

THE EFFECT OF DIGITAL LITERACY AND E-COMMERCE UTILIZATION ON MSME PERFORMANCE IN BATAM CITY

*Hendri Herman¹, Muhammad Fadli Luran², Deden Muhidin³

Universitas Ibnu Sina
Email : hendrihermanbatam@gmail.com

ABSTRACT

This study aims to analyze the effect of digital literacy and e-commerce utilization on the performance of Micro, Small and Medium Enterprises (MSMEs) in Batam City. Digital literacy is an individual's ability to understand, manage, and utilize information technology effectively in supporting business activities. On the other hand, e-commerce has become a strategic tool that helps MSMEs reach a wider market, improve operational efficiency, and strengthen competitiveness. This research is motivated by the rapid development of technology and the need for MSMEs to adapt to the digital era. The object of this research is MSMEs in Batam city with a sample size of 71 MSMEs. The research data were obtained with the help of questionnaire distribution. The data is processed using the SPSS application. The results of the study are partially digital literacy and ecommerce utilization have a significant effect on MSME performance. Simultaneously, digital literacy and e-commerce utilization have a significant effect on the performance of MSMEs in Batam city. From the results of this study, it is hoped that MSME players can adopt digital in an effort to increase the benefits obtained.

Keywords: *Digital literacy; ecommerce utilization; MSME performance*

INTRODUCTION

The Indonesian government through various policies has supported the existence of MSMEs as a pillar of the national economy. Programs such as the Creative Economy Agency (Bekraf) and MSME Digitalization aim to increase the capacity of MSMEs to access a wider market, especially through the use of digital technology. One of the biggest innovations in the business world that can be utilized by MSMEs is e-commerce, which provides a platform for businesses to market their products online at a relatively lower cost compared to traditional distribution methods.

However, despite government encouragement and supportive technological advancements, the adoption of digital technology by MSMEs in Indonesia is still very limited. The Central Bureau of Statistics (BPS) notes that only around 10-15% of MSMEs actually utilize e-commerce optimally. This shows the gap between the potential of digital technology and the reality faced by most MSME players, especially in areas that have limited internet access or lack of knowledge to utilize digital platforms.

Micro, Small and Medium Enterprises (MSMEs) play an important role in the Indonesian economy. Based on data from the Ministry of Cooperatives and SMEs, MSMEs contribute more than 60% to Indonesia's Gross Domestic Product (GDP) and absorb more than 97% of the national workforce. Therefore, improving the performance of MSMEs is one of the keys to supporting

inclusive economic growth. However, despite their significant contribution, many MSMEs face various challenges in optimizing their performance, one of which is limited access to broader markets and lack of utilization of digital technology in business operations.

With the rapid development of technology, especially the internet and e-commerce, MSMEs have a great opportunity to expand their market reach and improve their performance. However, to utilize this potential, MSMEs need to have sufficient digital literacy. Low digital literacy among MSME players often hinders the utilization of existing technologies, such as e-commerce platforms, social media, and digital payment tools. Research results show that although internet penetration in Indonesia continues to increase, there are still many MSMEs that find it difficult to adopt digital technology to the fullest ((APJII), 2023). By having adequate digital literacy, the performance of MSMEs will improve (Nurdyanto et al., 2024).

In addition, although e-commerce platforms such as Tokopedia, Bukalapak, and Shopee have provided easy access for MSMEs to market their products, the utilization rate of e-commerce is still relatively low. This shows that in addition to digital literacy, other factors such as awareness, trust, and skills in managing businesses digitally are also a big challenge for MSMEs.

Digital literacy, which includes the ability to understand, access, and utilize digital technology effectively, is a very important factor in

supporting technology adoption among MSMEs. However, based on research by the Indonesian Internet Service Providers Association (APJII), digital literacy in Indonesia is still low, especially among MSME players. Many MSME players still have limited knowledge and skills in using digital tools such as accounting software, social media for marketing, and e-commerce platforms. This ignorance is often a major barrier in improving MSME performance, both in terms of operational efficiency and marketing (Suryanto & Purnama, 2020).

On the other hand, e-commerce provides great opportunities for MSMEs to expand market reach, reduce distribution costs, and increase product visibility in the global market. E-commerce also allows MSMEs to access digital payment technologies that facilitate transactions. However, although e-commerce platforms have grown rapidly, many MSME players are still hesitant or have difficulties in utilizing these platforms to the fullest. Some of the factors that influence the low level of e-commerce utilization include a lack of knowledge about how to market products online, concerns regarding transaction security, and logistical problems that can hinder the delivery of goods (Wahyudi & Rahardjo, 2021).

Against this background, this study aims to explore the effect of digital literacy and e-commerce utilization on MSME performance, as well as identify challenges and supporting factors in increasing the adoption of digital technology among Indonesian MSMEs. It is hoped that the results of this study can provide useful recommendations to improve the utilization of digital technology in the MSME sector, which in turn can improve the competitiveness and performance of MSMEs in local and global markets.

The formulation of the problems in this study is how does digital literacy affect the ability of MSMEs to utilize digital technology to improve their performance? and How does the use of e-commerce affect the performance of MSMEs?

LITERATURE STUDY

Digital Literacy

Digital literacy is an individual's ability to access, analyze, evaluate and utilize information available in the digital world in a critical and productive way. Digital literacy involves a range of skills such as the use of technological devices, understanding digital media, and the ability to communicate and collaborate effectively through digital platforms. It also includes an understanding of issues related to privacy, online safety, and ethical use of the internet (Rice, 2015).

Indicators of digital literacy are (Silalahi, 2022):

1. Ability to access digital information
2. Adaptability to technological developments
3. Ability to use technology

Ecommerce Utilization

Technology utilization is the use of technology in various aspects of life to facilitate, accelerate, and increase efficiency in achieving certain goals. Technology is used in various fields such as education, health, industry, communication, and others. With proper utilization, technology can increase productivity, improve quality of life, and encourage innovation and progress. Technology utilization also includes the use of technology-based tools and systems to solve practical problems, improve processes, and meet community needs (Taufiq & Hartono, 2020).

Indicators of e-commerce utilization are (Taufik & Yuliana, 2021).

1. Ecommerce platform adoption
2. Social media utilization for marketing
3. Management and inventory and delivery capabilities
4. Use of digital payments

MSME Performance

According to Rahmasari, company performance is something produced by a company in a certain period with reference to established standards. Company performance should be a result that can be measured and describes the empirical condition of a company from various agreed upon measures. Business performance refers to how well a company is oriented towards the market and its financial goals (Herman et al., 2018). Organizational performance is the actual result or output produced by an organization which is then measured and compared with the expected result or output (Jahanshashi, 2012).

Performance measurement indicators are as follows (Herman et al., 2018):

1. Financial performance
2. Operational performance
3. Market-based performance

Previous Research

To support the research being conducted, researchers make some of these previous studies as references, namely:

1. Research conducted by (Farhan et al., 2022) with the title of the effect of digital literacy and entrepreneurial orientation on the performance of umkm businesses (a study of umkm in the food and beverage sector in South Jakarta). The results of the study state that digital literacy has a positive effect on the performance of MSMEs.

2. Research conducted by (Juliantari et al., 2024) with the title Analysis of the Effect of E-Commerce: Literature Study on MSME Economic Growth. The results of the study state that the adoption of e-commerce significantly affects the growth of MSMEs.
3. Research conducted by (Nurdyanto et al., 2024) with the title The Effect of Financial Literacy and Digital Literacy on MSME Performance Through Managerial Ability: Case Study of Mamuju Regency, West Sulawesi. The results of the study state that digital literacy affects the performance of MSMEs.

METHODS

This research design contains stages that include data collection instruments, sampling, data collection, and data analysis. Based on its type, quantitative data is the type of data used in this

study. Quantitative data is data in the form of numbers or numbers (Nurlan, 2019).

Research design is needed as a framework in compiling research. This research is a type of quantitative research. This research planning is preceded by collecting data from related agencies, then the data that has been obtained will be analyzed. The type of data to be used is secondary data.

The population in this study were MSME players in Batam city, totaling 248 MSME players. The sample was calculated using the Slovin formula with an error rate of 10%. So that it is known that the number of samples is 71 MSMEs which are used as respondents in this study.

RESULTS

Normality Test

The results of data normality testing in this study are as follows:

**Table 1. Normality Test
One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		71
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	1.14460456
Most Extreme Differences	Absolute	.311
	Positive	.410
	Negative	-.242
Kolmogorov-Smirnov Z		.864
Asymp. Sig. (2-tailed)		.205

a. Test distribution is Normal.

b. Calculated from data.

From the table above, it can be seen that the significance value of the normality test is 0.205. This significance value is greater than 0.05. So it can be concluded that the distribution of data

in this study is normally distributed.

Multicollinearity Test

The results of multicollinearity testing in this study can be seen as follows:

**Table 2 Multicollinearity Test
Coefficients^a**

Model	Collinearity Statistics	
	Tolerance	VIF
1 Digital Literacy	.394	2.105
Ecommerce Utilization	.609	2.105

a. Dependent Variable: MSME Performance

From the table above, it can be seen that each variable has a tolerance value greater than 0.1. The Variance Inflation Factor (VIF) value of

each variable is 2.105. This VIF value is smaller than 10. So it can be concluded that the data in this study does not occur multicollinearity problems.

Heteroscedasticity Test

The results of heteroscedasticity testing in

this study can be seen in the following table:

Table 3 Heteroscedasticity Test Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.072	1.230		-.829	.654
	Digital Literacy	.033	.045	.062	.471	.210
	Ecommerce Utilization	.109	.091	.932	3.051	.319

a. Dependent Variable: Abs_Res

From the table above, it can be seen that the significant value of the digital literacy variable is 0.210, the significant value of the ecommerce utilization variable is 0.319. Each variable significance value is greater than 0.05. So it can be

concluded that in this study there is no heteroscedasticity problem.

Multiple Regression Analysis

The results of multiple regression testing in this study can be seen in the following table:

Table 4 Multiple Regression Analysis Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.200	2.420		4.443	.006
	Digital Literacy	.910	.110	.346	1.093	.000
	Ecommerce Utilization	.402	.229	.337	1.802	.000

a. Dependent Variable: MSME Performance

From the table above, multiple regression can be formulated as follows:

$$Y = 2,200 + 0,910 + 0,402$$

From the multiple regression formula, it can be explained as follows:

1. The constant has a value of 2,200. This means that if the independent variable does not change or is zero (0), then the performance of MSMEs has a value of 2,200
2. Digital literacy has a regression coefficient value of 0.910. This means that digital literacy has a positive influence on the performance of MSMEs. Every one unit

increase in digital literacy will increase the value of MSME performance by 0.910.

3. Ecommerce utilization has a regression coefficient value of 0.402. This means that the utilization of ecommerce has a significant effect on the performance of MSMEs. Every one unit increase in ecommerce utilization will increase the value of MSME performance by 0.402.

Hypothesis Test**Partial Hypothesis Test (t test)**

The results of hypothesis testing can be seen as follows:

Table 5 Partial Hypothesis Test (t test) Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.200	2.420		4.443	.003
	Digital Literacy	.910	.110	.346	1.093	.000
	Ecommerce Utilization	.402	.229	.337	1.802	.000

a. Dependent Variable: MSEM Performance

From the table above, it is known that:

1. Digital literacy has a significant effect on the performance of MSMEs
Digital literacy has a significant value of 0.000. This significance value is smaller than 0.05. So it can be concluded that digital literacy has a significant effect on the performance of MSMEs. The first hypothesis is accepted
2. Ecommerce utilization has a significant effect on the performance of MSMEs

Ecommerce utilization has a significant value of 0.000. This significance value is smaller than 0.05. So it can be concluded that the use of ecommerce has a significant effect on the performance of MSMEs. The second hypothesis is accepted.

Simultaneous Hypothesis Test (F Test)

The results of simultaneous hypothesis testing are as follows:

Table 6 Simultaneous Hypothesis Test (F Test)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.431	2	3.461	4.201	.000 ^b
	Residual	21.119	68	1.001		
	Total	16.341	70			

a. Dependent Variable: MSME Performance

b. Predictors: (Constant), Ecommerce Utilization, Digital Literacy

From the table above, it is known that: Digital literacy and e-commerce utilization simultaneously have a significant effect on the performance of MSMEs.

From the table above, it is known that the significance value is 0.000. This significance value is smaller than 0.05. So it can be concluded that digital literacy and ecommerce utilization

simultaneously have a significant effect on the performance of MSMEs. The third hypothesis is accepted.

Coefficient of Determination Analysis

The results of testing the coefficient of determination can be seen in the following table:

Table 7 Coefficient of Determination Analysis Test Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.402 ^a	.401	.081	1,032

a. Predictors: (Constant), Ecommerce Utilization, Digital Literacy

b. Dependent Variable: MSME Performance

From the table above, it can be seen that the R square value has a value of 0.401 or 40.1%. This means that digital literacy and e-commerce utilization are able to influence the performance of MSMEs by 40.1%, while the remaining 59.9% is influenced by other variables that are not included in this research model.

DISCUSSION**Digital Literacy Significantly Affects MSME Performance**

Digital literacy has a significant influence on MSME performance, especially in this connected digital era. MSMEs with good digital literacy can utilize information and communication technology (ICT) to improve operational

efficiency, expand markets, and improve customer interactions. Digital literacy enables MSMEs to access eCommerce platforms, use social media as a marketing tool, and adopt digital payment methods that facilitate transactions (Dini & Ramadhan, 2020).

In addition, an understanding of data security and privacy is also very important to increase consumer confidence. Thus, MSMEs with high digital literacy can more quickly adapt to technological developments, increase competitiveness, and ultimately, improve their business performance. Adopting the right digital technology can reduce operational costs, improve service quality, and speed up the product distribution process. Thus, digital literacy not only

improves efficiency, but also opens up new opportunities for MSMEs to thrive in the global market.

Digital literacy also facilitates MSMEs in accessing various analytics tools that allow business owners to make better decisions based on collected data. With the ability to analyze consumer behavior, market preferences, and product trends, MSMEs can devise more targeted marketing strategies and increase sales conversions. In addition, by optimizing the use of digital platforms, MSMEs can reduce reliance on traditional marketing methods that are often more expensive and less effective. Therefore, digital literacy is a key factor in creating an adaptive and innovative business model, which allows MSMEs to compete better in an increasingly digital and global market (Indah & Hendra, 2021). The results of this study are in line with previous research conducted by (Farhan et al., 2022) which states that digital literacy has a positive effect on the performance of MSMEs.

Ecommerce Utilization Has a Significant Effect on MSME Performance

The use of eCommerce has a significant effect on the performance of Micro, Small, and Medium Enterprises (MSMEs) because it provides opportunities for MSMEs to expand markets, improve operational efficiency, and optimize customer relationships. Through eCommerce platforms, MSMEs can reach a wider range of customers without being limited by geographical location, which allows for increased transaction and sales volumes.

Furthermore, eCommerce also allows MSMEs to reduce operational costs that are usually associated with managing a physical store, such as rent and labor costs. By using technology for inventory management, digital payment systems, as well as data-driven marketing, MSMEs can optimize their business processes and increase competitiveness in the market. The application of social media for marketing also gives MSMEs the opportunity to build their brand and increase interaction with customers. Overall, the utilization of eCommerce allows MSMEs to adapt to the growing digital trends, thus improving their business performance and sustainability in the digital era (Kausar et al., 2022). The results of this study are in line with previous research conducted by (Juliantari et al., 2024).

Digital Literacy and Ecommerce Utilization Simultaneously Have a Significant Effect on MSME Performance

Digital literacy and e-commerce utilization have a significant influence on MSME performance, especially in improving

competitiveness and operational efficiency. Digital literacy enables MSME players to access, understand and utilize information technology more effectively. This includes the ability to use digital tools in business management, marketing, and online transactions. Meanwhile, the utilization of e-commerce provides opportunities for MSMEs to expand market reach, increase sales, and reduce dependence on traditional distribution channels. The combination of the two allows MSMEs to be more adaptive in facing market challenges, accelerate transaction processes, and increase productivity. By having a good understanding of digital literacy, MSME players can maximize the potential of e-commerce as an efficient marketing and distribution tool, thus directly contributing to the improvement of their business performance and growth.

CONCLUSION

This study shows that digital literacy and technology utilization have a significant influence on MSME performance. Improved ability to use digital technology allows MSMEs to access a wider market, increase operational efficiency, and improve marketing strategies. Thus, the development of better digital literacy among MSME players can encourage the growth and competitiveness of small and medium enterprises in the current digital era.

Some suggestions that can be given are as follows: First, it is important to improve digital literacy among MSME actors through more intensive training and education programs, in order to maximize the use of technology in their businesses. Second, access to affordable digital technology and education on its use needs to be expanded, so that MSMEs can optimize the use of e-commerce platforms, digital financial management systems, and online marketing tools. In addition, collaboration with technology companies can help MSMEs obtain the right digital solutions for their needs. The government also needs to strengthen digital infrastructure, especially in areas that are not yet covered by technology, so that MSMEs can utilize technology without access barriers. Finally, focusing on digital marketing through platforms such as social media and websites can expand market reach and increase sales for MSMEs. By following these suggestions, it is hoped that MSMEs can improve their performance and competitiveness in the digital era.

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