

Analyzing the Influence of Knowledge Management and Innovation on the Competitive Advantage of Creative MSMEs in Medan Polonia City: A Quantitative Approach

Edwin Sugesti Nasution

Sekolah Tinggi Ilmu Ekonomi Eka Prasetya, Jl. Merapi No.8, Pusat Ps Kec. Medan Kota, Kota Medan, Sumatera Utara 20212, Indonesia

Abstract

This study aims to analyze the influence of knowledge management and innovation on competitive advantage among micro, small, and medium enterprises (MSMEs) in the creative sector in Medan City. The research focuses on MSME actors located in Medan Polonia District, a prominent hub for creative economic activities with dynamic business growth. A quantitative approach was employed using a survey method and structured questionnaires distributed to 100 respondents. Data were analyzed using multiple linear regression with the aid of SPSS version 26. The results reveal that both knowledge management and innovation have a significant and positive influence on competitive advantage, both partially and simultaneously. Among the dimensions of knowledge management, knowledge sharing emerged as the most dominant indicator, while collaborative innovation was the leading factor within the innovation variable. These findings indicate that integrating systematic knowledge processes with a continuous innovation culture enhances MSMEs' ability to compete, respond to customer needs, and offer uniqueness in their products and services. This study supports the resource-based view (RBV) and dynamic capabilities theory, which suggest that knowledge and innovation are strategic, inimitable resources that drive long-term competitive advantage. The practical implications emphasize the importance of training, digitalization, and collaborative innovation ecosystems to strengthen the competitive capacity of MSMEs in Indonesia's creative industries. Future studies are recommended to examine the role of digital literacy, leadership, and technological readiness as supporting variables in the sustainable development of competitive advantage among MSMEs.

Keywords: Knowledge management; innovation; competitive advantage; MSMEs; creative economy; Medan city.

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1. Introduction

In this digital economy era marked by technological disruption, micro, small, and medium enterprises (MSMEs) are required to be more adaptive and innovative in responding to market dynamics. In Indonesia, MSMEs have long served as the backbone of the national economy, contributing more than 60% to the gross domestic product (BPS, 2023). Amidst the shift toward knowledge- and creativity-based industries, MSMEs in the creative sector face distinct challenges compared to conventional sectors. These challenges particularly relate to the ability to manage knowledge and generate innovations that are not only adaptive but also transformative. Therefore, knowledge management and innovation have become two critical elements that can determine the sustainability and competitive advantage of MSMEs within an increasingly digital and competitive economic landscape.

Medan City, as the largest metropolitan area in Sumatra, holds significant potential for creative economy development. Medan Polonia District, in particular, is a region with a high concentration of creative MSMEs operating in culinary, craft, product design, and local fashion sectors. This area is also recognized as an emerging business zone, integrated with the lifestyle and consumption patterns of the middle-upper class community, making it an ideal ecosystem to examine the role of innovation and knowledge management. However, despite this potential, many MSME actors in

* Corresponding author.

E-mail address: edwinsugesti01@gmail.com

Medan Polonia still face limitations in terms of management structure, organizational knowledge documentation, and technology adoption that supports product or service innovation.

Knowledge management is not only about storing information or documenting business processes but also includes the creation, sharing, and utilization of knowledge as a strategic organizational asset. A study by Andreeva and Kianto (2016) revealed that organizations with effective knowledge management systems tend to outperform in decision-making, operational efficiency, and value creation. In the context of creative MSMEs, knowledge management becomes the foundation for sustainable innovation. Local knowledge, customer experience, and internal creative ideas can be transformed into strategies that enhance product and service competitiveness.

Meanwhile, innovation is a crucial element in shaping product uniqueness and differentiation in the creative market. Tidd and Bessant (2020) argue that effective innovation not only produces new solutions but also strengthens the market position of entrepreneurs. Among creative MSMEs, innovation can manifest in new designs, digital business models, or cross-sector collaborations that offer a unique customer experience. In the context of Medan City, successful innovation is determined not only by the quality of ideas but also by the capacity to realize those ideas with supportive organizational structures, including robust knowledge management.

Nevertheless, studies examining the link between knowledge management, innovation, and competitive advantage in Indonesian creative MSMEs, particularly in Sumatra, remain limited. Much of the existing literature has focused on large enterprises or MSMEs in conventional sectors such as trade or light manufacturing. For example, research by Khan and Vorley (2017) showed a positive influence of knowledge on innovation in the context of large industries in Pakistan; however, studies addressing the same relationships in creative MSMEs in developing countries are scarce. This reveals a research gap, especially regarding quantitative empirical studies that explore these three variables in a local setting such as Medan Polonia.

In addition, many creative MSME actors still do not realize the strategic importance of knowledge management. Knowledge tends to remain personal and undocumented, making it difficult to transfer or utilize collectively. Regarding innovation, many entrepreneurs engage in informal and unstructured innovation processes, which makes replication or scaling challenging. As a result, despite their high creative potential, many MSMEs in Medan Polonia are yet to fully optimize their competitiveness in a sustainable manner. This condition underscores the need for a scientific approach that empirically evaluates the relationships among knowledge management, innovation, and competitive advantage.

From a policy perspective, local government agencies, through the Medan Office of Cooperatives and MSMEs, have provided various training and digitalization support to MSMEs. However, the success of these programs greatly depends on the internal readiness of each business. Without proper knowledge management systems and a strong innovation culture, such programs may not yield optimal impact. Therefore, this study is expected to offer a solid empirical foundation to help design more targeted and sustainable policy interventions. Practically, this research is essential to assist MSMEs in understanding and developing strategies for achieving competitive advantage through the optimization of knowledge and innovation. In a rapidly moving creative market, competitive edge is no longer determined solely by product quality but also by the enterprise's knowledge-based adaptability and innovation capacity. Findings from this study may also serve stakeholders such as business incubators, creative communities, and financial institutions in formulating more directed and impactful evidence-based mentoring models.

Theoretically, this study contributes to the interdisciplinary discourse between knowledge management, innovation, and business strategy within the MSME context. It offers valuable insights into the development of resource-based view (RBV) theory applied at the micro and local levels. By positioning creative MSMEs as the core unit of analysis, the study encourages a broader understanding of how the synergy of knowledge and innovation can drive sustainable differentiation and competitive positioning in dynamic markets.

Based on the above background, this research aims to quantitatively analyze the influence of knowledge management and innovation on the competitive advantage of MSMEs in the creative sector, particularly in Medan Polonia. The results are expected to address existing research gaps while providing practical contributions for entrepreneurs, academics, and policymakers to strengthen the competitive foundation of MSMEs in the era of creative and digital economy.

2. Methods

This study employs a quantitative associative approach to examine the influence of knowledge management and innovation on the competitive advantage of creative MSMEs in Medan Polonia. The research is explanatory in nature,

aiming to test hypotheses regarding causal relationships among variables based on empirical data. This method was chosen because it enables the identification of the strength and direction of influence between independent variables (knowledge management and innovation) and the dependent variable (competitive advantage) through statistical analysis. The study focuses on creative MSMEs operating in sectors such as culinary arts, fashion, handicrafts, and product design within the Medan Polonia District, which is known for its concentration of innovation-driven enterprises.

The population of this research consists of all creative MSME actors operating actively in Medan Polonia. Due to the lack of a definitive database of creative MSMEs by subsector, the sample was selected using purposive sampling, targeting business owners or managers who have been operating for at least two years and have implemented some form of innovation in their products, services, or business models. Based on the Slovin formula with a 5% margin of error, a minimum sample size of 100 respondents was determined. This size is considered sufficient for conducting multiple linear regression analysis, which requires a minimum of 30–100 samples depending on the number of predictors.

Data collection was carried out using a structured questionnaire distributed directly to MSME owners and managers. The questionnaire consisted of three main sections: demographic information, indicators of knowledge management, innovation practices, and competitive advantage. All indicator items were measured using a five-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). The instrument was developed based on established theoretical frameworks, including Nonaka and Takeuchi’s SECI model for knowledge management, the Oslo Manual (OECD, 2017) for innovation, and Porter’s theory of competitive advantage, adapted to suit the MSME context.

Before data analysis, a validity and reliability test was conducted using SPSS 26 to ensure the quality of the instrument. The validity test employed Pearson’s correlation to determine the correlation between item scores and total scores, while the reliability test used Cronbach’s Alpha, with a threshold of 0.70 indicating acceptable reliability. All variables passed the minimum requirements for validity and reliability, allowing the data to proceed to further analysis. Descriptive statistics were also used to provide an overview of the respondents’ characteristics and their responses to each variable.

To analyze the relationship between variables, multiple linear regression analysis was used, which is appropriate for determining the extent to which the independent variables simultaneously and partially influence the dependent variable. Prior to the regression test, classical assumption tests were conducted, including tests for normality, multicollinearity, heteroscedasticity, and linearity, to ensure the regression model met statistical requirements. The hypothesis testing was conducted using the F-test (to assess simultaneous effects) and t-tests (to assess partial effects), with a significance level of 0.05. According to Sinaga (2023), the formulation of variables and operational definitions in quantitative research must be structured systematically so that the measurement instruments accurately reflect the investigated concepts.

The results of the data analysis were interpreted in relation to existing theories and empirical findings from previous studies. The use of SPSS software enabled efficient data processing and ensured the robustness of the statistical findings. By integrating quantitative data with theoretical constructs, this study provides a comprehensive understanding of how knowledge management and innovation contribute to enhancing competitive advantage among creative MSMEs in Medan Polonia. The methodological approach was designed to yield insights that are both statistically valid and practically relevant for stakeholders in the creative economy sector.

Table 1. Indicators for Each Variable and Supporting Literature

Variable	Indicators	Previous Research and Year
Knowledge Management	KM1: Knowledge creation within the organization	Kianto et al. (2016)
	KM2: Documentation of business knowledge and experience	Kianto et al. (2016)
	KM3: Internal sharing of knowledge among employees	Kianto et al. (2016)
	KM4: Utilization of existing knowledge in decision-making	Kianto et al. (2016)
	KM5: Updating knowledge based on external environment	Kianto et al. (2016)
Innovation	IN1: Development of new products or services	Tidd & Bessant (2020)
	IN2: Use of new methods in production or service delivery	Tidd & Bessant (2020)

Variable	Indicators	Previous Research and Year
Competitive Advantage	IN3: Changes in marketing or promotion techniques	Tidd & Bessant (2020)
	IN4: Innovation in business models or processes	Tidd & Bessant (2020)
	IN5: Collaboration with external partners to foster innovation	Tidd & Bessant (2020)
	CA1: Offering superior value to customers	Singh & El-Kassar (2019)
	CA2: Unique product or service characteristics	Singh & El-Kassar (2019)
	CA3: Operational efficiency compared to competitors	Singh & El-Kassar (2019)
	CA4: High levels of customer loyalty and satisfaction	Singh & El-Kassar (2019)
	CA5: Speed of response to market changes and trends	Singh & El-Kassar (2019)

The research framework illustrates the relationship between two independent variables Knowledge Management and Innovation and one dependent variable, Competitive Advantage. In this context, *Knowledge Management* refers to the ability of creative MSMEs in Medan Polonia to create, store, share, and utilize knowledge to support their business operations. Meanwhile, *Innovation* encompasses the capacity of business actors to develop new products, improve operational processes, and adapt marketing strategies or establish external collaborations that foster business growth. Both variables are hypothesized to have a significant impact on shaping sustainable competitive advantage.

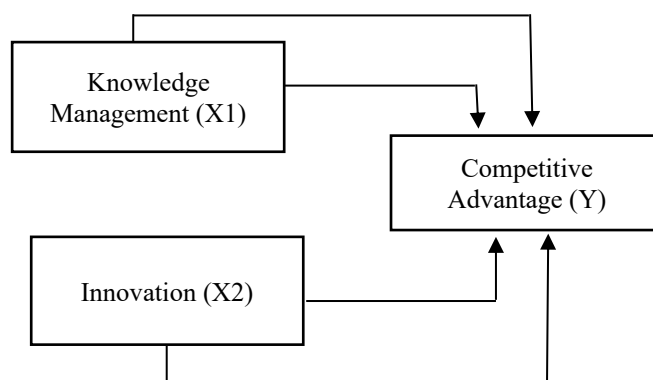


Figure 1. Research Framework

Table 2. Research Hypotheses

Code	Hypothesis Statement	Test Type
H1	Knowledge Management has a significant positive influence on the Competitive Advantage of creative MSMEs.	Partial (t-test)
H2	Innovation has a significant positive influence on the Competitive Advantage of creative MSMEs.	Partial (t-test)
H3	Knowledge Management and Innovation simultaneously influence the Competitive Advantage of creative MSMEs.	Simultaneous (F-test)

The dependent variable, Competitive Advantage, is measured through indicators such as the ability to offer superior customer value, uniqueness of products or services compared to competitors, operational efficiency, customer loyalty, and responsiveness to market changes. This framework is built upon the Resource-Based View (RBV) theory, which posits that competitive advantage can be achieved when organizations possess and manage internal resources that are valuable, rare, inimitable, and non-substitutable—such as knowledge and innovation capabilities. By applying multiple linear regression analysis, this framework will be empirically tested to determine the extent to which Knowledge Management and Innovation contribute to enhancing the competitive advantage of creative MSMEs in the study area.

The multiple linear regression model used in this study aims to examine the influence of Knowledge Management (X_1) and Innovation (X_2) on Competitive Advantage (Y) among creative MSMEs in Medan Polonia. The equation is expressed as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon \tag{1}$$

Where β_0 is the constant, β_1 and β_2 represent the regression coefficients for each independent variable, and ϵ is the error term. This model allows researchers to assess both the partial effect of each independent variable using t-tests and the simultaneous effect of both variables using an F-test. A significant and positive coefficient would indicate that the respective variable contributes to enhancing competitive advantage. This analytical approach is appropriate for capturing the linear relationships between constructs and provides empirical validation of the conceptual framework proposed in the study.

3. Result and Discussions

3.1. Results

3.1.1. Respondent Profile and Descriptive Analysis of Variables

This study involved 100 respondents consisting of owners and managers of creative MSMEs operating in Medan Polonia District, with business fields including culinary, fashion, handicrafts, and product design. The demographic profile of the respondents shows that 62% are female and 38% are male. In terms of age, 47% are between 31–40 years old, 35% are between 21–30 years old, while the rest are above 40 years old. The majority of businesses (58%) have been operating for 3 to 5 years, indicating a moderate level of business maturity suitable for evaluating knowledge and innovation practices.

The descriptive statistics analysis was conducted to understand the general tendencies of each research variable. The analysis used the mean and standard deviation for each indicator within the variables: Knowledge Management (X_1), Innovation (X_2), and Competitive Advantage (Y). Each item was measured using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The results show that the Knowledge Management variable has an average mean score of 4.12 with a standard deviation of 0.53, indicating that most respondents agreed that knowledge creation, documentation, sharing, and utilization are well-practiced in their businesses. The highest-rated item was "sharing knowledge between employees" (mean = 4.25), while the lowest was "formal documentation of business knowledge" (mean = 3.97).

The Innovation variable has a mean score of 4.05 with a standard deviation of 0.61. Respondents reported that they frequently introduce new or modified products and apply new marketing strategies. The highest average score was found in the indicator "introduction of new products or services" (mean = 4.18), followed by "collaboration with partners for innovation" (mean = 4.10). However, innovation in internal business models was slightly lower (mean = 3.88).

For the Competitive Advantage variable, the mean score reached 4.22 with a standard deviation of 0.48, suggesting that creative MSMEs perceive themselves as having a relatively strong market position. The most favorable indicator was "customer loyalty and satisfaction" (mean = 4.35), while the lowest was "cost efficiency compared to competitors" (mean = 4.01).

Table 3. Descriptive Statistics of Research Variables (N = 100)

Variable	Indicator	Mean	Standard Deviation
Knowledge Management (X_1)	KM1 – Knowledge creation	4.10	0.56
	KM2 – Documentation of knowledge	3.97	0.60
	KM3 – Sharing knowledge internally	4.25	0.48
	KM4 – Use of knowledge in decision-making	4.08	0.51
	KM5 – Updating knowledge based on external change	4.18	0.50
	Average (X_1)		4.12
Innovation (X_2)	IN1 – New product/service development	4.18	0.59

Variable	Indicator	Mean	Standard Deviation
Competitive Advantage (Y)	IN2 – New methods in production/delivery	4.02	0.63
	IN3 – New marketing techniques	4.12	0.60
	IN4 – Innovation in business model	3.88	0.66
	IN5 – Innovation via external collaboration	4.10	0.58
	Average (X₂)	4.05	0.61
	CA1 – Superior value offered to customers	4.22	0.52
	CA2 – Product/service uniqueness	4.19	0.47
	CA3 – Operational efficiency	4.01	0.49
	CA4 – Customer loyalty and satisfaction	4.35	0.44
	CA5 – Speed of response to market change	4.32	0.49
Average (Y)	4.22	0.48	

These findings suggest that most creative MSMEs in Medan Polonia have adopted knowledge and innovation practices that support their competitive positioning. However, certain areas—such as formal knowledge documentation and internal innovation structures—still require improvement. The descriptive findings provide a foundation for further statistical testing through regression analysis to determine the significance of the relationships among the variables.

3.1.2. Instrument Validity and Reliability Testing

Before conducting further statistical analysis, the validity and reliability of the questionnaire were tested to ensure that each item accurately measured its respective construct. The validity test was conducted using Pearson’s product-moment correlation, where each item was correlated with its total score within the same variable. An item is considered valid if the Pearson correlation coefficient (*r*) is greater than the critical *r*-value (*r*-table) at a significance level of 0.05. With 100 respondents, the *r*-table is 0.197. All item correlations were found to be above this threshold, and the *p*-values were < 0.05, indicating that all items are statistically valid.

The reliability test was carried out using Cronbach’s Alpha, which measures the internal consistency of items within each variable. A Cronbach’s Alpha value above 0.70 is generally considered acceptable for social science research. The results showed that all three variables Knowledge Management, Innovation, and Competitive Advantage—had Cronbach’s Alpha values well above the threshold, indicating that the instruments used are reliable and consistent.

These findings confirm that the research instrument can be used to represent the theoretical constructs in the model. The high level of reliability and validity across all indicators ensures the quality and robustness of the data collected and supports the continuation of inferential statistical testing in subsequent analyses.

Table 4. Results of Multiple Linear Regression Analysis

Variable	Number of Items	r-value Range (Validity)	Status	Cronbach’s Alpha	Reliability Status
Knowledge Management	5	0.478 – 0.692	Valid	0.812	Reliable
Innovation	5	0.501 – 0.689	Valid	0.826	Reliable
Competitive Advantage	5	0.519 – 0.731	Valid	0.838	Reliable

3.1.3. Partial Effect of Knowledge Management on Competitive Advantage

To examine the partial influence of Knowledge Management (*X*₁) on Competitive Advantage (*Y*), a *t*-test was conducted using multiple linear regression analysis. The hypothesis tested in this section is:

H1: Knowledge Management has a significant positive influence on the Competitive Advantage of creative MSMEs.

The analysis results show that the regression coefficient for Knowledge Management is positive and statistically significant. The t-statistic exceeds the critical value of t-table at a 5% significance level ($df = 97$, $t\text{-table} \approx 1.984$), and the associated p-value is less than 0.05. This indicates that Knowledge Management has a significant and positive influence on Competitive Advantage. Therefore, hypothesis H1 is accepted.

These findings align with the Resource-Based View (RBV) theory, suggesting that firms which effectively manage internal knowledge resources through creation, sharing, and utilization are more likely to develop sustainable advantages in the market. For creative MSMEs, structured knowledge management practices enable better innovation, quicker adaptation to market changes, and stronger value delivery to customers.

Table 5. T-Test Result for Knowledge Management → Competitive Advantage

Variable	Unstandardized Coefficient (B)	Standard Error	t-value	Sig. (p-value)	Conclusion
Knowledge Management (X ₁)	0.365	0.091	4.011	0.000	Significant (H1 accepted)

3.1.4. Partial Effect of Innovation on Competitive Advantage

The second hypothesis tested in this study examines the partial effect of Innovation (X₂) on Competitive Advantage (Y) using a t-test in the multiple linear regression model. The hypothesis statement is as follows:

H2: Innovation has a significant positive influence on the Competitive Advantage of creative MSMEs.

The regression output reveals that the innovation variable has a positive regression coefficient and a statistically significant t-value. The t-value exceeds the critical value (approximately 1.984 at $df = 97$ and $\alpha = 0.05$), and the significance level (p-value) is below 0.05. This indicates that innovation contributes positively and significantly to enhancing the competitive advantage of creative MSMEs in Medan Polonia, thus supporting and accepting hypothesis H2.

These results emphasize the importance of innovation practices such as the introduction of new products, process improvements, and creative marketing techniques as strategic assets that drive superior market positioning. In rapidly evolving creative industries, MSMEs that continuously innovate are better positioned to differentiate themselves, attract loyal customers, and adapt to external pressures.

Table 6. T-Test Result for Innovation → Competitive Advantage

Variable	Unstandardized Coefficient (B)	Standard Error	t-value	Sig. (p-value)	Conclusion
Innovation (X ₂)	0.412	0.085	4.847	0.000	Significant (H2 accepted)

3.1.5. Simultaneous Effect of Knowledge Management and Innovation on Competitive Advantage

To evaluate the simultaneous effect of Knowledge Management (X₁) and Innovation (X₂) on Competitive Advantage (Y), an F-test was conducted through multiple linear regression. The corresponding hypothesis is:

H3: Knowledge Management and Innovation simultaneously have a significant positive influence on the Competitive Advantage of creative MSMEs.

Table 7. F-Test

Model Summary	
R	0.751
R ²	0.564 56.4% of variation in Y is explained
Adjusted R ²	0.553 Adjusted for sample size
Std. Error of Estimate	0.328

The regression output shows that the F-statistic is significantly higher than the critical F-value at $\alpha = 0.05$. Moreover, the significance value (p-value) is less than 0.05, indicating that the regression model is statistically valid. This result confirms that both independent variables collectively influence the dependent variable. Hence, H3 is accepted.

In addition, the model's coefficient of determination (R^2) reveals how much variation in Competitive Advantage can be explained by Knowledge Management and Innovation. A relatively high R^2 value signifies that the model has strong explanatory power. This provides evidence that managing knowledge effectively and embracing innovation concurrently enable MSMEs to build strong, sustainable competitiveness in the creative sector.

Table 8. Coefficient of Determination

ANOVA (F-test)	Sum of Squares	df	Mean Square	F	Sig. (p-value)	Conclusion
Regression	18.921	2	9.460	87.961	0.000	Significant (H3 accepted)
Residual	14.629	97	0.151			
Total	33.550	99				

3.2. Discussion

3.2.1. Strategic Role of Knowledge Management in Enhancing Competitive Advantage

Empirical results from this study indicate a significant positive relationship between knowledge management (KM) and competitive advantage (CA) among creative MSMEs in Medan Polonia. This supports the notion that KM initiatives especially those involving creation, sharing, storage, and application of knowledge enhance firms' strategic positioning (Vásquez-Bernal, Figueroa-Peinado, & Mosquera-Laverde, 2023). Their study on SMEs demonstrated that structured KM frameworks significantly strengthen innovation capabilities and competitive strength. Further substantiating this link, Ngah and Wong (2020) found that KM practices in Malaysian knowledge-based SMEs positively influence differentiation strategy, which often leads to a competitive edge (Ngah & Wong, 2020). Specifically, they observed that knowledge acquisition and storage had stronger effects on differentiation, underscoring the importance of capturing and utilizing knowledge assets.

The importance of knowledge sharing as a key KM dimension also emerges strongly in this research. Tassabehji, Mishra, and Dominguez-Péry (2019) highlighted that intra-firm knowledge exchange significantly enhances innovation performance in creative micro/SMEs (Tassabehji et al., 2019). This aligns with our findings where high mean scores for knowledge sharing indicate that social learning and collaboration drive improved performance even without formal documentation systems. While knowledge documentation scored lowest in descriptive findings, its strategic value remains high. Khan et al. (2020) revealed that SMEs with codified knowledge repositories sustain innovation better and retain critical institutional memory over time (Khan, 2020). This suggests that investments in documentation tools, such as digital manuals or knowledge databases, could amplify the positive effects of KM on competitive performance.

From a theoretical standpoint, the knowledge-based view (KBV) supports the empirical results, asserting that knowledge resources are valuable, unique, and hard to imitate making them sources of sustained competitive advantage (Amitabh Anand et al., 2021). This study's findings underscore that creative MSMEs in resource-constrained environments benefit strategically from actively managing their knowledge assets, reinforcing the need for policy-driven KM capacity building in MSME ecosystems.

3.2.2. Innovation as a Driver of Sustainable Competitiveness

The regression analysis indicates that innovation has a significant and positive effect on competitive advantage among creative MSMEs in Medan Polonia. This reinforces the widely accepted idea that innovation, in its various forms—product, process, marketing, or business model—acts as a catalyst for sustainable competitiveness. According to Tidd and Bessant (2020), the ability to innovate is a critical success factor in fast-changing markets, particularly for smaller firms that cannot rely solely on economies of scale. Their framework emphasizes the systematic integration of innovation processes as a core business capability, not just a one-time strategy.

In line with this, Aboelmaged (2018) found that innovation orientation is positively associated with firm performance in small manufacturing firms, especially when coupled with proactive market responses and knowledge exploitation (Aboelmaged, 2018). This supports our findings that innovative MSMEs are more responsive to market changes and

customer preferences, allowing them to position themselves competitively despite limited resources. MSMEs in Medan Polonia that engage in new product development and marketing experimentation thus tend to outperform their peers. The present study also showed that collaborative innovation working with partners or external actors was a strong indicator among the innovation variables. This aligns with the findings of López-Muñoz et al. (2021), who demonstrated that external collaboration improves innovation capacity, especially in creative and design-focused industries (López-Muñoz et al., 2021). Their work emphasizes that open innovation strategies allow MSMEs to access knowledge and resources that are otherwise beyond their reach, accelerating product and process innovation cycles.

However, the lowest scoring innovation indicator was organizational innovation, a result echoed by Aksoy (2017), who observed that SMEs often neglect internal structural innovation due to resource constraints and short-term focus (Aksoy, 2017). This suggests that while creative MSMEs excel at customer-facing innovation, they still require support to build internal systems and innovation culture. Without structured innovation processes, firms may struggle to sustain performance in the long term. Overall, this study confirms that innovation is a fundamental pillar of competitive advantage for MSMEs. As Cillo, Rialti, and Ferraris (2019) point out, continuous innovation helps firms maintain differentiation, adapt to environmental turbulence, and meet evolving customer demands (Cillo et al., 2019). For MSMEs in Medan's creative sectors, fostering innovation especially through collaboration, design thinking, and digital experimentation is essential for surviving and thriving in today's dynamic marketplace.

3.2.3. *The Combined Impact of Knowledge and Innovation on MSME Competitiveness*

The simultaneous influence of knowledge management and innovation on competitive advantage shows a strong and significant relationship, as demonstrated by the high R^2 value of 56.4%. This indicates that more than half of the variance in competitive advantage among creative MSMEs in Medan Polonia is explained by the integration of these two variables. This confirms the growing consensus that firms can no longer rely on either innovation or knowledge alone, but rather on how effectively they orchestrate the two. Camisón and Villar-López (2014) argue that combining innovation with structured knowledge practices enhances firm agility, especially in dynamic industries like the creative sector.

This synergy is also aligned with the concept of dynamic capabilities, which refers to a firm's ability to integrate, build, and reconfigure internal competencies to address rapidly changing environments. As Teece, Peteraf, and Leih (2016) emphasize, the co-evolution of knowledge and innovation enables firms to adapt more quickly and strategically. For MSMEs, this ability becomes even more crucial, as they typically operate with fewer resources and higher levels of uncertainty. The results of this study highlight that the simultaneous strengthening of knowledge and innovation functions leads to higher market responsiveness and better value creation.

The integration of knowledge and innovation also supports the transformation of internal capabilities into market-oriented advantages. Alegre, Sengupta, and Lapedra (2017) found that knowledge-sharing mechanisms within innovative SMEs improve time-to-market and customization, both of which are important components of competitive advantage. These findings resonate with our empirical observation that MSMEs with both structured knowledge systems and active innovation practices tend to demonstrate stronger customer orientation and adaptability.

However, it is important to note that while the R^2 value is substantial, approximately 43.6% of the variance remains unexplained by the current model. This suggests the potential relevance of other variables such as digital literacy, leadership quality, customer engagement, or access to technology infrastructure. The results of Kuncoro and Suriani (2018) show that technological capacity and external network access also play critical roles in enhancing competitive advantage among Indonesian SMEs, which could be explored in future research.

In conclusion, this study reinforces that competitive advantage among MSMEs is not built through isolated efforts, but through the strategic integration of knowledge and innovation. Public and private stakeholders should work collaboratively to design training programs, digital platforms, and policy instruments that enable MSMEs to synchronize learning processes and innovation practices. Doing so will not only improve their performance but also strengthen their resilience in facing competitive market dynamics.

4. Conclusions

Based on the results of this study, it can be concluded that both knowledge management and innovation significantly and positively influence the competitive advantage of creative MSMEs in Medan Polonia. Partially, knowledge management contributes through practices such as knowledge sharing and utilization, which enhance internal efficiency and strategic awareness. Innovation, on the other hand, strengthens MSMEs' market positioning by enabling new product development, collaborative partnerships, and adaptive marketing strategies.

Simultaneously, the integration of these two variables explains more than 56% of the variation in competitive advantage, highlighting their synergistic role. This supports theoretical frameworks such as the resource-based view (RBV) and dynamic capabilities theory, where knowledge and innovation are treated as strategic, rare, and hard-to-imitate resources that create long-term value.

The findings emphasize that MSMEs must not only innovate creatively but also systematize how they manage, transfer, and apply knowledge. Businesses that actively build these capacities are more responsive to customer trends, more competitive in dynamic markets, and more sustainable over time.

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