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Innovation Drives MSME Performance and Competitiveness in Emerging Economies.

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ABSTRACT: This study explores the impact of four innovation dimensions - product, process, marketing, and organizational - on the performance and competitiveness of Micro, Small, and Medium Enterprises (MSMEs) in Mataram City, Indonesia. Employing a quantitative approach and Structural Equation Modeling (SEM), the research analyzes survey data to investigate the relationships between innovation dimensions, firm performance, and competitiveness. The findings indicate that organizational innovation has a statistically significant effect on MSME performance, while product innovation is significant at a lower level. Interestingly, no single innovation dimension directly influences competitiveness; instead, performance acts as a crucial mediator. The combined effect of all innovation dimensions contributes considerably to both performance and competitiveness, explaining 81.40% and 86.60% of their variations, respectively. The study underscores the importance of a holistic approach to innovation, with organizational innovation serving as a foundation for enabling improvements in other areas. Practical implications for MSME owners, policymakers, and support institutions are discussed, emphasizing the need for comprehensive strategies and support systems to nurture innovation-driven growth and competitiveness in the Indonesian MSME sector. The research recommends future studies to adopt longitudinal designs, expand sample coverage, explore moderating variables, conduct comparative analyses, examine innovation ecosystems, and employ mixed method approaches to gain a more comprehensive understanding of innovation dynamics within the MSME sector.

Keyword: Innovation Dimensions, MSME Performance, Organizational Innovation, Innovation and Competitiveness

I. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economy, representing 99.9% of all business actors and contributing 61.9% to the national GDP in 2021 (Ministry of Cooperatives and MSMEs, 2022). They also absorb approximately 97% of the national workforce, highlighting their significant contribution to job creation (BPS, 2021). Despite their pivotal role, Indonesian MSMEs continue to face challenges in accessing global markets, with exports accounting for only 15.69%—a figure that lags behind other Asian countries such as China (60%), Singapore (41%), and Thailand (29%) (World Bank, 2022). This low level of global competitiveness presents a major barrier to international expansion (Moreira, 2020). Recognizing this, the Indonesian government has prioritized MSME development through a variety of policies and programs, including improved access to financing, technical assistance, and product promotion (Ministry of Cooperatives and MSMEs, 2022). However, these efforts have not yet optimally stimulated comprehensive innovation among MSMEs. Innovation is increasingly seen as a key driver for enhancing MSME performance and competitiveness in an era of global competition (Mannan & Haleem., 2019; Yaskun et al., 2023, Muis et al, 2024).

This study introduces a novelty by comprehensively analyzing the role of four dimensions of innovation—product, process, marketing, and organizational—in improving the performance and competitiveness of MSMEs. Unlike previous studies that tend to focus on only one or two aspects of innovation (Agyapong et al, 2021; Yuzaria et al, 2021; Odura, 2019), this research adopts a multidimensional approach to gain a more holistic understanding of innovation dynamics within MSMEs. The research is conducted in Mataram City, a region with unique MSME characteristics that have been relatively underexplored in existing literature (Mataram City Cooperative and MSME Office, 2022). The study addresses a research gap in the limited integration of multidimensional innovation perspectives with MSME performance and competitiveness at the regional level.

The research seeks to answer the following questions: (1) Do product, process, marketing, and organizational innovations significantly influence MSME performance in Mataram City? (2) Do these four innovation dimensions significantly affect the competitiveness of MSMEs? and (3) Does MSME performance significantly impact their competitiveness? These questions stem from the identified research gap and the urgent

need to understand the innovation landscape at the local level. Accordingly, the objectives of this study are to investigate the effects of product, process, marketing, and organizational innovation on the performance of MSMEs in Mataram City, and to analyse how these dimensions influence MSME competitiveness. The study also examines the mediating role of performance in enhancing competitiveness. Findings from this research are expected to provide an empirical foundation for developing evidence-based policies that can strengthen MSMEs through innovation.

The urgency of this research is underscored by the essential role MSMEs play in driving Indonesia's economic growth. As global competition intensifies, MSMEs must continue to innovate in order to remain competitive (Palencia et al, 2024). However, their innovation capacity—especially at the regional level—remains constrained, necessitating targeted policies that foster innovation. This study aims to produce strategic recommendations to strengthen MSME innovation by offering a comprehensive understanding of the relationships among innovation dimensions, performance, and competitiveness.

Theoretically, this study contributes to the existing body of knowledge on MSME innovation and performance by introducing a multidimensional innovation framework. The conceptual model developed may serve as a foundation for future research examining specific factors influencing each innovation dimension. Practically, the findings may assist MSME actors in formulating effective innovation strategies to enhance their business outcomes, while also guiding policymakers in crafting programs and incentives that promote a culture of innovation. Considering its novelty, research gap, clearly defined problem statements, and strong rationale, this study is expected to make a significant contribution to the discourse on MSME development. Through a comprehensive approach that integrates multiple dimensions of innovation, this research supports the empowerment of MSMEs as a cornerstone of Indonesia's economy. With enhanced competitiveness, Indonesian MSMEs have the potential to emerge as key players in the global market.

II. LITERATURE REVIEW

2.1 Micro, Small, and Medium Enterprises (MSMEs)

In Indonesia, MSMEs are classified based on Law No. 20 of 2008 according to specific asset and revenue criteria. These enterprises are characterized by operational flexibility, simple organizational structures, and high adaptability (Angeles et al, 2022; Vinayachandran & Ambily, 2021). Ruby et al (2024) describes MSMEs as independent business units with limited resources but strong adaptability to market changes. According to data from the Ministry of Cooperatives and MSMEs (2022), MSMEs comprise 99.9% of total business entities and contribute 61.9% to the national GDP. Furthermore, Statistics Indonesia (BPS, 2021) reports that MSMEs absorb 97% of the national labor force. Despite their dominance in the domestic economy, the World Bank (2022) reveals that the export contribution of Indonesian MSMEs is only 15.69%, significantly lower than that of China (60%), Singapore (41%), and Thailand (29%). Limited competitiveness and innovation capacity are the primary barriers to their global market penetration (Nwajiuba et al, 2020; Rahman et al, 2020; Prakash et al, 2021).

2.2 Innovation Dimensions

2.2.1 Conceptualizing Innovation in the MSME Context

The OECD (2018) defines innovation as the implementation of a new or significantly improved product, process, marketing method, or organizational method. Calik et al. (2019) classify innovation by orientation (input, output, process) and degree of novelty (incremental, radical), with its impact on performance moderated by contextual factors such as firm age and national culture. In the Indonesian MSME context, Sudjatmoko et al (2023) and Mariyudi (2019) propose a pragmatic definition of innovation as the application of new ideas that add business value, emphasizing value creation over absolute novelty due to resource limitations.

2.2.2 Product Innovation

Product innovation refers to the introduction of new or significantly improved goods or services (OECD, 2018). Bigliardi (2013) and Niefert (2006) found that product innovation has a positive effect on market and financial performance. Pusung et al. (2023) also identified a positive correlation between product innovation intensity and MSME growth in sales and profitability in Indonesia, with consistent product development fostering greater customer loyalty.

2.2.3 Process Innovation

Process innovation involves the implementation of new production or delivery methods (OECD, 2018). Reichstein and Salter (2006) distinguish between technological and organizational process innovations, both of which enhance productivity. Rahman et al. (2020) observed that process innovation correlates positively with operational efficiency and product quality among Indonesian MSMEs, although barriers such as limited technical knowledge and financial resources remain significant challenges.

2.2.4 Marketing Innovation

Marketing innovation involves the implementation of new marketing methods related to product design, packaging, placement, promotion, or pricing (OECD, 2018). Ozkaya et al. (2015) identified five dimensions of marketing innovation: customer orientation, marketing integration, communication, networking, and marketing learning. Azis et al. (2013) found that adopting digital marketing strategies improves MSME market reach and sales in Indonesia, with effectiveness moderated by the digital capability of business owners.

2.2.5 Organizational Innovation

Organizational innovation refers to the adoption of new organizational methods in business practices (OECD, 2018). Wolor et al (2024) highlighted the significant contribution of organizational innovation to performance, especially in dynamic environments. Cuevas et al (2022) found that organizational innovation, particularly knowledge management, enhances the absorptive capacity of Indonesian MSMEs, and that participatory management practices promote higher levels of innovation.

2.3 MSME Performance

MSME performance is a multidimensional construct that encompasses various aspects of business success. Murphy et al. (1996) identify four dimensions: efficiency, growth, profit, and size. Martunis et al (2020), emphasize the need for an approach that integrates both financial and non-financial indicators. In the Indonesian context, Villalobos et al (2022) adopted the balanced scorecard approach, which evaluates performance from four perspectives: financial, customer, internal business processes, and learning and growth. Larious and Ferasso (2023) supports a positive relationship between innovation and MSME performance, moderated by contextual factors. Amoa & Dhliwayo (2024) found that product and marketing innovation exert stronger effects on performance than process and organizational innovations. Ye & Kankanhalli (2020) also note a non-linear relationship between innovation and performance, with competition intensity and market dynamics acting as moderators.

2.4 MSME Competitiveness

Porter (1985) defines competitiveness as the ability to create and sustain competitive advantage. Kim (2018) underscore the role of entrepreneurial capability in maintaining business performance through effective competition management. Barney's (1991) Resource-Based View (RBV) argues that competitive advantage stems from resources that are valuable, rare, inimitable, and non-substitutable. Tambunan (2019) stresses that the ability to produce globally competitive products is a key indicator of MSME competitiveness in Indonesia. Margaretha & Suryana (2023) found that product and marketing innovations positively affect competitive advantage. Del et al (2022) identified market orientation and learning as antecedents to innovation that influence MSME competitiveness. Agyapong et al (2021) observed that multidimensional innovation enhances the competitiveness of Indonesian MSMEs in both domestic and international markets, with synergies among innovation dimensions proving more influential than their individual effects.

2.5 The Relationship Between Innovation Dimensions, Performance, and Competitiveness of MSMEs

The Resource-Based View (Barney, 1991) positions innovation as an organizational capability that generates competitive advantage and improves firm performance. Chao & Kang (2022) emphasize the importance of dynamic capabilities in adapting to environmental changes, a perspective particularly relevant to MSMEs facing uncertainty and resource constraints. Rosenbusch et al.'s (2011) meta-analysis supports a positive innovation-performance relationship. Larios & Ferasso (2023) show both direct effects of innovation on performance and indirect effects mediated through competitiveness. Yaskun et al (2023) identified absorptive capacity and market orientation as key mediators in the innovation–performance–competitiveness linkage within Indonesian MSMEs. Research gaps remain, particularly regarding the limited focus on one or two innovation dimensions (Nguyen et al, 2022; Sudjatmoko et al, 2023), the scarcity of regional-level studies (Kogut & Ociepa, 2020; Liao et al., 2024; Shin & Hwang, 2022), inadequate exploration of mediation and moderation mechanisms, and the predominance of cross-sectional designs that limit causal inferences.

2.6 Conceptual Framework of the Research

This study comprises three main variables: innovation, firm performance, and competitiveness. Innovation is explored through four dimensions: product innovation, process innovation, marketing innovation, and organizational innovation (Baker & Sinkula, 1999). These four dimensions serve as explanatory variables, while firm performance acts as a mediating variable and competitiveness as the dependent variable. The conceptual model of this research is structured accordingly.

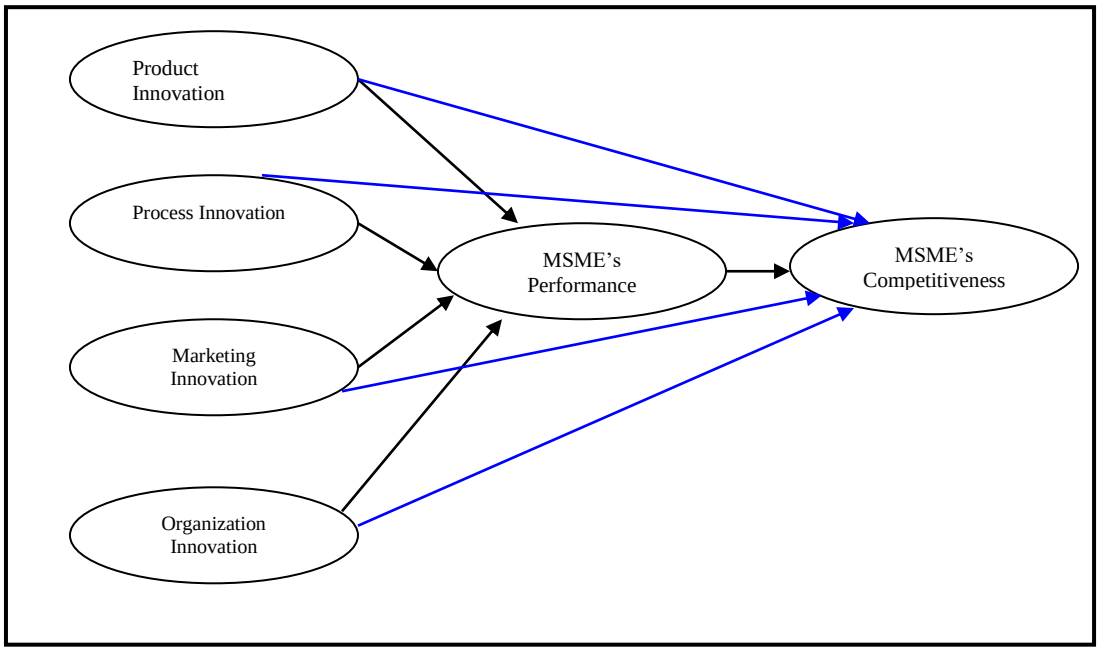

Figure 1. Conceptual Framework of the Research

The conceptual framework proposes thirteen associative patterns. These include direct effects of the four innovation dimensions (product, process, marketing, and organizational innovation) on MSME performance and competitiveness, the effect of MSME performance on competitiveness, and indirect effects of innovation dimensions on competitiveness mediated by performance. All of these associations are grounded in theoretical perspectives that emphasize the role of innovation in driving competitiveness through performance improvement (Niefert, 2006; Osman et al., 2024; Sounila, 2014).

3.5 Hypothesis Formulation

The hypotheses guide the researcher in conducting the study and serve as a foundational element for strengthening the model's construction. All hypotheses in this study are formulated under the assumption that the alternative hypothesis (Ha) is accepted, as each innovation dimension—product, process, marketing, and organizational—is expected to improve efficiency and effectiveness. These dimensions consider both internal and external conditions of the business, aiming for performance enhancement that ultimately supports MSMEs' ability to survive and compete in their target markets. The hypotheses formulated in this study are as follows:

- Ha1: Product innovation significantly affects MSME performance in Mataram City.
- Ha2: Process innovation significantly affects MSME performance in Mataram City.
- Ha3: Marketing innovation significantly affects MSME performance in Mataram City.
- Ha4: Organizational innovation significantly affects MSME performance in Mataram City.
- Ha5: Product innovation significantly affects MSME competitiveness in Mataram City.
- Ha6: Process innovation significantly affects MSME competitiveness in Mataram City.
- Ha7: Marketing innovation significantly affects MSME competitiveness in Mataram City.
- Ha8: Organizational innovation significantly affects MSME competitiveness in Mataram City.
- Ha9: MSME performance significantly affects competitiveness in Mataram City.
- Ha10: Product innovation significantly affects competitiveness through MSME performance in Mataram City.
- Ha11: Process innovation significantly affects competitiveness through MSME performance in Mataram City.
- Ha12: Marketing innovation significantly affects competitiveness through MSME performance in Mataram City.
- Ha13: Organizational innovation significantly affects competitiveness through MSME performance in Mataram City.

Hypotheses Ha1 to Ha4 are based on the general concept that innovation levels influence company performance (Restrepo et al, 2019; Suyatna, 2024). Previous research (Singh et al, 2015;Liu et al., 2013) also suggests that sustained innovation builds MSME competitiveness (Ha5–Ha8), reinforced by findings that high performance contributes to competitiveness. Kijkasiwat & Phuensane (2020) discovered that firm size is a driver of innovation, implying variability in innovation habits among MSMEs. The direct effects of innovation on both

performance and competitiveness, as well as the effect of performance on competitiveness, serve as a basis for analyzing the indirect effects of innovation dimensions on competitiveness through performance.

III. RESEARCH METHOD

This study adopts a quantitative approach with a descriptive-associative research design (Velec & Huang, 2014). The associations are structurally built using the Structural Equation Model (SEM), as the model involves two or more interrelated variables (Stein et al, 2017), namely MSME performance and competitiveness, along with four explanatory variables representing the innovation dimensions. The study was conducted on MSMEs in Mataram City, selected with the aim of identifying solutions to enhance performance and competitiveness, thereby increasing their contribution to the regional economy.

Empirical data show that MSMEs in Mataram have relatively low competitiveness, especially in terms of output growth and productivity indices. The Regional Medium-Term Development Plan (RPJMD) of Mataram City sets a target of 15–25% of micro-enterprises advancing to the next level between 2024 and 2026, and revenue growth of 9.60–14.00% within the same period. The findings of this study are expected to contribute to achieving these targets.

In this study, product innovation is defined as the ability of all organizational components to improve or create new products (goods or services) offered to consumers, with the goal of increasing value and satisfying customer needs. Measurement items include continuous introduction of new products, improvements based on customer complaints, ongoing quality enhancement, preparation for future product types, and customization based on consumer requirements.

Process innovation refers to improving product quality by upgrading or refining internal production systems, from raw material input to finished product output. Its indicators include strict control to minimize defects, improved production efficiency, easier ordering processes, and simplified delivery mechanisms.

Marketing innovation is defined as improvements or the development of a more effective product marketing system. Measurement items include efforts to increase customer satisfaction, continuous improvement in product introduction, enhanced after-sales service, competitive pricing strategies, and attention to product packaging.

Organizational innovation involves comprehensive or partial improvements in the management of the organization. Indicators include streamlining bureaucracy, eliminating or improving unprofitable business units, sustainable business development, and ongoing improvement of business practices.

Firm performance refers to the achievement of results in realizing business objectives, measured through standards indicating levels of achievement. Indicators include increased production and sales capacity, profit growth, equity capital growth, quantity and quality improvement of human resources, market expansion, environmental management improvement, employee satisfaction, and concern for products that contribute to consumer well-being.

Competitiveness is defined as a firm's ability to survive and grow within an industry. Indicators include improved production efficiency, the ability to produce higher quality products, offering lower selling prices, production growth, market expansion, superior performance using available production factors, and increasing capacity through machinery, labor, or other factors.

All measurement items are assessed using a Likert scale ((Anjaria, 2022). Data collection was conducted via questionnaires, and data tabulation was carried out using Google Forms to streamline the process. The analysis employed SEM-PLS, starting with data input and model construction, followed by outer model testing (measurement model) through discriminant validity (with a minimum coefficient of 0.70). Cross-loading analysis was performed to ensure each item is the best indicator of its respective variable (i.e., items with the highest correlation coefficient to their corresponding variable are retained). Items with a discriminant validity coefficient below 0.70 were excluded from further analysis.

Subsequently, the inner model (structural model) was developed and evaluated using explained variance (R^2), Stone-Geisser's Q-square value, and path coefficients. The final step involves significance testing using t-statistics, and indirect associations were identified using the calculate function and reported in the output (Anjaria, 2022).

IV. FINDINGS AND ANALYSIS

The analysis in this study was conducted using the Partial Least Squares - Structural Equation Modeling (PLS-SEM) method to examine the relationships between innovation dimensions, MSME performance, and MSME competitiveness in Mataram City. The first stage of the analysis involved evaluating the measurement model (outer model) to ensure the validity and reliability of the variables and indicators used in the research. All latent variables in the model passed tests for convergent validity, discriminant validity, and reliability, indicating that the measurement instruments used were of high quality.

Once the measurement model criteria were met, the analysis proceeded to the evaluation of the structural model (inner model) to assess the relationships between variables within the study's conceptual framework. The results of the structural model analysis revealed a complex pattern of relationships between the innovation dimensions, performance, and competitiveness of MSMEs, which will be elaborated further in the following discussion.

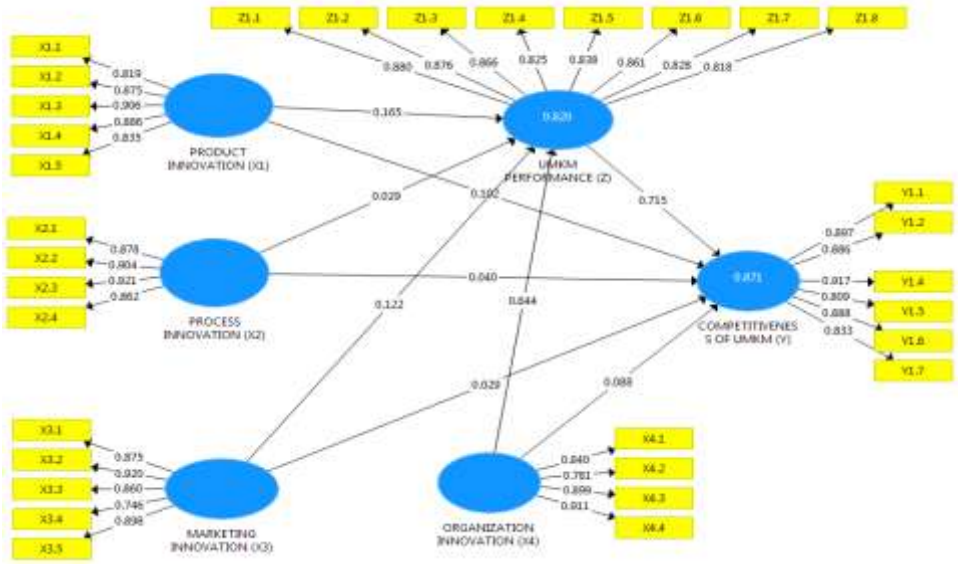

Figure 2. Final Model

The model analyzed has met the criteria for validity and reliability in the outer model. This is evident from the AVE values and reliability indicators presented in Table 4.1. The validity criteria for each item in measuring its respective variable meet the standard, with AVE values for all variables exceeding 0.50. Consistency requirements are also well fulfilled, as all parameters—Cronbach's Alpha, Rho_A, and Composite Reliability—show values above 0.70. Therefore, the outer model for each variable provides a valid and consistent measurement, making it a suitable foundation for assessing the empirical conditions and serving as input for the inner model.

Table 4.1 Diskriminant Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
MSME Competitiveness	0,937	0,940	0,950	0,761
Organisazation Innovation (X4)	0,881	0,895	0,918	0,739
Marketing Innovation (X3)	0,912	0,917	0,935	0,743
Product Innovation (X1)	0,916	0,921	0,937	0,748
Process Innovation(X2)	0,914	0,917	0,939	0,795
MSMS Performance (Z)	0,945	0,945	0,954	0,722

Souce: SEM-PLS (Author, 2024)

Based on the final model, the inner model in this study can be formulated as follows:

Z1 = 0.165X1 + 0.029X2 + 0.122X3 + 0.644X4
Y1 = 0.102X1 + 0.040X2 + 0.029X3 + 0.088X4
Y1 = 0.715Z1

The equation Z1 = f(X1) represents the association between innovation dimensions and MSME performance, where all innovation dimensions exert a positive influence. This means that improvements in each innovation dimension lead to enhanced MSME performance. The positive influence is reflected in the positive regression coefficients (original sample) for all variables (X1–X4: product innovation, process innovation, marketing innovation, and organizational innovation), indicating that innovation practices by MSMEs improve their performance.

The equation Y1 = f(X1) demonstrates the association between innovation dimensions and MSME competitiveness. All innovation dimensions have a positive impact on competitiveness. Meanwhile, Y1 = f(Z1)

reflects the association between MSME performance and competitiveness, which also shows a positive effect. This positive influence is evident from the regression coefficients (original sample in the PLS output) in each equation.

This model is empirically aligned with existing theory, which states that improvements in each innovation dimension enhance both MSME performance and competitiveness, and that better performance further strengthens competitiveness. The direction of the positive influence also implies that low-quality innovation dimensions may reduce MSME performance and competitiveness, and that declining performance will consequently reduce competitiveness.

The research model demonstrates a high goodness of fit, as indicated by a high Q^2 (chi-square) value, which is greater than zero (Q^2 = 1189.219). This is further supported by high R^2 values, approaching 1.00—specifically, 0.866 for the competitiveness model [Y1 = f(Xi; Z1)] and 0.814 for the MSME performance model [Z1 = f(Xi)]. This suggests that the model can be well-explained by variations in the independent variables, ensuring that the parameter interpretations are reliable.

The next analytical stage as a basis for conclusions is the significance test. The results of the significance test for both direct and indirect associations within the MSME competitiveness model in Mataram City are presented in Table 4.4. The findings are quite remarkable, as the innovation dimensions explain changes in MSME performance in Mataram City to a very high degree (81.40%; adj R^2 = 0.814), as well as MSME competitiveness (86.60%; adj R^2 = 0.866).

Table 4.1 Significant Test

Asotiation	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Organization Innovation (X4) -> MSME Competitiveness	0,088	0,096	0,917	0,360
Organization Innovation (X4) -> MSME Performance (Z)	0,644	0,144	4,487	0,000***
Marketing Innovation (X3) -> MSME Competitiveness	0,029	0,091	0,317	0,752
Marketing Innovation (X3) -> MSME Performance(Z)	0,122	0,131	0,927	0,355
Product Innovation (X1) -> MSME Competitiveness	0,102	0,086	1,195	0,233
Product Innovation (X1) -> MSME Performance (Z)	0,165	0,1	1,652	0,099*
Process Innovation (X2) -> MSME Competitiveness	0,040	0,079	0,512	0,609
Process Innovation (X2) -> MSME Performance (Z)	0,029	0,086	0,338	0,735
MSME Performance (Z) -> MSME Competitiveness	0,715	0,08	8,893	0,000***
Marketing Innovation (X3) -> MSME Performance (Z) -> MSME Competitiveness	0,087	0,095	0,919	0,359
Process Innovation (X2) -> MSME Performance (Z) -> MSME Competitiveness	0,021	0,061	0,34	0,734
Product Innovation (X1) -> MSME Performance (Z) -> MSME Competitiveness	0,118	0,074	1,601	0,110
Organization Innovation (X4) -> MSME Performance (Z) -> MSME Competitiveness	0,461	0,111	4,164	0,000***

Source: SEM-PLS (Author, 2024

The study found that among the innovation dimensions examined—product, process, marketing, and organizational innovation—only organizational innovation had a statistically significant effect on MSME performance at the 5% significance level, while product innovation was significant at the 10% level. This aligns

with findings from Amoa-Gyarteng & Dhliwayo (2024) who emphasized organizational culture's influence on innovation and performance in SMEs. The statistical significance of organizational innovation reinforces the importance of internal management structures and governance procedures in enhancing business performance. This suggests that, individually, only these two dimensions can directly influence the performance of MSMEs in Mataram City. The prominence of organizational innovation in this context indicates that MSMEs benefit most significantly from improvements in leadership approaches, decision-making processes, and overall business infrastructure, creating a foundation upon which other innovations can thrive.

In contrast, when analyzing the direct relationship between innovation dimensions and competitiveness, none of the dimensions showed a statistically significant effect, regardless of the confidence level used. This somewhat counterintuitive finding suggests that innovation alone may not directly translate to competitive advantage without first improving business performance metrics. However, when the innovation dimensions are considered simultaneously, they explain 86.60% of the variation in MSME competitiveness, indicating a strong combined influence, especially when MSME performance is factored in as a mediator, supporting Calik & Calisir's (2019) findings on the mediating effect of innovation processes. This synergistic effect underscores the importance of implementing comprehensive innovation strategies rather than focusing on isolated dimensions, revealing the complex interplay between different types of innovation in building competitive advantage.

The analysis also revealed that MSME performance significantly influences competitiveness, with results remaining significant even at the 1% level, consistent with Porter's (1985) seminal work on competitive advantage. This indicates that enhancing performance is a necessary condition for increasing competitiveness, as noted by Barney (1991) in his resource-based view of firms. The strong statistical significance at the 1% level emphasizes the robustness of this relationship, establishing performance improvement as a critical pathway to achieving competitive advantage in the marketplace. Furthermore, the model showed one significant indirect effect: organizational innovation positively influences MSME competitiveness through its impact on performance. This highlights organizational innovation as the only dimension that can be effectively managed on its own to improve competitiveness, making it a critical area of focus for MSME development (Del Rosario Demuner-Flores et al., 2022). The indirect pathway through which organizational innovation influences competitiveness further emphasizes the sequential nature of business development, where internal structural improvements lead to enhanced performance metrics, which ultimately strengthen market position.

Despite appearing context-specific, these results provide strong empirical support for theory and practical application, particularly in policymaking. Interestingly, the findings deviate from previous studies such as those by Baker & Sinkula (1999), Heryanto (2007), and Ulya (2019), which emphasized the role of product and marketing innovation. This divergence is also noted by Rosenbusch et al. (2011) in their meta-analysis of innovation-performance relationships in SMEs. The contrast with previous research highlights the contextual nature of innovation effectiveness, suggesting that regional, cultural, and structural factors may significantly influence which innovation dimensions yield the greatest impact. In this study, innovation serves as a controllable variable, meaning MSME managers and stakeholders can drive innovation directly. The high R^2 value of 81.40% indicates that these four innovation dimensions, when implemented together, account for many changes in MSME performance, leaving only 18.60% to be explained by external factors. The exceptionally high explanatory power of the model demonstrates the central role that innovation plays in determining MSME performance, offering clear direction for business owners and policymakers seeking to enhance the productivity and sustainability of small enterprises.

The research emphasizes that MSMEs practicing continuous improvement must focus not only on enhancing product quality and production processes but also on ensuring strong customer engagement, especially through after-sales services, as demonstrated by Osman et al. (2024) in their study of competitive advantage factors. These services provide valuable feedback that can inform subsequent innovations, creating a virtuous cycle of improvement based on customer insights and market demands. The emphasis on customer engagement represents a shift from purely production-oriented approaches to more holistic, market-responsive innovation strategies. Importantly, innovation should not be approached partially but rather holistically, as suggested by Zuhal (2013) and supported by Larios-Francia & Ferasso (2023) in their research on the relationship between innovation and performance in MSMEs. Success depends on the synergy among all dimensions, with each innovation type reinforcing and complementing the others to create comprehensive business transformation rather than isolated improvements.

The government plays a crucial role in enabling an innovation ecosystem by formulating supportive policies, providing infrastructure, and connecting MSMEs with research institutions and larger enterprises (Kogut-Jaworska & Ociepa-Kicińska, 2020). This ecosystem approach recognizes that MSMEs often lack the resources to drive innovation independently and benefit from structured support systems that facilitate knowledge transfer, resource sharing, and collaborative development. Innovation should be systematic—not experimental—and must involve the entire business structure, including employee and customer satisfaction, as

well as environmental responsibility (Sudjatmoka et al., 2023). The systematic approach to innovation emphasizes the importance of deliberate, well-planned implementation strategies rather than ad hoc experiments, ensuring that innovations are sustainable and aligned with both market needs and organizational capabilities.

The study uses a strong theoretical foundation involving reciprocal associations, suggesting that performance today could influence future innovation and vice versa, creating potential feedback loops that reinforce positive outcomes over time. While innovation dimensions did not directly influence competitiveness, performance had a substantial partial effect (0.715), contributing most of the 86.60% total impact on competitiveness in the model, reinforcing Yaskun et al.'s (2023) findings on the effect of innovation and competitive advantage on business performance of Indonesian MSMEs. The magnitude of this effect underscores the pivotal role that performance plays in translating innovation efforts into competitive advantage, serving as the critical link in the value creation chain. This was further evidenced by the relatively low direct path coefficients of each innovation dimension to competitiveness (between 0.029 and 0.102), indicating that the primary pathway to improved competitiveness runs through enhanced performance rather than directly from innovation. As a result, the research supports a model where organizational innovation acts as a strategic starting point, but the best outcomes arise when all innovation dimensions are implemented together to enhance MSME performance, which then drives competitiveness. This integrated model provides a roadmap for MSMEs seeking to strengthen their market position, highlighting the sequential relationship between organizational innovation, comprehensive innovation implementation, improved performance metrics, and ultimately, enhanced competitive advantage.

V. PRACTICAL IMPLICATIONS

The findings of this study provide valuable insights and recommendations for various stakeholders involved in the development of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. For MSME owners and managers, the study highlights the crucial role of organizational innovation in driving overall business performance and competitiveness, as emphasized by Amoa-Gyarteng & Dhliwayo (2024). Organizational innovation serves as a foundation upon which improvements in other areas of innovation, such as product, process, and marketing, can be built. To foster organizational innovation, MSME owners and managers should focus on streamlining internal processes, developing sustainable business strategies, and implementing effective management systems (Angeles et al., 2022). This may involve adopting new technologies, redesigning organizational structures, or introducing new management practices that promote efficiency, flexibility, and adaptability. Moreover, the study emphasizes the importance of establishing after-sales service systems as a means of capturing valuable customer feedback, and expanding performance measurement beyond traditional financial indicators to include customer satisfaction levels, employee development and engagement, and environmental sustainability practices (Murphy et al., 1996; Martunis et al., 2020).

For policymakers, the study underscores the need to develop targeted training and mentoring programs that focus on building management capacity and fostering organizational innovation among MSMEs (Prakash et al., 2021). These programs should aim to equip MSME owners and managers with the skills, knowledge, and tools necessary to effectively lead and transform their organizations. In addition, policymakers can play a crucial role in facilitating the creation of innovation ecosystems at the regional level by strengthening linkages and collaborations between MSMEs, research institutions, universities, and larger enterprises (Liu et al., 2013). Regional governments can also establish innovation hubs, incubators, or accelerators that provide MSMEs with the infrastructure, mentorship, and networking opportunities needed to develop and commercialize their innovations, as described by Shin & Hwang (2022) in their study of regional economic performance. Furthermore, policymakers should design and implement incentives that encourage MSMEs to pursue integrated innovation efforts across all dimensions, and establish platforms and mechanisms for knowledge-sharing among MSME innovators (Kogut-Jaworska & Ociepa-Kicińska, 2020).

MSME support institutions such as financial providers and business development services have a critical role to play in enabling innovation. These institutions should strive to offer comprehensive technical support that addresses all aspects of innovation, from ideation and conceptualization to implementation and commercialization, as suggested by Mannan & Haleem (2019) in their study of innovation management in MSMEs. This may involve providing access to specialized innovation financing instruments, such as venture capital, angel investment, or innovation grants, that are tailored to the unique needs and risk profiles of MSMEs. Moreover, support institutions can help MSMEs to assess and benchmark their innovation capabilities using diagnostic tools and frameworks, and assist them in accessing cutting-edge technologies and equipment that are essential for innovation (Vinayachandran & Ambily, 2021).

Another important function of support institutions is to foster collaborative networks and partnerships among MSMEs (Rahman et al., 2020). Given the limited resources and scale of most MSMEs, collaboration is

often essential for achieving innovation success. Support institutions can help to broker strategic alliances, joint ventures, or innovation consortia that allow MSMEs to pool their resources, share risks, and leverage complementary skills and knowledge (Moreira, 2020). These collaborative networks can also provide MSMEs with access to new markets, distribution channels, and customer bases that would be difficult to reach on their own.

In conclusion, the findings of this study offer a roadmap for enhancing the innovation capabilities and competitiveness of MSMEs in Mataram and throughout Indonesia. By embracing organizational innovation, expanding performance metrics (Villalobos-Castro et al., 2023), and leveraging customer feedback, MSME owners and managers can create more agile, responsive, and resilient businesses. Policymakers can support these efforts by providing targeted training, fostering regional innovation ecosystems, and creating incentives for holistic innovation. And MSME support institutions can offer the technical expertise, financial resources, and collaborative networks needed to help MSMEs innovate more systematically and effectively (Wolor et al., 2024). Through concerted action and collaboration among these key stakeholders, Indonesian MSMEs can unlock their full potential as drivers of inclusive economic growth and global competitiveness.

VI. CONCLUSION AND FUTURE RESEARCH RCOMMENDATIONS

The study concludes that among the four innovation dimensions evaluated, only organizational innovation has a statistically significant effect on MSME performance at the 1% level, while product innovation is only significant at the 10% level. Although individual impacts vary, the combined effect of all innovation dimensions is substantial, contributing 81.40% to performance and 86.60% to competitiveness. The research also confirms that no innovation dimension directly impacts competitiveness, but performance serves as a critical mediator. The only significant indirect effect comes from organizational innovation, which improves performance and thereby enhances competitiveness. With a high goodness-of-fit value (Q^2 = 1189.219), the model provides a reliable foundation for policy decisions aimed at strengthening MSMEs in Mataram.

For future research, it is recommended to adopt a longitudinal approach to observe the long-term impact of innovation and better understand causal relationships. Expanding the sample across industries and geographic regions will also improve the generalizability of findings and help identify context-specific factors. Researchers could explore the role of moderator variables such as business size, age, access to finance, and market orientation to better understand when innovation is most effective. Comparative studies between export-oriented and domestically focused MSMEs can offer insight into how innovation strategies vary by market orientation. Additionally, examining innovation networks and ecosystems will provide valuable information on the external factors that support or hinder innovation. Finally, a mixed-method approach, combining quantitative analysis with qualitative case studies, can offer a more comprehensive understanding of innovation dynamics in the MSME sector.

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