

## The impact of QRIS on transaction efficiency, income growth, and financial management in Palu MSMEs

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### Abstract

This study aims to examine the effect of QRIS implementation on transaction efficiency, income growth, and financial management of micro, small, and medium enterprises (MSMEs) in Palu City. The data were collected through questionnaires completed by 91 MSME owners and analyzed using SmartPLS. The results indicate that QRIS makes a meaningful contribution to accelerating transaction processes and improving service convenience. The implementation of QRIS has also been shown to increase income by attracting more customers and boosting sales turnover. Furthermore, QRIS assists business owners in managing their finances more systematically through automatic transaction records and clearer cash flow monitoring. These findings confirm that QRIS plays an important role in supporting MSME performance in the digital era.

**Keywords:** *QRIS, transaction efficiency, MSMEs income, financial management.*

### Introduction

The development of information and communication technology has driven the emergence of the digital economy, transforming how economic systems operate, including through the growth of e-commerce. E-commerce offers various benefits, such as reducing administrative costs, accelerating business processes, and strengthening relationships between business actors and consumers. To support these activities, an internet-based payment system is needed to replace manual methods. In recent years, many marketplace platforms have adopted QR code-based payment systems, gradually shifting consumer behavior from cash transactions to cashless payments (Puriati et al., 2023).

This shift in transaction behavior is closely linked to the growing role of financial technology (fintech). Fintech refers to innovations that integrate financial services with digital technologies to modernize traditional business models, particularly by enabling online payments and transactions that previously relied heavily on cash. Beyond simplifying digital payments, fintech leverages information technology to enhance the quality and accessibility of financial services and to drive broader business transformation, thereby strengthening the financial services industry (Pebriyanti et al., 2024).

One of the most crucial breakthroughs in Indonesia's digital payment ecosystem is the implementation of the Quick Response Code Indonesian Standard (QRIS). This initiative, introduced by Bank Indonesia, aims to facilitate cashless transactions through the standardization of QR code usage. QRIS is expected to improve transaction efficiency, expand financial inclusion, and support the growth of the digital economy, particularly for micro, small, and medium enterprises (MSMEs). Accordingly, QRIS serves as a relevant alternative for simplifying payment processes, expanding market reach, and reducing

society's dependence on cash (Chyntia et al., 2025).

The use of QRIS also provides significant benefits for MSMEs' financial management. Through the adoption of electronic payments, business owners can record and track each transaction more accurately and in a measurable manner. This helps them manage and monitor cash flow, while also generating more reliable financial data to support decision-making. In addition, the shift from cash to digital transactions reduces the risk of fund loss or theft, as all payments are processed electronically (Alfiana et al., 2025).

The development of digital payment systems in Indonesia is expected to continue strengthening, as reflected in the increasing adoption of the Quick Response Code Indonesian Standard (QRIS). According to payment system statistics compiled by *aspi-indonesia* (2025). The number of QRIS users has shown a steady upward trend since 2022, rising from approximately 18 million users in the early period to around 56 million users by the first quarter of 2025. This growth indicates a growing public preference for cashless transactions, which are widely perceived as more practical, faster, and efficient.

The implementation of QRIS has brought significant changes to Indonesia's digital transaction system. Palu City, as part of Central Sulawesi, has also experienced this transformation, as reflected in the increasing number of MSMEs using QRIS to speed up payment processes and broaden their customer reach. With the convenience and efficiency it provides, QRIS is considered to have strong potential to enhance the income and overall performance of MSMEs in Palu City.

Although many studies suggest that QRIS can improve transaction efficiency and business performance, the results have not been entirely consistent across different regions, as they are influenced by variations in regional characteristics, levels of digital literacy, and the availability of infrastructure. In addition, many MSMEs still face challenges in financial management, particularly in transaction recording and cash flow control. Therefore, this study was conducted to provide empirical evidence on the impact of QRIS implementation on transaction efficiency, revenue growth, and financial management among MSMEs in Palu City.

The relevance of this study can be understood through the Technology Acceptance Model (TAM) proposed by Davis (1989), which explains how individuals accept information systems. In this model, the adoption of a technology is influenced by the user's behavioral intention. This intention is shaped by two main perceptions: the perceived usefulness of the technology in supporting task performance and the perceived ease of use of the technology.

Therefore, it is important to understand how MSME owners perceive the benefits and ease of use of QRIS, as these perceptions are directly related to the extent to which the technology can improve transaction efficiency, increase income, and enhance the quality of business financial management. This view is consistent with the findings of Widowati et al. (2022), which emphasize that TAM is a model used to examine users' responses to a technology, whether in the form of acceptance or rejection.

Technology plays a significant role in improving the efficiency of various activities, particularly in payment processes. The launch of QRIS by Bank Indonesia represents a strategic step toward strengthening efficiency in digital transactions. This initiative, developed in collaboration with the Indonesian Payment System Association (ASPI), is intended to simplify digital payment transactions, enhance the functioning of the payment system, and accelerate the achievement of digital-based financial inclusion (Kusnandar et

al., 2024).

Several factors encourage consumers to choose QRIS as a digital payment method, including ease of use, an adequate level of security, and the development of trust that transactions can be conducted safely. In addition, QRIS is perceived as providing various benefits to users, while the risks associated with its use are relatively low, according to (Buluati et al., 2023).

The presence of QRIS as a digital payment instrument provides convenience for MSMEs in conducting transactions quickly and efficiently. This convenience is not only related to the payment process itself but also to its simple usage, which allows users to operate it without spending much time learning how it works. This indicates that the higher the level of ease associated with a technology, the greater the likelihood that it will be accepted and adopted by users (Sholihah & Nurhapsari., 2023).

*H1: The implementation of QRIS has a positive effect on transaction efficiency among MSMEs.*

Revenue is one of the most important elements in business activities, as it reflects the outcomes achieved during the operational process. For micro, small, and medium enterprises (MSMEs), revenue represents the primary objective of running a business, as it is used to meet operational needs, maintain business sustainability, and support business development toward success. Business success is generally measured through several indicators, including the amount of capital, revenue levels, sales volume, output produced, and the number of workers involved (Adetia, 2023).

QRIS plays an important role in facilitating smoother transactions for MSMEs while enhancing the security of business revenue. The implementation of QRIS has a positive impact on the daily income of MSMEs, as indicated by an increase in revenue of approximately 5–10% per day after its adoption. Moreover, during weekends, particularly on Saturdays and Sundays, some merchants experience a more significant rise in income. This increase is expected to expand financial inclusion among MSME actors and strengthen the growth of the digital economy in Indonesia (Alifia et al., 2024).

The utilization of QRIS as a digital payment system has a positive and significant impact on increasing the income of MSMEs. Its implementation improves transaction efficiency, speeds up the payment process, and provides greater convenience for customers, which in turn contributes to higher sales volumes. Therefore, adopting QRIS is not merely a response to digital technological advancements, but also a strategic step to support income growth and enhance the competitiveness of MSMEs in the digital economy era (Maulana & Subroto, 2025).

*H2: The implementation of QRIS has a positive effect on increasing MSME income.*

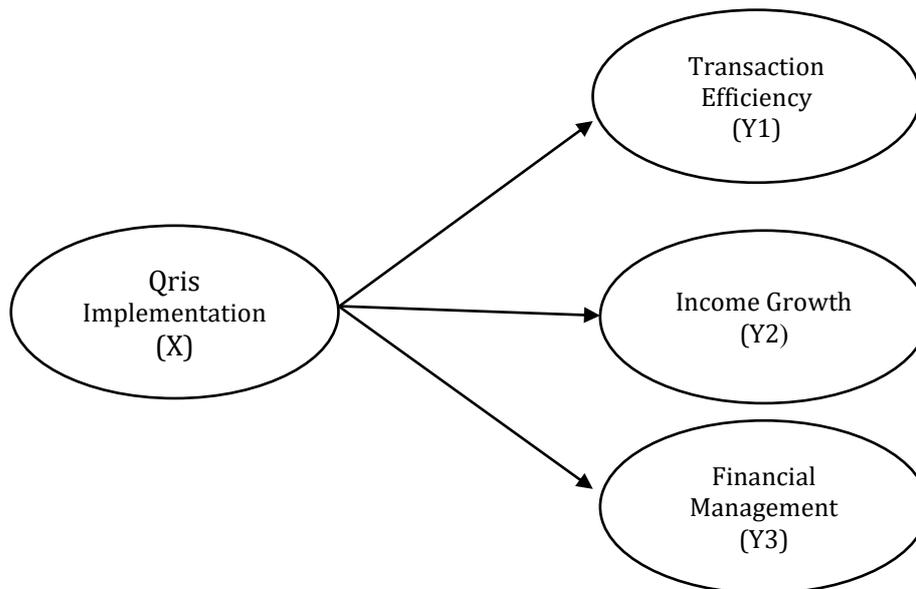
The majority of MSME actors consider financial knowledge and skills in financial management to be essential, leading them to continuously improve their financial literacy and capabilities in running their businesses. In addition, they perceive that the use of QRIS facilitates the preparation of financial reports, as each payment transaction is automatically recorded. Based on these benefits, MSME actors choose QRIS as one of the payment methods used in their business transaction activities (Palupi et al., 2022).

The presence of QRIS as a digital payment method generally provides substantial support for transparency in the financial management of MSMEs. Prior to using QRIS, their financial recording practices and transparency tended to be poorly organized. However,

after the implementation of QRIS, business financial management becomes more structured, transparency increases, and the process is considered safer and more secure (Hasanani et al., 2024).

The use of QRIS as part of financial technology innovation can contribute to more organized and structured financial management among MSMEs. Through this system, every transaction is recorded automatically, making it easier for business owners to handle bookkeeping, prepare financial reports, and maintain proper financial control. With a more practical and integrated system, MSME actors are able to monitor their cash flow in a more systematic way while reducing the risk of recording errors or potential misuse of funds. Therefore, QRIS serves not only as a digital payment tool but also as a supportive mechanism for improving the overall quality, effectiveness, and efficiency of business financial management (Hani, 2025).

*H3: The implementation of QRIS has a positive effect on MSMEs' financial management.*



**Figure 1. Conceptual Framework**

## Methods

This study adopts a quantitative approach with a descriptive and inferential research design. It is confirmatory in nature, as it aims to test hypotheses and examine the effect of QRIS implementation on the variables under investigation. The study utilizes primary data collected through a survey instrument employing a seven-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree.” According to data from the Office of Cooperatives, MSMEs, and Labor of Palu City, the number of MSMEs in Palu City during the 2023–2024 period was approximately 1,050.

To determine the number of respondents, this study refers to the formula developed by Krejcie & Morgan. (1970), resulting in a required sample size of 91 MSMEs. The selection of a 10% margin of error was based on time constraints and limited access to respondents; however, it still allows the sample to adequately represent the population in social research. The sampling technique employed was purposive sampling, whereby MSMEs that had adopted QRIS were deliberately selected to align with the research objectives. Potential

nonresponse bias was minimized through assisted questionnaire completion, and respondent representativeness was ensured by involving MSMEs of various types and business scales in Palu City.

**Table 1. Research Variable Indicators and Measurement Scale**

Variable	Indicators
Qris Implementation	X.1 Ease of use of the payment system X.2 Security of cashless transactions X.3 Ease of understanding and operating the system X.4 Satisfaction with the use of the digital payment system
Transaction Efficiency	Y1.1 Transaction processing speed Y1.2 Increase in service/transaction capacity per unit of time Y1.3 Transaction cost efficiency Y1.4 Accessibility and customer adoption
Income Growth	Y2.1 Impact of QRIS adoption on revenue/turnover growth Y2.2 Expansion of customer segments and increase in the number of customers Y2.3 Business competitiveness through payment digitalization Y2.4 Customer loyalty supported by modern payment methods
Financial Management	Y3.1 Automatic recording Y3.2 Ease of cash flow monitoring. Y3.3 Real-Time daily transaction reporting. Y3.4 Ease of generating digital financial reports.

Through these stages of analysis, this study has three primary objectives. First, it examines the role of QRIS in improving transaction efficiency, particularly in terms of payment speed and service convenience. Second, it investigates the contribution of QRIS to increasing MSME revenue, both through a growing number of customers and higher business turnover. Third, it analyzes the impact of QRIS on financial management, especially in relation to transaction recording and cash flow control, enabling MSME owners to monitor their financial conditions more systematically. The collected data were subsequently processed and analyzed using SmartPLS 4.1, with an emphasis on testing the outer model, which includes reliability and validity, as well as the inner model, which encompasses t-statistic and p-value values and the R-square test to measure the model's ability to explain the affected variables in accordance with the PLS-SEM evaluation guidelines proposed by Hair et al. (2021).

### Result and Discussions

Based on the findings in Table 2, the characteristics of the respondents indicate that the research sample is predominantly composed of small-scale businesses, accounting for 46.15%. Most of these businesses are still in the growth stage, with an operating period of 1–3 years, representing 45.1% of the total respondents. In addition, the majority of respondents are relatively new QRIS users, as reflected by the highest proportion of 38.5% who have been using QRIS for less than six months.

Validity and reliability testing are conducted to assess the adequacy of the questionnaire instrument used in the study. Convergent validity is evaluated using two main indicators, namely the loading factor and Average Variance Extracted (AVE). An indicator is considered valid if it has a loading factor value of at least 0.70, while a construct is deemed to achieve convergent validity if the AVE value is at least 0.50. Furthermore, construct reliability is

assessed using Cronbach’s Alpha and Composite Reliability (CR). A construct is considered reliable if both values meet the minimum threshold of 0.70 (Yarsasi et al., 2025).

**Table 2. Respondent Characteristics**

Description	Total	%
<b>1. Type of Business</b>		
Micro	24	26.37
Small	42	46.15
Medium	25	27.47
<b>2. Length of Business Operation</b>		
Less than 1 year	22	24.2
1-3 years	41	45.1
3-5 years	9	9.9
More than 5 years	19	20.9
<b>3. Duration of QRIS Usage</b>		
Less than 6 months	35	38.5
6 months - 1 year	22	38.5
1-2 years	24	26.4
More than 3 years	10	11

Based on the loading factor results presented in Table 3, all indicators have values above 0.70, indicating that each indicator is valid and properly represents the construct being measured. In addition, Cronbach’s Alpha and Composite Reliability values exceeding 0.70 demonstrate that the research instruments have high internal consistency and are reliable. AVE values above 0.50 further confirm that each variable meets the requirement for convergent validity. Therefore, the instruments used in this study can be considered both valid and reliable.

Furthermore, as shown in Table 5, the hypothesis testing results using the bootstrapping method in SmartPLS indicate that the independent variable (X) has an effect on the dependent variables (Y1, Y2, and Y3). Parameters such as the Original Sample, Sample Mean, and Standard Deviation were used to examine the direction, magnitude, and stability of the estimates. The significance of the relationships was determined based on T-statistic values greater than 1.96 and P-values below 0.05, indicating that the relationships between variables are statistically significant and that the research hypotheses can be accepted.

Based on the results presented in Table 5, the hypothesis testing results indicate that the hypotheses can be accepted based on the following statistical test outcomes. The first hypothesis (H1) states that the use of QRIS has a positive effect on transaction efficiency among MSMEs. The test results show a path coefficient (Original Sample, O) of 0.727 with a t-statistics value of 6.467, which clearly exceeds the threshold of 1.96. Furthermore, the p-value of 0.000 (< 0.05) indicates that the effect is statistically significant.

This positive effect can be attributed to the fact that most MSMEs in Palu City are still in a transitional phase from cash-based to cashless payment systems. The adoption of QRIS facilitates the payment process by eliminating the need for cash change, accelerating transaction time, and reducing the potential for calculation errors. This condition is particularly relevant for MSMEs in Palu City, which generally serve a limited number of customers but engage in a high frequency of daily transactions. Therefore, the use of QRIS is considered to significantly enhance transaction efficiency in day-to-day business

operations. The findings of this study are consistent with those of Mahyuni et al. (2021), which indicates that transaction processes using QR code payments are considered more flexible and capable of meeting expectations regarding the speed of transaction completion in payment activities.

**Table 3. Loading Factor**

Indicator	X	Y1_	Y2_	Y3_
X1 Ease of use of the payment system	0.864			
X2 Security of cashless transactions	0.799			
X3 Ease of understanding and operating the system	0.873			
X4 Satisfaction with the use of the digital payment system	0.891			
Y1_1 Transaction processing speed		0.793		
Y1_2 Increase in service/transaction capacity per unit of time		0.934		
Y1_3 Transaction cost efficiency		0.931		
Y1_4 Accessibility and customer adoption		0.856		
Y2_1 Impact of QRIS adoption on revenue/turnover growth			0.893	
Y2_2 Expansion of customer segments and increase in the number of customers			0.887	
Y2_3 Business competitiveness through payment digitalization			0.912	
Y2_4 Customer loyalty supported by modern payment methods.			0.892	
Y3_1 Automatic recording				0.897
Y3_2 Ease of cash flow monitoring.				0.928
Y3_3 Real-Time daily transaction reporting.				0.883
Y3_4 Ease of generating digital financial reports.				0.929

**Table 4. Construct Reliability And Validity**

Variable	Cronbach's Alpha ( $\alpha$ )	Composite Reliability ( $\rho_a$ )	Composite Reliability ( $\rho_c$ )	Average Variance Extracted (AVE)
Y3 Financial Management	0.930	0.936	0.950	0.827
Y2 Income Growth	0.918	0.918	0.942	0.803
Y1 Transaction Efficiency	0.902	0.914	0.932	0.775
X Qris Implementation	0.880	0.894	0.917	0.735

The second hypothesis (H2) posits that the implementation of QRIS has a positive effect on increasing MSME income. The test results show a path coefficient of 0.764 with a t-statistic value of 9.411, which clearly exceeds the standard threshold of 1.96. The p-value of 0.000 ( $< 0.05$ ) further confirms that the effect of QRIS on MSME income is statistically significant. Therefore, H2 is accepted. The positive effect of QRIS on the increase in MSME revenue in Palu City can be explained by the growing public preference for digital payment methods, particularly among younger consumers and urban communities. QRIS enables MSMEs to reach customers who do not always carry cash, thereby expanding transaction

opportunities. In addition, the convenience and speed of payments encourage higher purchase frequency and broaden the customer base. These conditions ultimately contribute to increased sales volume and MSME revenue. The findings of this study are consistent with the research conducted by Cahyani. (2024) which demonstrates that MSMEs adopting QRIS are able to serve a larger number of customers and increase sales volume, ultimately contributing to higher revenue.

**Table 5. Hypothesis Testing Results**

Connection	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )
X → Y1	0.727	0.707	0.112	6.467
X → Y2	0.764	0.754	0.081	9.411
X → Y3	0.691	0.673	0.117	5.927

The third hypothesis (H3) states that the implementation of QRIS has a positive effect on MSME financial management. The analysis results show a path coefficient of 0.691 with a t-statistics value of 5.927, which exceeds the established significance threshold. The obtained p-value of 0.000 ( $< 0.05$ ) confirms that the effect of QRIS on MSME financial management is statistically significant. Therefore, hypothesis H3 is accepted. This effect can be attributed to the QRIS system, which automatically records every transaction, thereby assisting MSME owners in Palu City in monitoring their business cash flows in a more organized manner. Most MSMEs in the region still rely on simple or unstructured financial record-keeping practices. With the adoption of QRIS, business owners obtain more accurate and easily accessible transaction data, which facilitates the preparation of financial reports, improves financial control, and supports better business decision-making. The findings of this study are in line with those of Siregar et al. (2025) who conclude that QRIS is able to enhance operational efficiency through an online payment system that is easy to use and automatically records transactions, thereby assisting MSMEs in financial management.

Based on the data analysis conducted using SmartPLS, this study obtained R-square values of 0.528 for Transaction Efficiency, 0.584 for Income Growth, and 0.478 for Financial Management. These results indicate that the independent variable explains 52.8% of the variance in Transaction Efficiency, 58.4% of the variance in Income Growth, and 47.8% of the variance in Financial Management, while the remaining variation is influenced by other factors outside the model. Overall, these findings suggest that the research model demonstrates a reasonably strong explanatory power for the variables examined in this study.

**Conclusion**

Based on the findings of this study, the implementation of QRIS has been shown to significantly affect transaction efficiency, revenue growth, and the quality of financial management among MSMEs in Palu City. All research indicators met the required standards of validity and reliability, and the bootstrapping analysis confirmed statistically significant relationships between the variables, as reflected in the high T-statistics values and a p-value of 0.000. In addition, the R-square results indicate that the model has an adequate level of explanatory power in describing the variables influenced in this study. Therefore, the

research model can be considered strong in explaining the effect of QRIS on the examined variables.

However, this study has several limitations. The sample size was relatively small, with only 91 respondents out of 1,050 MSMEs, due to the use of a 10% margin of error. This may affect the precision of the results and their ability to represent the entire population. Furthermore, since the data were collected through self-administered questionnaires, there is a possibility of perception bias. Future studies are recommended to apply a smaller margin of error and include a larger sample size to improve the accuracy and representativeness of the findings.

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