

The Influence of Digital Transformation on the Competitive Advantage of UMKM

(Study of UMKM in Pandeglang District, Pandeglang Regency, Banten)

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This study aims to examine the effect of digital transformation on the competitive advantage of Micro, Small, and Medium Enterprises (MSMEs) in Pandeglang District, Pandeglang Regency, Banten Province. The research employs a quantitative approach with a correlational method and a cross-sectional design. Data were collected from 100 MSME actors using a structured questionnaire, and the sampling technique applied was proportionate random sampling. The variables analyzed include digital transformation as the independent variable, consisting of business process digitalization, digital platform utilization, digital human resource capability, and information system integration, and competitive advantage as the dependent variable. Data analysis was conducted using multiple linear regression with SPSS. The results indicate that digital transformation has a positive and significant effect on MSME competitive advantage, both partially and simultaneously. Among the dimensions, digital platform utilization is identified as the most dominant factor influencing competitive advantage. The coefficient of determination (R^2) value of 0.610 shows that 61% of the variation in competitive advantage can be explained by digital transformation variables. These findings suggest that the adoption of digital technologies plays a strategic role in enhancing MSME competitiveness through improved efficiency, market expansion, and innovation. This study contributes to the literature on business administration by providing empirical evidence from a local context and offers practical implications for policymakers and MSME actors in accelerating digital transformation.

Keywords: Digital Transformation, Competitive Advantage, MSMEs, Business Administration.

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1. Introduction

The development of the digital economy has encouraged UMKM actors to transform their business models. The concept of competitive advantage proposed by Michael E. Porter emphasizes that organizations must be able to create unique value through differentiation or cost efficiency. UMKM are a major pillar of the Indonesian economy, accounting for the majority of business units and absorbing a significant portion of the workforce across regions, including rural areas and small districts/cities. Nationally, the number of UMKM has reached tens of millions of units and contributes substantially to Gross Domestic Product (GDP) as well as employment generation [1].

In the context of strategic management, according to Fred R. David, organizational success is strongly influenced by the ability to formulate and implement strategies based on both external and internal environments [2].

UMKM in Pandeglang District face challenges related to technological limitations, digital literacy, and market access. Therefore, this study is important to empirically examine the effect of digital transformation on the competitive advantage of UMKM in the area. Pandeglang Regency is one of the regions in Banten Province with a large and continuously growing number of UMKM. According to data from the Department of

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Cooperatives and UMKM of Pandeglang Regency, the total number of UMKM has reached approximately 48,000 units spread across 35 districts, including Pandeglang District as one of the centers of local economic activity. In addition, the increasing trend in the number of UMKM from 12,374 units in 2020 to 32,306 units in 2022 indicates significant business dynamics within the regency. Nevertheless, many UMKM in this region still face challenges in utilizing digital technology for marketing and operational activities, creating a strategic gap that warrants further investigation in the context of competitive advantage [3].

Although the number of UMKM in Pandeglang District, Pandeglang Regency, has increased significantly in recent years, this quantitative growth has not been fully accompanied by improvements in the quality of business competitiveness. Many UMKM actors still operate using conventional business models with limited utilization of digital technology, particularly in production processes, marketing activities, and financial management [4]. The development of the digital economy requires business actors to adapt through technology-based business model transformation. However, in reality, a number of UMKM in Pandeglang District continue to face various constraints, such as low levels of digital literacy, limited access to technological infrastructure, insufficient digital-based managerial training, and the lack of integrated information systems in decision-making processes. As a result, the use of marketplaces, social media, digital payment systems, and application-based financial recording remains suboptimal [5].

From a theoretical perspective, the concept of competitive advantage proposed by Michael E. Porter emphasizes the importance of differentiation and cost efficiency as primary strategies for winning competition. In the context of the digital economy, these strategies largely depend on an organization's ability to adopt and integrate digital technology effectively. Meanwhile, according to Fred R. David, strategic success is strongly influenced by an organization's capability to adapt to a dynamic external environment [6].

The core issue that emerges is the gap between the increasing number of UMKM and their level of readiness for digital transformation. If this condition is not addressed promptly, UMKM in Pandeglang District may experience stagnation in competitiveness, difficulties in expanding market reach, and vulnerability to competitive pressures from both local businesses and external competitors that have already adopted digital systems [7]. Therefore, an empirical study is necessary to examine the extent to which digital transformation comprising business process digitalization, digital platform utilization, digital human resource capability, and information system integration affects the competitive advantage of UMKM in Pandeglang District. This research is important to provide a scientific basis for formulating policies and strategies aimed at developing digitally based UMKM at the regional level [8].

2. Literature Review

Digital Transformation

Digital transformation is a fundamental process of change in organizational or business activities through the utilization of digital technology to improve performance, efficiency, and create new value for customers. Digital transformation is not only related to the use of technology, but also includes changes in strategy, organizational culture, and business models in response to the rapid development of information technology. According to Westerman, Bonnet, and McAfee (2014), digital transformation is the process of using digital technologies to radically improve an organization's performance or reach. Digital transformation enables organizations to develop new business models, improve service quality, and expand market access through various digital platforms. Meanwhile, Vial explains that digital transformation is a process aimed at improving organizational performance through changes driven by the use of digital

technologies in various operational and strategic aspects of the organization. Digital transformation can influence how organizations interact with customers, manage business processes, and create added value for stakeholders. In the context of Micro, Small, and Medium Enterprises (MSMEs), digital transformation can be realized through the use of various technologies such as social media, marketplaces, digital payment systems, and business management applications. The use of these digital technologies allows MSMEs to improve operational efficiency, expand marketing reach, and enhance competitiveness in the market.

The indicators of digital transformation in this study include:

1. Utilization of social media as a digital marketing tool
2. Use of marketplace or e-commerce platforms
3. Utilization of digital payment systems
4. Use of digital technology in business management

Through the implementation of digital transformation, MSMEs are expected to adapt to the increasingly dynamic business environment and take advantage of opportunities arising from digital technological developments.

Competitive Advantage

Competitive advantage is the ability of an organization or company to create greater value compared to its competitors, enabling it to maintain its position in the market. Competitive advantage is one of the key factors in determining the success and sustainability of a business. According to Michael E. Porter, competitive advantage is a company's ability to achieve superior performance compared to its competitors through specific strategies, such as product differentiation, cost leadership, and focus on particular market segments. Companies with competitive advantage are able to offer products or services that provide greater value to consumers than those of their competitors. In addition, Barney (1991) explains that competitive advantage can be achieved through the effective utilization of organizational resources to create value that is difficult for competitors to imitate. In this context, an organization's ability to leverage technology, knowledge, and innovation becomes a crucial factor in creating sustainable competitive advantage. In the context of MSMEs, competitive advantage can be seen from the ability of business actors to create high-quality products, provide excellent customer service, innovate products, and implement effective marketing strategies. Competitive advantage can also be enhanced through the use of digital technology, which helps expand market reach and improve business efficiency. The indicators of competitive advantage in this study include:

1. Quality of products or services offered
2. Product differentiation or uniqueness
3. Product innovation capability
4. Marketing competitiveness

By having competitive advantage, MSMEs can sustain their business continuity and face increasingly intense business competition.

The Relationship between Digital Transformation and MSME Competitive Advantage

Digital transformation plays a very important role in enhancing the competitive advantage of a business, including in the MSME sector. The use of digital technology enables business actors to improve operational efficiency, expand market reach, enhance service quality, and accelerate transaction processes. In today's digital economy era, technology has become a strategic factor in creating added value for customers. MSMEs that are able to optimally utilize digital technology have a greater opportunity to improve their competitiveness compared to those that still operate conventionally. The use of social media and marketplaces, for example, allows MSMEs to market their products more widely without being limited by

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geographical boundaries. In addition, the use of digital payment systems provides convenience for consumers in making transactions, thereby increasing customer satisfaction. Thus, digital transformation can be an effective strategy in improving the competitive advantage of MSMEs, whether through improving service quality, increasing operational efficiency, or expanding market access.

Research Hypothesis

Based on the conceptual framework, the hypotheses in this study are as follows:

H₀ (Null Hypothesis): Digital transformation has no significant effect on the competitive advantage of MSMEs in Pandeglang District, Pandeglang Regency.

H₁ (Alternative Hypothesis): Digital transformation has a significant effect on the competitive advantage of MSMEs in Pandeglang District, Pandeglang Regency.

3. Method

This study employs a quantitative approach using a correlational method aimed at examining the relationship and influence between digital transformation and the competitive advantage of UMKM. The research design applied is a cross-sectional design, in which data collection is conducted at a single point in time without any specific treatment or intervention toward the respondents. This approach emphasizes the simultaneous measurement of independent and dependent variables within one research period. Through this design, the researcher is able to analyze the extent to which digital transformation influences the competitive advantage of UMKM in Pandeglang District [9].

The population in this study consists of all active and officially registered UMKM in Pandeglang District, Pandeglang Regency, Banten Province. Pandeglang District serves as one of the local economic centers with a considerable number of UMKM operating across various sectors, including culinary businesses, trade, services, and handicrafts. UMKM in this area play a significant role in supporting regional economic growth and employment absorption. However, the level of digital technology adoption among UMKM actors varies, making this population highly relevant for investigation within the context of digital transformation and competitive advantage. The sample of this study comprises 100 respondents who are UMKM actors in Pandeglang District. The determination of the sample size is based on considerations of population representation and the adequacy of statistical analysis using multiple linear regression through SPSS. The sampling technique employed is proportionate random sampling, which is a random sampling method that takes into account the proportion of each business category or UMKM sector within the population. Through this technique, each UMKM actor has an equal opportunity to be selected as a respondent according to the proportion of their business sector, ensuring that the sample objectively represents the overall condition of UMKM in Pandeglang District. With a total of 100 respondents, this study is expected to provide adequate empirical evidence regarding the influence of digital transformation on the competitive advantage of UMKM in the region [10].

The statistical analysis techniques used in this study are as follows:

1. Validity Test

According to [11], a valid instrument is one that is able to measure what it is intended to measure. The validity test is conducted to determine the accuracy of the measurement instrument. To determine the validity of the research instrument, the Product Moment Correlation formula is used [12]. Items that have a positive correlation with the criterion (total score) and high correlation values indicate that the item has high validity.

2. Reliability Test

According to [7], reliability refers to the extent to which the measurement results remain consistent when applied to the same object at different times. This study uses the Cronbach's Alpha method, which correlates the total scores of odd-numbered items with even-numbered items, followed by statistical testing using the Cronbach's Alpha formula. The items are randomly divided into odd and even groups.

3. Descriptive Analysis

[13] explains that the Likert scale is used to measure attitudes, opinions, and perceptions of individuals or groups regarding social phenomena. With the Likert scale, variables are broken down into indicators that become the basis for developing instrument items in the form of statements. Each item on the Likert scale has a response range from very positive to very negative, with each response given a corresponding score.

4. Correlation Coefficient Analysis

Several analytical techniques can be used to determine whether a relationship exists between variables. The technique used in this study is correlation analysis. Correlation analysis examines the relationship between variables using statistical methods to determine the strength and direction of the relationship [14].

5. Simple Linear Regression Analysis

To determine the influence between variables, the researcher employed simple linear regression analysis. This technique is used to identify changes in the dependent variable (Y) based on the known values of the independent variable (X). Simple linear regression measures how much the dependent variable changes as the independent variable changes. After obtaining the values of a and b, these values are inserted into the simple linear regression equation to determine predicted changes in Y based on X. This equation is useful for forecasting the average value of Y when X is known and estimating the average change in Y for each change in X.

6. Coefficient of Determination Analysis

The coefficient of determination is used to determine how much the product diversification variable contributes to or influences consumer satisfaction at Kopi Bakar Bapak N'dut Pandeglang [15].

7. Hypothesis Test (t-test)

According to [12], the t-test is used to partially test the hypothesis to determine the individual effect of each independent variable on the dependent variable. To verify the hypothesis, the formulation of the hypotheses must first be established, and the classifications are prepared accordingly.

4. Results and Discussion

Variable Description of the Study

Digital Transformation (X)

Table 1. Business Process Digitalization (X1)

Scale	Frequency	Percentage
STS	5	5%
TS	10	10%
N	17	17%
S	45	45%
SS	23	23%
Total	100	100

The majority of respondents (68%) agreed and strongly agreed that business process digitalization has been implemented in their businesses.

Table 2. Utilization of Digital Platforms (X2)

Scale	Frequency	Percentage
STS	3	3%
TS	7	7%
N	15	15%
S	50	50%
SS	25	25%
Total	100	100

A total of 75% of respondents agreed and strongly agreed, indicating that digital platforms have been widely utilized.

Table 3. Digital Human Resource Capability (X3)

Scale	Frequency	Percentage
STS	4	4%
TS	8	8%
N	18	18%
S	48	48%
SS	22	22%
Total	100	100

Approximately 70% of respondents indicated that they possess adequate digital capabilities.

Table 4. Information System Integration (X4)

Scale	Frequency	Percentage
STS	6	6%
TS	9	9%
N	20	20%
S	44	44%
SS	21	21%
Total	100	100

A total of 65% of respondents agreed and strongly agreed.

Competitive Advantage (Y)

Table 5. Efisiensi Operasional (Y1)

Scale	Frequency	Percentage
STS	4	4%
TS	6	6%
N	15	15%
S	50	50%
SS	25	25%
Total	100	100

Table 6. Product/Service Differentiation (Y2)

Scale	Frequency	Percentage
STS	5	5%
TS	8	8%
N	18	18%
S	47	47%
SS	22	22%
Total	100	100

Table 7. Market Responsiveness (Y3)

Scale	Frequency	Percentage
STS	3	3%
TS	7	7%
N	14	14%
S	52	52%
SS	24	24%
Total	100	100

Table 8. Market Share Growth (Y4)

Scale	Frequency	Percentage
STS	4	4%
TS	9	9%
N	17	17%
S	48	48%
SS	22	22%
Total	100	100

Multiple Linear Regression Analysis Results

The regression equation is as follows:

$$Y = 5.214 + 0.221X_1 + 0.318X_2 + 0.287X_3 + 0.196X_4$$

Interpretation:

- a. X₂ (digital platform utilization) is the most dominant variable
- b. All variables have a positive effect

Hypothesis Testing

Table 9. Partial Test (t-test)

Variable	Sign	Description
X ₁	0,021	Significant
X ₂	0,000	Significant
X ₃	0,002	Significant
X ₄	0,043	Significant

Simultaneous Test (F-test)

F = 42.876

Sig = 0.000

All variables simultaneously influence competitive advantage

COEFFICIENT OF DETERMINATION

$$R^2 = 0.610$$

61% of competitive advantage is explained by digital transformation

Discussion

The results of this study indicate that digital transformation has a significant effect on the competitive advantage of MSMEs in Pandeglang District. These findings support the theory of competitive advantage proposed by Michael E. Porter, which emphasizes efficiency and differentiation as key competitive strategies. The utilization of digital platforms emerges as the most dominant factor, as it enables businesses to expand market reach and enhance customer interaction. In addition, digital human resource capability plays a crucial role, in line with the perspective of Fred R. David, who highlights the importance of internal readiness in achieving strategic success. Business process digitalization contributes to improving operational efficiency, while information system integration supports data-driven decision-making processes. Furthermore, the findings of this study are consistent with previous research, which suggests that digital transformation positively influences MSME competitiveness by improving operational efficiency, expanding market access, and fostering product and service innovation. This reinforces the view that digital transformation is a strategic factor in achieving competitive advantage in the digital economy era. However, several differences were identified, particularly regarding the dominance of specific dimensions of digital transformation. In this study, digital platform utilization is the most dominant factor, whereas previous studies have identified human resource capability or business innovation as the primary drivers. These differences may be attributed to variations in respondent characteristics, levels of digital readiness, and business environments. Additionally, methodological differences also contribute to variations in findings. This study employs a quantitative approach using multiple linear regression analysis with SPSS, while other studies have utilized Structural Equation Modeling (SEM) or qualitative approaches. Such methodological variations may influence the results, particularly in identifying relationships among variables. The research context also plays an important role. This study focuses on MSMEs in Pandeglang District, which is characterized by a developing level of digital adoption. This differs from studies conducted in urban areas with higher levels of digitalization, resulting in variations in research findings. Therefore, both the similarities and differences between this study and previous research contribute significantly to enriching the literature in business administration, particularly in the area of MSME digital transformation. This study not only confirms existing theories but also provides new insights based on a specific local context.

5. Conclusion

Based on the results of the study, it can be concluded that digital transformation has a positive and significant effect on the competitive advantage of MSMEs in Pandeglang District. All dimensions of digital transformation business process digitalization, utilization of digital platforms, digital human resource capability, and information system integration have been proven to contribute to improving competitive advantage both partially and simultaneously. The results of the multiple linear regression analysis indicate that the utilization of digital platforms is the most dominant factor influencing competitive advantage, followed by digital human resource capability, business process digitalization, and information system integration. This finding suggests that MSMEs that actively leverage digital platforms such as marketplaces, social media, and digital payment systems tend to have greater opportunities to expand their market reach and improve customer engagement. Furthermore, the coefficient of determination (R^2) value of 0.610 indicates that 61% of the variation in competitive advantage can be explained by digital transformation variables, while the remaining 39% is influenced by other factors not examined in this study. Overall, this study confirms the theory of competitive advantage proposed by Michael E. Porter, which emphasizes

efficiency and differentiation as key elements in achieving competitiveness. In addition, the findings are also in line with the strategic management perspective of Fred R. David, which highlights the importance of internal organizational readiness in responding to external environmental changes. Based on the conclusions, several recommendations can be proposed:

1. Practical Recommendations

MSME actors in Pandeglang District are encouraged to enhance their adoption of digital technologies, particularly in maximizing the use of digital platforms for marketing and business operations. In addition, improving digital skills and competencies is essential to ensure the effective implementation of digital transformation.

2. Policy Recommendations

Local governments, particularly relevant agencies such as the Office of Cooperatives and MSMEs, should provide continuous support through digital training programs, mentoring, and infrastructure development. Policies that facilitate access to digital platforms and financial technology should also be strengthened to accelerate MSME digital transformation.

3. Academic Recommendations

Future researchers are encouraged to explore additional variables that may influence competitive advantage, such as innovation capability, entrepreneurial orientation, and market orientation. Moreover, further studies may employ more advanced analytical methods, such as Structural Equation Modeling (SEM), to obtain deeper insights into the relationships among variables.

4. Research Limitations and Future Directions

This study is limited to MSMEs in Pandeglang District and uses a cross-sectional design. Therefore, future research is recommended to expand the scope of the study to other regions and apply longitudinal approaches to capture changes over time.

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