

# The Role of Digitalization and Product Competitiveness on SMEs' Ability to Penetrate International Markets

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**Abstract**-This study aims to analyze the role of digitization and product competitiveness in the ability of SMEs to penetrate international markets. The current digital transformation provides great opportunities for SMEs to expand their marketing reach, improve operational efficiency, and strengthen their product position amid global competition. However, not all SMEs are able to optimize digitization, and product competitiveness is also an important factor in determining the success of expansion into international markets. This study uses a quantitative approach by distributing questionnaires to SME players as respondents. Independent variables and the dependent variable in the regression model. Furthermore, the R Square value of 0.400 indicates that the independent variables in the model are able to explain 40.0% of the variation in the dependent variable. Respondents were selected using purposive sampling, namely SMEs that have implemented digital technology in their business activities. The research instrument was compiled using a 5-point Likert scale to measure respondents' perceptions of digitalization (X1), product competitiveness (X2), and the ability of SMEs to penetrate international markets (Y).

**Keywords:** Digitalization; Product Competitiveness; SMEs; International Markets Exports

## 1. INTRODUCTION

MSMEs play a vital role in the global economy, especially in developing countries that rely on this sector as the backbone of their economies. More than 50% of GDP in many countries comes from small, medium, and micro enterprises, which also provide up to 70% of employment. The development of digital technology over the past decade has brought structural changes to various economic activities, including business activities carried out by Micro, Small, and Medium Enterprises (MSMEs) (Ahmad fadlan 2024). Digital transformation is no longer just a supporting tool for operations, but has evolved into a core strategy for increasing competitive value, expanding markets, and streamlining business processes (Nurul Haeriya Ridwan, 2025) (Buntuang dkk., t.t.). Digitalization enables business processes to be faster, more accurate, and more integrated, giving MSMEs the ability to respond adaptively to market dynamics (Ardiansyah, 2023). In line with this, digitalization also serves as a foundation for reducing operational costs, optimizing market demand, and improving data-driven decision-making capabilities (Priyatna, 2024).

In the context of MSMEs, the application of digital technologies such as e-commerce, social media, digital management systems, and data-driven marketing has opened up enormous opportunities for businesses to reach global consumers without having to rely on physical interaction or overcome geographical barriers (Yuniati & Supriadin, 2024). Through the use of digital platforms, MSMEs have broader access to international markets and can establish business relationships with consumers or partners from various countries (Pratama & Munawaroh, 2025). This phenomenon shows that digitalization has created new opportunities for MSMEs to scale up their businesses and compete in the international market.

Given the importance of these two factors, this study aims to analyze the impact of digitization and product competitiveness on the ability of MSMEs to expand their international markets (Añón Higón & Bonvin, 2024). This study was conducted using a quantitative approach through a questionnaire distributed to MSMEs that have implemented digital technology in their operations (Arestha & Afifah, 2025). Purposive sampling was used to select respondents, while a 5-point Likert scale was used to measure respondents' opinions regarding digitalization (X1), product availability (X2), and the ability of MSMEs to enter international markets (Y). (Hidayat et al., 2024).

## 2. RESEARCH METHOD

### 2.1 Basic Research Framework

This study uses a quantitative approach by conducting a survey through the distribution of questionnaires to MSME players who have implemented digital technology in their business activities. A total of 30 MSMEs players from various industries, including fashion, crafts, culinary, and household products, were selected through purposive sampling. The effect of digitization and product competitiveness on the ability of MSMEs to penetrate international markets was determined by analyzing the collected data using multiple linear regression analysis. Before regression testing, classical assumption tests such as heteroscedasticity, normality, and multicollinearity were performed. Multiple Linear Regression is a linear regression model that uses several independent variables or predictors (M.M Sudariana & M.M, 2021). The

focus of this study is to determine how independent and dependent variables interact with each other. By focusing on 30 MSMEs surveyed through questionnaires distributed.

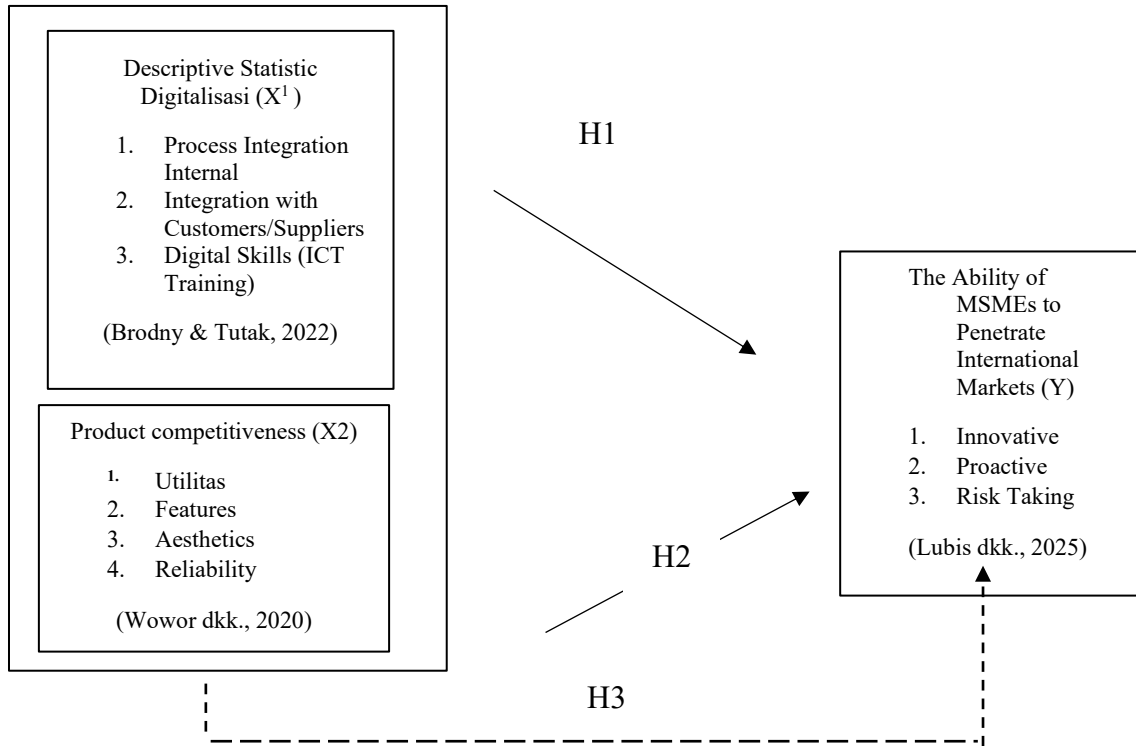


Figure 1. Conceptual framework diagram

### 3. RESULTS AND DISCUSSION

#### 3.1 Discussion

Tabel 1. Descriptive Statistic Digitalisasi (X<sup>1</sup>)

Indicator	N	Mean	Std. Deviation	
Level of data integration between departments in the ERP system (X1.1)	30	5.00	.000	Highest
Frequency of ICT training attended by employees (X1.2)	30	4.50	4.50	Lowest
Valid N (listwise)	30			

MSME digitization is the process of using digital technology to support and improve the activities of micro, small, and medium enterprises (MSMEs). This includes things such as marketing, transactions, operations, and customer service (Faturrahman et al., 2025). Examples include the use of social media for advertising, sales platforms, digital cashier applications, and cloud-based accounting systems (Adhitya et al., 2024). In a broader context, MSME digitalization is part of national economic change. It forces businesses to adapt to changing consumer behavior, which is becoming more online (Faturrahman et al., 2025). This change is driven by increased internet access, massive smartphone usage, and a shift in public interest toward fast, practical, and flexible services (Hapiz et al., 2025).

H 1. Understanding digitalization has a significant influence on perceptions of the efficiency of public budget management.

Based on Table 1, indicator (X1.1) Level of data integration between parts of the ERP system shows that the highest mean value is 5.00 for the variable studied. This indicates that respondents consider internal data integration to be the most important component in supporting digital system performance. Conversely, indicator (X1.2) Frequency of ICT training attended by employees shows that the lowest mean value is 4.50. Thus, it can be concluded that the aspect of digital competency development through training is still relatively low compared to other indicators. These findings show that there are differences in the respondents' perceptions. Technological factors, particularly system integration, are more prominent than human resource factors, particularly skills improvement and training.

Tabel 2. Descriptive Statistic Product Competitiveness (X<sup>2</sup>)

Indicators	N	Mean	Std.Deviation
Value or benefit (X2.1)	30	4.73	.521
Satisfaction (X2.2)	30	4.70	.535
Valid N (listwise)	30		

Product competitiveness is the ability of a product to survive and thrive in a highly competitive market (Aditiya et al., 2025). Consumers have more choices, faster access to information, and constantly changing preferences in the era of globalization and digitalization (Amory et al., 2025). In this situation, manufacturers must not only produce goods that meet basic needs but also be able to offer special advantages to customers (Akmal Huda Nasution, 2024). Therefore, product competitiveness is an important indicator for assessing how effectively a company uses its resources and marketing strategies (Ahmad et al., 2024). Product competitiveness does not arise suddenly, but is the result of managing various strategic variables (Widyantini, 2021). Consumer perceptions of the value offered are influenced by a combination of these variables (Oen et al., 2025). In contemporary marketing, consumer value is considered from a functional as well as emotional, symbolic, and experiential perspective. Therefore, companies must have the ability to accurately identify, develop, and combine product competitiveness variables (Nugroho & Anomsari, 2025).

H 2. Understanding product competitiveness shows that quality, price, and innovation are the main factors that determine a product's position in the market.”

Based on Table 2, it can be seen that indicator (X2.1) regarding product value or benefits has the highest mean value of 4.73. This shows that respondents consider the product to have excellent benefits and is able to provide value in line with their expectations. Thus, respondents' perception of the value offered by the product is at a very high level. Meanwhile, the indicator with the lowest mean value is (X2.2) related to satisfaction of use, which is 4.70. Although it is the lowest, this mean value is still in the very good category, indicating that the respondents' level of satisfaction with their experience of using the product is relatively high, although slightly lower than their perception of the value/benefits of the product. Overall, these results illustrate that the Product Competitiveness variable (X2) is rated very highly by respondents, both in terms of value/benefits and satisfaction with use, thus indicating that the product is highly competitive in the eyes of consumers.

**Table 3.** Descriptive Statistic The Ability of MSMEs to Penetrate International Markets (Y)

Indicators	N	Mean	Std.Daviation	
Exploration and experimentation to discover opportunities (Y.6)	30	4.63	.556	Higest
Measurable risks with new ideas (Y.5)	30	4.60	.621	Lowest
Valid N (listwise)	30			

The variable that describes the level of readiness, capacity, and competence of MSMEs to export and compete in the global market is the ability of MSMEs to penetrate international markets (Prihandini & Nugraha, 2023). This ability includes not only the technical ability to sell goods to other countries, but also knowledge about product quality, economic changes around the world, marketing strategies, and the company's readiness to meet global standards. (Allo & Prijadi, 2024). To increase business competitiveness and resilience, MSMEs are required to master the domestic market and expand into international markets in the era of globalization. (Habibi & Ibrahim, 2025). The ability of MSMEs to penetrate international markets depends not only on product quality, but also on managerial readiness, understanding of regulations, ability to utilize digital technology, and the strength of networks (R. Hidayat, 2025). The higher the capabilities of MSMEs in these aspects, the greater their chances of competing and surviving in the global market (A. W. Nugroho & Susilo, 2025).

H 3. The understanding of MSMEs' ability to penetrate international markets shows that product readiness, quality, marketing strategies, and the use of digital technology are key factors for competing at the global level

Table 3 shows that the indicator (Y.6) of exploration and experimentation to find opportunities has the highest mean value, namely 4.63. This indicates that respondents assess the ability of MSMEs to explore and conduct various experiments to find international market opportunities as very good. As a result, respondents' perceptions of the ability of MSMEs to be innovative in seeking new opportunities are very good high. Meanwhile, the indicator with the lowest mean value is (Y.5) related to the risk of new ideas, which is 4.60. Although it is the lowest, this mean value is still in the very good category, indicating that respondents consider MSMEs to be quite capable of taking calculated risks when developing ideas or innovations to enter the international market, even though the level is slightly lower than their ability to explore opportunities. Overall, the results show that the variable of MSME Ability to Penetrate International Markets (Y) is rated highly by respondents. MSMEs are considered to have a strong ability to compete and expand markets at the international level, both in terms of their ability to find opportunities and their willingness to take risks.

**Table 4.** Simultaneous Test Results (F)

		Anova				
	Model	Sum of Squares	df	Mean square	F	Sig
1	Regression	106.054	2	53.027	8.987	.001 <sup>b</sup>
	Residual	159.313	27	5.900	5.900	
	Total	265.367	29			

a. Dependent Variabel: The Ability of MSMEs to Penetrate International Markets  
 b. Predictors:(Constants), : Digitalization, Product Competitiveness

Based on Table 4, the ANOVA test results show that the regression model that includes the variables of digitization and product competitiveness has a significant simultaneous effect on the ability of MSMEs to penetrate international markets. The F value of 8.987 with a significance level of 0.001 indicates that the model is feasible and reliable for further analysis. The significance value, which is well below the threshold of 0.05, indicates that there is a strong relationship between the combination of independent variables and the dependent variable. The results show that digitization and product competitiveness together can explain how the ability of MSMEs to enter international markets changes or differs. In other words, improving digitization and strengthening product competitiveness contribute significantly to encouraging the readiness and ability of MSMEs to compete at the global level. Therefore, these two variables can be considered as important factors that simultaneously influence the perception and performance of MSMEs in their efforts to enter international markets.

**Table 5.** Partial Test Results (T)

Model	Coeffisients		Sandardized Coefficients Beta	t	Sig
	Unstandardized Coefficients B	Std. Error			
1 (Constant)	-4.582	7.677		-.597	.556
Digitization	.498	.325	.290	1.530	.138
Product Competitiveness	.484	.223	.411	2.170	.039

Based on the partial test table (t-test) shown, it can be seen that the Digitalization variable has a coefficient value of 0.498 with a significance value (Sig.) of 0.138. This significance value is higher than the limit of 0.05, so it can be concluded that Digitalization does not have a significant effect on the dependent variable in this study. In other words, changes in the level of digitalization have not been able to contribute significantly to the measured results.

Meanwhile, the Product Competitiveness variable shows a coefficient of 0.484 with a significance value of 0.039. Since the Sig. value is < 0.05, it can be concluded that Product Competitiveness has a significant effect on the dependent variable. This finding indicates that increasing product competitiveness contributes significantly to influencing the research results, in contrast to digitization, which does not show a significant effect.

**Table 6.** Coefficient of Determination Test Results

Model	Model Summary			
	R	R Square	Adjust R Square	Std. Error The Estimasi
1	.632 <sup>a</sup>	.400	.355	2.429

Independent variables and the dependent variable in the regression model. Furthermore, the R Square value of 0.400 indicates that the independent variables in the model are able to explain 40.0% of the variation in the dependent variable. This percentage shows that the contribution of the independent variables is in the moderate to strong category in explaining changes in the dependent variable. Meanwhile, the Adjusted R Square value of 0.355 indicates that after making adjustments based on the number of variables and sample size, the model can still explain approximately 35.5% of the variation in the dependent variable. This value is considered more accurate in assessing the overall capability of the model, especially when the model involves more than one independent variable.

Based on the Model Summary Table, an R value of 0.632 indicates that there is a fairly strong relationship between the In addition, the Standard Error of the Estimate value of 2.429 illustrates the magnitude of prediction errors that occur in the model. The smaller the standard error value, the more accurate the model prediction. With a value of 2.429, it can be said that the regression model still has a relatively moderate level of prediction error, so that the prediction accuracy can be said to be quite good but still has room for improvement.

### 3.2 Results

The results of the study show that respondents gave different assessments to each variable studied. In the digitization variable, the indicator of data integration between departments was the highest rated aspect, while the frequency of ICT training was the lowest. These findings indicate that although digital technology has been used effectively, improving human resource competencies through training is still not optimal. However, partial test results show that digitization does not have a significant effect on the ability of MSMEs to penetrate international markets, as indicated by a coefficient of 0.498 and a significance value of 0.138. This indicates that digitization is not yet a major factor determining the readiness of MSMEs to enter the global market.

Unlike digitization, product competitiveness variables show a significant influence. The coefficient of 0.484 and significance value of 0.039 prove that product competitiveness has a real impact on the ability of MSMEs to penetrate international markets. The indicator of product benefits or value was rated highest by respondents, while user satisfaction had the lowest rating, although it remained in the very good category. The variable of MSME ability to penetrate international markets also shows strong perceptions from respondents. The indicator of opportunity exploration is the aspect with the highest understanding, while the ability to take measurable risks has the lowest value. This shows that MSMEs tend to be stronger in terms of innovation and opportunity seeking, but are still cautious in taking risks related to international markets. An R Square value of 0.400 indicates that the model can explain 40% of the variation in the

ability of MSMEs to penetrate international markets, while the rest is influenced by factors outside the model, such as capital, international networks, export regulations, or access to financing. The Adjusted R Square value of 0.355 and standard error of 2.429 indicate that the model's accuracy level is in the moderate category. Thus, the model is considered quite feasible but still has room for improvement. Overall, this study proves that product competitiveness is the most influential factor, while digitalization has not had a significant impact on the ability of MSMEs to expand into international markets.

#### 4. CONCLUSION

This study uses quantitative data from 30 MSMEs that use digital technology to see how digitization and product competitiveness affect the ability of MSMEs to penetrate international markets. The results show that digitalization has been implemented mainly through data integration between departments using ERP systems, improving operational efficiency, but there is still a lack of ICT training for employees. Digitalization functions more as an operational support than influencing global growth (Sig. = 0.138), according to partial regression. Conversely, product competitiveness is the most influential factor (Sig. = 0.039), particularly product value, benefits, innovation, and user satisfaction, which are key to the success of MSMEs in the global market. MSMEs are considered innovative in exploring international opportunities, although they are cautious in taking risks. In simultaneous analysis, it was found that digitization and product competitiveness have a significant effect on the ability to penetrate international markets ( $F = 8.987$ ; Sig. = 0.001) with  $R^2 = 0.400$ , indicating that the model explains 40% of the differences in international capabilities. In short, product strength determines the success of MSMEs in penetrating international markets, while digitization helps with operations. Strengthening product quality, innovation, added value, and digital human resource capabilities are necessary to improve global competitiveness in a sustainable manner.

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