

THE IMPACT OF DIGITALIZATION ON THE SALES PERFORMANCE OF MSMES IN MEDAN CITY



¹Pasaman Silaban, ^{2*}Frederick Saroha Silaban, ³Sherina Yohana Sitompul

^{1,2,3} Department of Management, Faculty of Business and Economics,
HKBP Nommensen University, Medan - Indonesia

e-mail:

¹pasamansilaban@uhn.ac.id,

^{2*}frederick.silaban@uhn.ac.id (corresponding author)

³sherinayohana@student.uhn.ac.id

ABSTRACT

Digital transformation has become an important factor in modern marketing strategies, including for Micro, Small, and Medium Enterprises (MSMEs). This study analyzes the effect of digitalization implementation through the use of social media, marketplaces, and digital payment systems on the sales performance of MSMEs in Medan City. The method used is a quantitative approach with a survey technique of 150 MSME players from various sectors, supported by the Partial Least Square (PLS) method with the help of SmartPLS version 3 software. The results show that digitalization contributes significantly to increasing sales volume, expanding market reach, and improving transaction process efficiency. Social media is the most influential channel in attracting new customers, while digital payments have been proven to increase consumer convenience and transaction frequency. However, some MSME players still face obstacles in digital literacy and online promotion costs. These findings emphasize the importance of digital training and government policy support to strengthen the competitiveness of MSMEs in the era of a technology-based economy.

Keywords: Usage of E-Commerce; Usage of QRis; Digital Transformation;
MSME Sales Performance

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INTRODUCTION

The development of digital technology has triggered significant transformations in almost all aspects of human life, including the economy, which serves as the main engine of national growth (Yani, 2025). According to data from the Ministry of Micro, Small and Medium Enterprises, there are around 65.5 million MSMEs in Indonesia, which employ around 119 million workers and contribute 61.9% to the Gross Domestic Product (Aprionis, 2025). In the context of the modern economy, In the study by Shao (2025), digitalization is not merely a tool for operational efficiency but has become a strategic factor that determines the competitiveness of business actors. The use of digital platforms, financial applications, e-commerce, and social media has become an integral part of the business model of MSMEs that want to maintain their existence and expand their market (Amalia, 2025). With this transformation, MSMEs are expected to not only be able to survive amid competition and changes in consumer behavior, but also become drivers of an inclusive and competitive digital economy. In the context of MSMEs, digitization encompasses a number of important variables such as the adoption of digital technology (e-commerce platforms, social media, digital payments), operational efficiency (automation, digital recording, digital stock and distribution management), and wider market access (including national and global markets) (Santoso et al., 2025). This is in line with Lutfi's (2025) findings that the adoption of digital technology by MSMEs can improve efficiency and expand market access, which directly affects sales performance variables.

If MSMEs are able to integrate digitalization into their marketing, transaction, distribution, and customer service processes, then the variable of "use of digitalization" can positively influence the variable of "sales" as the main outcome (Permatasari et al., 2023). In the study Sitorus et al., (2024) An urban context such as the city of Medan, with its increasingly high internet and e-commerce penetration, is a potential laboratory for observing how digitalization actually affects the sales dynamics of MSMEs. This shows that even though the digitization of MSMEs is accelerating, there are still various challenges and gaps in optimal implementation. According to the report, the government is targeting 30 million MSME players to adopt digital technology by 2024, because as of August 2024, around 27 million businesses have adopted digital technology (Patria, 2024).

Although this figure shows progress, the reality is that the penetration of MSME digitization is still relatively low compared to the total MSME population. For example, it is stated that only about 20-25% of the total MSMEs have fully entered the digital ecosystem (2021). This reflects that many MSMEs, including those in Medan, still operate conventionally, which then has implications for limited market reach, lack of operational efficiency, and untapped sales potential. For example, although North Sumatra shows an annual e-commerce growth of around 18.7% according to regional data, the number of MSMEs in Medan that actively conduct digital transactions is still around 47% (Sari, 2022). This data indicates a digital adaptation gap that could impact sales performance. Research has attempted to uncover the relationship between digitization and MSME performance. As a first example, a study by Rofiq et al., (2024) found that digital marketing strategies, fintech, and Islamic branding significantly improve MSME marketing performance. Furthermore, research by Komalasari et al., (2021) shows that MSMEs that go digital and adopt marketing innovations through digital platforms are able to respond adaptively to changes in consumer behavior. The third study is by Miswanto et al., (2024), which examines the

influence of financial literacy and digital-based supply chain management on MSME performance, including sales aspects. However, these studies mostly focus on the national context or macro aspects (e.g., financial literacy or digital inclusion), so the details of the impact of digitalization on MSME sales in a specific region such as Medan City are still limited.

Thus, the main objective of this study is to analyze the impact of digitalization on MSME sales in Medan City. Academically, this study seeks to expand the literature on MSME digital transformation in a local context and provide new empirical evidence. Practically, the results of this study are expected to provide input for local governments, MSME associations, and business actors to formulate effective digitalization strategies to increase sales and competitiveness of MSMEs in Medan City.

There is research that has not been explored in depth, particularly regarding the impact of digitalization on MSME sales in local contexts such as the city of Medan. Most previous studies have focused on financial literacy, financial inclusion, and general technology adoption behavior without examining the direct impact on sales performance at the regional level. For example, research by Kusuma et al., (2022) focuses on financial inclusion and business sustainability, while research by Darma et al., (2020) highlights the relationship between fintech and MSME development without detailing regional aspects. Therefore, this study is expected to fill this gap by providing empirical analysis of how the use of digitalization actually affects MSME sales in Medan City, while enriching the literature on digital transformation in the micro and small business sector in Indonesia.

This study is expected to contribute theoretically to expanding understanding of the relationship between digital transformation and the sales performance of MSMEs, particularly in the context of the regional economy. Meanwhile, in practical terms, the results of this study are expected to serve as a basis for local governments, financial institutions, and MSME actors to formulate more effective and sustainable digital-based development strategies. Thus, this study is not only relevant to supporting regional economic development through strengthening the MSME sector, but also in line with the national agenda towards an inclusive and highly competitive digital economy.

LITERATURE REVIEW

Educational The Concept of Digitalization in the Context of MSMEs

The context of MSMEs refers to the transformation of business processes, marketing, sales, and transactions that were previously conventional towards the use of digital technologies such as e-commerce, social media, digital payment applications, and digital-based recording and reporting systems. For example, research by Maihani & Nur (2024) states that the 5.0 era places individuals at the center of activities and technology as the foundation, where digitalization enables MSMEs to reach a wider market, with no time or location restrictions, lower costs, and more intensive two-way communication. A literature study by Yunita et al., (2025) also highlights that MSMEs that adopt digitalization are able to improve their operational effectiveness and efficiency. Thus, digitalization is not just about using a single application, but rather the integration of technology into the MSME value chain: from marketing and transactions to after-sales services.

MSME Sales as an Outcome Variable

MSME sales are a very important performance measure, as they reflect the business's ability to generate income from the products or services it offers (Maduekwe & Kamala, 2016). When MSMEs use digital channels such as e-commerce or social media, their sales potential is not limited to local customers, but can also be national and even international (Widyastuti et al., 2023). A study by Hasan et al., (2025) in the digital era found that the use of digital technology can help MSMEs “to improve operational efficiency, reach a wider market, and increase customer satisfaction.” In the context of this study, digitization is estimated to have a direct influence on the sales Performance of MSMEs in the city of Medan, namely through the following mechanism: expanded market access → more potential buyers → higher transaction volume → increased sales performance

The Relationship Between Digitalization and MSME Sales

Several studies have examined the relationship between digitization and MSME performance, with different focuses but conceptually supporting the idea that digitization can drive sales growth. . A literature study by Harianto & Ahmad (2024) in Makassar City concluded that digitization has a significant positive impact on MSME profits, despite the main obstacle being the ability to utilize technological media. Other studies state that the adoption of e-commerce by MSMEs in the digital era provides significant benefits in the form of sales and market growth, but is accompanied by challenges in digital literacy and technology adoption costs (Rezkie, 2024). In addition, a report from the Institute for Development of Economics and Finance (INDEF, 2024) shows that the use of digital platforms by MSMEs has a positive effect on average annual turnover and the number of workers, although penetration is not yet evenly distributed.

Challenges and Factors Affecting the Effectiveness of Digitalization

Despite the huge potential of digitalization, many MSMEs face obstacles that prevent it from having an optimal impact on sales. A study in Banten Province by Ramdansyah and Ganika (2024) (or similar) shows that the level of MSME digitalization is still constrained by limited ICT infrastructure, low digital literacy, and inadequate policy support. Maihani & Nur (2024) add that investment in resources and competencies are crucial factors in the success of digital transformation. In the context of MSME sales in Medan City, internal factors (digital competencies of MSME players, investment in technology) and external factors (digital infrastructure, policy support, digital ecosystem) must be taken into account as control or moderating variables in the research model.

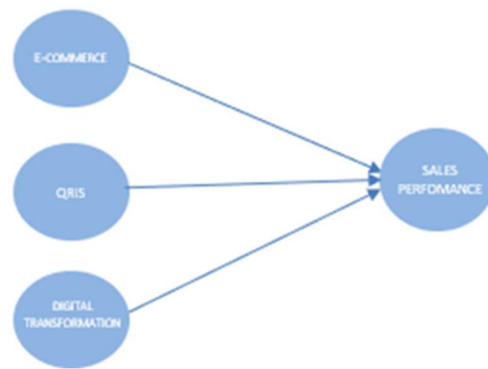
Relevance to the Context of Medan City

The local context of Medan City is highly relevant to this study because the characteristics of MSMEs and their level of digital technology adoption may differ from other regions. Although there has not been much specific research on Medan, national data shows that the digital transformation of MSMEs is still ongoing and its penetration is not yet comprehensive. For example, an INDEF report (2024) shows that only about half of MSME players have used e-commerce as a sales channel. By taking this major city on the island of Sumatra as the location for this research, it will be possible to identify the mechanisms of digitalization → sales in specific local conditions including infrastructure characteristics, the

level of digital literacy among actors, and digital consumer behavior in Medan.

METHOD

This study uses a descriptive quantitative approach to analyze the effect of e-commerce, QRIS, and digital transformation on the sales performance of MSMEs in Medan City. In this model, sales performance is the dependent variable that describes changes in turnover, number of transactions, and customer growth as the main indicators of sales performance. A number of previous studies have shown that e-commerce can expand market reach and increase the sales effectiveness of MSMEs (Alimudin et al., 2022). The adoption of QRIS has also been proven to facilitate transactions and increase consumer purchase frequency (Wahyudin et al., 2022). In addition, comprehensive digital transformation has a significant effect on improving the competitiveness and sales performance of MSMEs. Thus, this study examines the direct relationship between these three digital variables and sales performance through a questionnaire with a Likert scale. The following is the research framework for this study:



Source: constructed by authors, 2025

Figure 1
Research Framework

This study was conducted on MSME actors operating in Medan City, North Sumatra Province. Medan City was chosen based on its high MSME population and increased use of digital services in business promotion and transactions. According to the North Sumatra Cooperative and MSME Office (2024), there are more than 330,000 active MSMEs operating in this region, making it representative for measuring the impact of digitalization on the small business sector.

This study used non-probability sampling with a purposive sampling method which is sampling based on certain criteria in accordance with the research objectives (Zaenabiyah, 2024). The respondent criteria included:

1. being an active MSME actor in Medan City
2. conducting marketing or transactions sales digitally
3. having used social media, marketplaces, or digital payments for at least the last 6 months.

The sample size was set at 150 respondents, based on the minimum recommendation for quantitative statistical analysis involving multiple regression analysis. Primary data was collected through questionnaires distributed using Google Forms for online respondents and printed forms for respondents who were met in person.

The data was analyzed using quantitative statistical methods. The first stage was to test the validity and reliability of the instruments to ensure that the statement indicators on the questionnaire were suitable for use. Next, the data were analyzed using multiple linear regression with the help of SPSS or SmartPLS version 3 software. Multiple linear regression analysis was used because it is capable of measuring the effect of more than one independent variable on one dependent variable. In addition, classical assumption tests such as normality, multicollinearity, heteroscedasticity, and the coefficient of determination (R^2) were conducted to assess the strength of the model. The results of the hypothesis testing will determine whether the digitalization variable has a significant effect on increasing MSME sales in Medan City.

RESULTS AND DISCUSSION

In this study, convergent validity testing was conducted using two approaches, namely through factor loading values and Average Variance Extracted (AVE) values. An indicator is considered valid if it has a factor loading above 0.70, because this value indicates that the indicator's contribution to the construct is in the good category and is able to explain more than 50% of the indicator's variance (Cheung et al., 2024).

Based on the results of data processing using SmartPLS version 3, all indicators in the study had loading factor values greater than 0.70. Thus, all indicators in the variables of digitalization use and MSME sales met the convergent validity requirements and were declared feasible for use in the next model testing. The Test Results Using test Fornell-Larcker Criterion as follows:

Table 1
Fornell-Larcker Criterion

	Competitive Advantage	Sales Performance	Usage E-Commerce	Usage QRIS
Competitive Advantage	0,745			
Sales Performance	0,664	0,764		
Usage E-Commerce	0,694	0,650	0,784	
Usage QRIS	0,679	0,583	0,685	0,760

Source: Data processing results, 2025

Based on the calculation results, the correlation matrix values for the QRIS variable are 0.784, Sales Performance is 0.760, Digital Transformation is 0.745, and E-Commerce is 0.764. All of these values are higher than the correlations with other variable constructs. Thus, the discriminant validity test using the Fornell-Larcker method has been fulfilled, so that each construct variable is declared valid and suitable for use in the next stage of analysis. In addition, the test results show that each indicator has a higher cross loading value in the original construct compared to other constructs, which means that there is no cross relationship between instruments. Based on this, it can be concluded that all items in the

research variables are not correlated and do not influence each other. The model fit test is as follows:

Table 2
Model Fit Test Results Using SRMR (Standardized Root Mean Square)

Saturated Model		Estimated Model
SRMR	0,072	0,072
d_ULS	2,101	2,101
d_G	1,083	1,083
Chi-Square	827,149	827,149
NFI	0,710	0,710

Source: Data processing results, 2025

Based on the results of the model fit test, the Standardized Root Mean Square Residual (SRMR) value obtained was 0.072, which is below the limit of 0.08. This indicates that the research model is feasible and has met the model feasibility criteria. Furthermore, the (R^2) values for each variable can be seen in the table 3:

Table 3
Analysis of the Coefficient of Determination (R^2)

	R Square	R Square Adjusted
Sales Performance	0,556	0,546

Source: Data processing results, 2025

Based on the model testing results, the coefficient of determination (R^2) value for the Sales Performance variable shows a figure of 0.556 or 54.6%. This means that 54.6% of the variation in MSME sales performance is explained by the independent variables used in the study, namely the use of e-commerce, the use of QRIS, and competitive advantage.

Hypothesis Testing

This section of the analysis will show the influence, magnitude of influence, and direction of influence between exogenous variables and endogenous variables. The direction of influence between variables basically shows the direction of pressure from exogenous variables on endogenous variables. The direction of influence referred to is either positive or negative. Conceptually, this direction of influence is a confirmation between theory and reality, which ultimately narrows down to the cause of the direction of influence. The results of hypothesis testing in this study are as follows:

Table 4
Direct Effect Hypothesis Test (path coefficient)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Transformation -> Sales Performance	0,347	0,340	0,128	2,707	0,007
E-Commerce -> Sales Performance	0,112	0,127	0,090	1,246	0,213
QRIS -> Sales Performance	0,371	0,364	0,134	2,778	0,006

Source: Data processing results, 2025

Based on Table 4, the results of hypothesis testing for the three direct relationships toward Sales Performance can be explained as follows. Hypothesis 1 (H1), which states that Digital Transformation has a positive and significant effect on Sales Performance, is supported because the p-value obtained is $0.007 < 0.05$. This indicates that Digital Transformation contributes significantly to improving Sales Performance. Meanwhile, Hypothesis 2 (H2), which proposes that E-Commerce has a positive and significant effect on Sales Performance, is not supported, as shown by the p-value of $0.213 > 0.05$. This result shows that E-Commerce does not significantly influence Sales Performance in this study. Furthermore, Hypothesis 3 (H3), which states that QRIS has a positive and significant effect on Sales Performance, is supported, with a p-value of $0.006 < 0.05$. This confirms that the use of QRIS significantly enhances Sales Performance among MSMEs in Medan. The following are the results of the Outer Model Analysis using the SmartPLS 4 program:



Source: constructed by authors, 2025

Figure 2
Analysis Results Outer Model with SmartPLS 4

Hypothesis 1:

Based on the test results, Digital transformation has been proven to improve sales performance ($p = 0.007$). In the MSMEs studied, this transformation was reflected in the use of operational technology, process integration, and data utilization. These indicators accelerated service and improved efficiency, thereby increasing sales. These findings are in line with previous studies showing that digital transformation strengthens sales performance through improvements in technological capabilities and business processes.

Hypothesis 2:

E-commerce does not have a significant effect on sales performance ($p = 0.213$). The indicators used use of online platforms, digital store management, and e-commerce-based promotion have not been optimally implemented by MSMEs, mainly due to limited digital

literacy and online channel management capabilities. These results differ from some studies that found a positive impact, but are in line with studies that emphasize that e-commerce is only effective when accompanied by adequate digital operational capabilities.

Hypothesis 3:

The QRIS has a significant effect on sales performance ($p = 0.006$). Indicators such as ease of transaction, speed of payment, and customer convenience increase sales conversion. These findings support previous research showing that digital payment systems encourage increased transactions and enhance customer experience, thereby positively impacting sales performance.

The test results show that digitization has a real impact on increasing MSME sales in Medan. The Digital Transformation and QRIS variables have a significant impact, which means that the application of digital technology and non-cash payment systems can facilitate transactions and increase customer convenience, thereby driving sales growth. Meanwhile, the E-Commerce variable did not show a significant effect, indicating that the use of marketplaces has not had a direct impact on sales growth, possibly because it has not been optimized to its full potential by MSME players.

CONCLUSION

Based on research findings, the application of digital technology plays an important role in improving the sales performance of MSMEs. Digital transformation and the use of QRIS-based payment systems have been proven to have a positive and significant effect on increasing turnover, transaction efficiency, and consumer convenience. This confirms that the ability of business actors to adapt to technology is a strategic factor in strengthening competitiveness in the digital economy era.

Conversely, the use of e-commerce has not shown a significant impact on sales, indicating the need to optimize marketing strategies and online store management for more effective results. These findings also emphasize the importance of improving digital literacy, technical training, and government policy support to accelerate the digital transformation of MSMEs, especially in the city of Medan. Overall, digitalization is not just a trend, but an important instrument in expanding market reach, improving operational efficiency, and strengthening the sustainability of small businesses amid technology-based economic changes.

Based on the findings of this study, it is recommended that future researchers consider other variables that may potentially affect the sales performance of MSMEs. Variables such as digital capability/digital readiness, e-commerce management capabilities, digital marketing effectiveness, and customer experience in the use of digital payments can provide a more comprehensive picture. These variables are important because the success of digital transformation, e-commerce, and QRIS utilization is highly dependent on the digital readiness of MSMEs, operational capabilities, and customer experience. The addition of these variables is expected to explain why some technologies have a significant impact, while others have not yet shown a strong influence in the context of MSMEs.

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