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 rapid development of information and communication technology has now penetrated almost all aspects of life, including the economic sector, which is often referred to as the digital economy. The term digital economy refers to the use of advanced technologies to transform how economic systems operate. The emergence of the digital economy has subsequently led to the growth of e-commerce. Today, e-commerce has a broad and diverse scope, depending on individual perspectives. Nevertheless, e-commerce clearly offers significant advantages, particularly in reducing administrative costs, accelerating business process cycles, and strengthening relationships between business partners and consumers. To support the growth of e-commerce, an internet-based payment system is required to replace conventional manual payment methods with online transactions. In recent years, many marketplace platforms have adopted QR code–based payment systems as an alternative payment method. This innovation has gradually shifted consumer behavior from cash-based 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,

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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.

Based on these data, it is evident that the implementation of QRIS has driven a tangible shift in the national digital transaction ecosystem. Palu City, as part of Central Sulawesi, is also experiencing this transformation, as indicated by the increasing number of MSMEs beginning to use QRIS to speed up transaction services while expanding their customer base. Given the convenience and efficiency it offers, QRIS has strong potential to increase MSME income in the region, particularly in Palu City, which is the main focus of this study.

Along with the increasing adoption of digital payment systems through QRIS, numerous studies have indicated that this payment method has the potential to enhance transaction efficiency and the performance of micro, small, and medium enterprises (MSMEs). Nevertheless, existing empirical findings have not consistently demonstrated uniform outcomes across different regions and types of businesses. Variations in regional characteristics, community transaction patterns, the level of digital literacy among business actors, and the availability of supporting infrastructure are believed to influence the effectiveness of QRIS implementation.

On the other hand, many MSMEs continue to face challenges in financial management, particularly inadequate transaction recording and suboptimal cash-flow control. Although digital payment systems have the potential to strengthen financial records and expand access to financing, concrete empirical evidence at the regional level remains relatively limited. To date, studies that specifically examine the impact of QRIS implementation on transaction efficiency, revenue growth, and financial management of MSMEs in Palu City are still scarce. Therefore, this study aims to fill this research gap by providing empirical evidence on the impact of QRIS implementation on MSME performance 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.

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 uses the Morgan and Krejcie table with a 10% margin of error, yielding 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, while still allowing the sample to adequately represent the population in social research. The sampling technique employed was purposive sampling, in which MSMEs that have 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.

Figure 1. Conceptual Framework

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.

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.

Table 2. Respondent Characteristics

Description	Total	%
1. Type of Business		
Micro	24	26.37
Small	42	46.15
Medium	25	27.47
2. Length of Business Operation		
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
3. Duration of QRIS Usage		
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

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).

Based on the results of the loading factor testing presented in Table 3, the initial analysis shows that all indicators for each variable have values exceeding 0.70. This finding indicates that each indicator has an adequate level of validity and is able to represent the measured construct well. The consistency of high loading factor values suggests that the construct measurement in the research model is strong and reliable.

The subsequent stage shows that all variables achieved Cronbach's Alpha and Composite Reliability (ρa and ρc) values, as well as AVE values, that fall within the very good category. Cronbach's Alpha and Composite Reliability values exceeding the 0.70 threshold indicate that the measurement instruments demonstrate high internal consistency and are reliable. Meanwhile, AVE values above 0.50 confirm that each variable adequately explains the variance of its indicators, thereby fulfilling the requirement for convergent validity. Based on these results, the instruments used in this study can be classified as valid and reliable.

Table 5 presents the results of hypothesis testing using the bootstrapping method in SmartPLS to assess the effect of the independent variable (X) on the dependent variables (Y1, Y2, and Y3). The table includes several key parameters, such as the Original Sample (O), which reflects the direction and magnitude of the relationships among variables; the Sample

Mean (M), which represents the average value across repeated resampling; and the Standard Deviation (STDEV), which indicates the dispersion of the estimated results. The significance of the effects is determined using the T-statistic value, where a value greater than 1.96 indicates a significant effect at the 95% confidence level. In addition, the P-Value is used as a supporting indicator; a value below 0.05 signifies a statistically significant effect. Therefore, this table serves as the basis for determining whether the research hypotheses can be accepted based on the test results.

Table 3. Loading Factor

Indicator	X	Y1_	Y2_	Y3_
X1	0.864			
X2	0.799			
X3	0.873			
X4	0.891			
Y1_1		0.793		
Y1_2		0.934		
Y1_3		0.931		
Y1_4		0.856		
Y2_1			0.893	
Y2_2			0.887	
Y2_3			0.912	
Y2_4			0.892	
Y3_1				0.897
Y3_2				0.928
Y3_3				0.883
Y3_4				0.929

Table 4. Construct Reliability And Validity

Variable	Cronbach's Alpha (α)	Composite Reliability (ρa)	Composite Reliability (ρc)	Average Variance Extracted (AVE)
Y3	0.930	0.936	0.950	0.827
Y2	0.918	0.918	0.942	0.803
Y1	0.902	0.914	0.932	0.775
X	0.880	0.894	0.917	0.735

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 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 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.

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.

Conclusion

Based on the findings of this study, it can be concluded that the implementation of QRIS has a significant impact on transaction efficiency, income growth, and the quality of financial management among MSMEs in Palu City. This conclusion is supported by the test results showing that all indicators of variables X, Y1, Y2, and Y3 have met the required standards of

validity and reliability. The outer loading values, construct reliability, and convergent validity confirm that the research instruments were appropriate and reliable. Furthermore, the bootstrapping results indicate that the relationships between variables are statistically significant, as reflected in the high T-statistics values and a p-value of 0.000. Therefore, the research model can be considered sufficiently strong and consistent in explaining the influence of variable X on Y1, Y2, and Y3.

However, this study has several limitations. One of the main limitations lies in the sample size. Out of a total population of 1,050 MSMEs, this study applied a 10% margin of error, resulting in a sample of only 91 MSMEs. The use of a relatively large margin of error may reduce the level of precision compared to studies that apply a smaller margin of error, such as 5%. As a result, the findings of this research may not fully represent the overall condition of all MSMEs in Palu City in greater detail. In addition, this study relied on a survey method using questionnaires, meaning that the data collected depended heavily on the honesty and understanding of the respondents when answering the questions. This situation may have introduced perception bias, which could influence the accuracy of the results. For future research, it is recommended to apply a smaller margin of error in order to obtain a larger sample size and improve the accuracy of the findings. Future researchers may also consider expanding the number of respondents or using more diverse sampling techniques so that the results better reflect the characteristics of the population. By doing so, future studies are expected to produce more comprehensive findings with stronger generalizability.

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