRIS. However, the level of trust plays a positive and significant role in shaping the attitude. Attitude towards usage also positively and significantly impacts the intention to use QRIS. Even with this, the intention to use QRIS does not affect actual use. In addition, self-efficacy moderation does not affect the relationship between intention to use and attitude towards use. The implication is that QRIS providers need to focus on strengthening customer trust and attitude factors to increase QRIS adoption, understanding that intention to use does not necessarily directly impact actual use. Based on the results of this study, the managerial effort is to improve marketing and education strategies related to QRIS by focusing efforts on building trust and positive attitudes towards using QRIS. Although limited in scope, this study highlights ways to comprehend better and enhance human-technology interactions.

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