

The Role of Product and Marketing Innovation in Enhancing MSME Competitiveness and Economic Growth

Syaifuddin^{1*} , Suca Rusdian² , Noor Aimi Mohamad Puad³ 

¹Faculty of Management, Universitas Sebelas April, Indonesia

²Faculty of Management, Yasa Anggana College of Economics, Indonesia

³Department of Finance, International Islamic University Malaysia, Malaysia

¹syiaifuddin.feb@unsap.ac.id, ²sucarudian@stieyasaanggana.ac.id ³nooraimi@iium.edu.my

*Corresponding Author

Article Info

Article history:

Submission June 14, 2025

Revised November 13, 2025

Accepted March 18, 2026

Published June 12, 2026

Keywords:

Product Innovation

Marketing Innovation

Competitive Advantage

Startuppreneurship

MSMEs



ABSTRACT

MSMEs play an essential role in regional economic growth, but many still face challenges in improving competitiveness in the era of global competition. Therefore, an innovation-based strategic model is needed to strengthen the position of MSMEs in local and regional markets. **This study aims** to analyse the effect of product and marketing innovation on the competitive advantage of MSMEs and their impact on regional economic growth through a startuppreneurship model approach. **This type of research is quantitative** and associative with an explanatory approach. The population in this study were MSME players in West Java Province, and the sampling technique used was purposive sampling. The sample obtained was 200 respondents. The data collection technique was carried out by distributing structured questionnaires and data analysis using the Partial Least Square Structural Equation Modeling (PLS-SEM) method. **The results showed that product** innovation and marketing innovation positively affect the competitive advantage of MSMEs, which in turn impacts regional economic growth. **The startuppreneurship model** developed in this The startuppreneurship model study provides strategic implications for MSMEs to build sustainable advantages through innovation and market orientation synergy. The findings also offer a theoretical contribution to enriching innovation management studies in the micro, small and medium enterprise sectors.

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DOI: <https://doi.org/10.34306/att.v8i2.766>

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1. INTRODUCTION

MSMEs remain central to national economic growth, contributing around 60% to Indonesia's GDP and absorbing more than 97% of the non-agricultural workforce [1]. Despite this critical role, MSMEs continue to face challenges related to technological change, shifting consumer behavior, and limited resources [2]. In this context, the startuppreneurship approach becomes highly relevant as a transformation model that promotes innovation, agility, and rapid adaptation. This approach aligns with SDG 8 on inclusive economic growth and SDG 9 on innovation and sustainable industrialization, emphasising the need for MSMEs to enhance their innovative capabilities to maintain competitiveness and strengthen local economic resilience.

Within the startuppreneurship framework, product and marketing innovation play essential roles in enabling MSMEs to offer differentiated value and respond to dynamic market trends [3]. Product innovation focuses on improving goods that better meet consumer needs, while marketing innovation involves creative

promotion and distribution strategies. However, innovation in MSMEs must consider resource constraints, making the integration of product and marketing innovation crucial for sustaining competitive advantage [4]. Although studies such as [5] highlight the importance of innovation, they do not fully explore its combined effects nor its contribution to regional economic development within a startupreneurship perspective.

This research examines how product and marketing innovation jointly influence MSMEs competitiveness and regional economic growth. Recent studies (2021–2024) highlight the importance of innovation capability, digital transformation, and entrepreneurial agility in strengthening MSMEs performance in emerging economies, validating the need for an integrative innovation model [6]. The novelty of this study lies in applying a startupreneurship-based innovation framework for MSMEs, integrating product and marketing innovations to enhance competitiveness and regional growth. Unlike previous studies, this approach offers new theoretical insights into how innovation drives MSMEs success in resource-constrained environments [7]. Additionally, this research provides valuable insights into MSMEs in West Java, Indonesia, where the entrepreneurial ecosystem and market dynamics differ from regions like South Korea or Vietnam, offering contextual understanding of how innovation influences economic growth in emerging markets.

2. RESEARCH METHODS

This study uses a quantitative causal-correlation design to analyse the effects of product and marketing innovation on MSMEs competitiveness and regional economic growth. SEM-PLS is applied because it supports complex models [8], examines direct and indirect relationships, and works well with moderate sample sizes and non-normal data. This method aligns with the goal of building a multidimensional startupreneurship model for MSMEs.

2.1. Research Instruments

A closed-ended questionnaire based on theoretical indicators of product innovation, marketing innovation, MSMEs competitiveness, and regional economic growth was used in this study. Items were measured on a five-point Likert scale and adapted from prior research, then validated by experts to ensure accuracy in capturing key behavioural and strategic aspects of MSMEs startupreneurship [9].

2.2. Data Source

The study used both primary and secondary data. Primary data were collected through questionnaires distributed to MSMEs actors in the research area, while secondary data were obtained from scientific journals [10], MSMEs reports, government publications, and official statistical sources. Combining these data types enhances the study's external validity and provides stronger theoretical support for interpreting the analysis results.

2.3. Research Location

This study was conducted in West Java Province, Indonesia, which has one of the largest MSMEs concentrations, particularly in the creative, agribusiness, and service sectors. The region was chosen because of its strong entrepreneurial ecosystem, high innovation adoption, and significant GRDP contribution [11], making it an ideal setting to examine the influence of product and marketing innovation on MSMEs competitiveness and regional economic growth. Its progressive economic conditions also provide a solid foundation for evaluating the startupreneurship model in supporting sustainable MSMEs development [12].

2.4. Research Time

This research was designed to be carried out for six months, starting from January to June 2025. The research stages included instrument preparation [13], validity and reliability testing, questionnaire distribution [14], data processing, statistical analysis, and preparation of a research report. This time frame is considered adequate to obtain representative data, conduct in-depth analyses [15], and develop policy recommendations based on empirical findings.

2.5. Population and Sampling Technique

The population of this study consisted of MSMEs in West Java operating in the creative, agribusiness, and service sectors [16]. A purposive sampling technique was used based on criteria aligned with the research objectives: MSMEs operating for at least two years [17], having a record of product or marketing

innovation, and willing to participate. A total of 200 MSME respondents met these criteria, which is sufficient and representative for SEM-PLS analysis [18].

2.6. Data Analysis Technique

Data analysis used Structural Equation Modeling (SEM) with PLS through the latest SmartPLS software. SEM-PLS was selected for its ability to handle complex latent variable relationships without requiring normal data distribution [19]. The analysis included evaluating the outer model for validity and reliability, and the inner model for path coefficients, R^2 , f^2 , and Q^2 . Bootstrapping was also applied to test the significance of variable relationships in the proposed model [20].

2.7. Variable Operationalisation

This study measures four main variables using validated indicators. Product innovation covers new product development, quality improvement, product line expansion, and technology use. Marketing innovation includes digital marketing, communication differentiation, personalisation, and customer experience [21]. Competitive advantage is assessed through continuous innovation, product quality, brand differentiation, and efficiency [5]. Regional economic growth is measured by MSMEs contributions to jobs, income, investment, and infrastructure. All indicators use a Likert scale [22].

3. RESULTS AND DISCUSSION

3.1. Characteristics of Respondents

As presented in Table 1, the respondent characteristics provide a comprehensive overview of the demographic and operational profile of MSMEs actors in West Java Province. Understanding this profile is crucial for interpreting how variations in gender, age, education level, and business experience may influence the capacity of MSMEs owners to implement the startupreneurship model particularly in strengthening product innovation, marketing innovation, competitive advantage, and their overall contribution to regional economic growth [23, 24].

Table 1. Summary of Respondent Characteristics

Variables	Category	Percentage
Gender	Male	58%
	Women	42%
Age	<30 years	25%
	30-50 years old	62%
	>50 years	13%
Education	High School	45%
	Diploma/Bachelor's Degree	48%
	Postgraduate	7%
Length of Business	2-5 years	40%
	5-10 years	35%
	>10 years	25%

The majority of respondents were male (58%) and aged 30-50 years (62%), reflecting a productive group conducive to innovation [25, 26]. Educationally, 45% had secondary, 48% tertiary, and 7% postgraduate degrees. Business experience varied, with 40% operating for 2–5 years, 35% for 5–10 years, and 25% for more than 10 years, reflecting adequate exposure to evaluate and apply innovative strategies. Overall, the respondent profile suggests an active, adaptive MSMEs population capable of implementing product and marketing innovations to strengthen competitiveness and support regional economic growth [27].

3.2. Outside Model Analysis

This study applies the Partial Least Squares (PLS) method to analyse relationships among latent variables [28]. The analysis begins with the outer model, which evaluates the links between each construct and its indicators. Figure 1 presents the structural model consisting of Product Innovation (X1), Product Innovation-Based Marketing (X2) [29], MSMEs Competitiveness (Z), and Local Economic Growth (Y). Each construct is measured through several indicators, and the outer loading values are used to assess indicator validity and reliability [30].

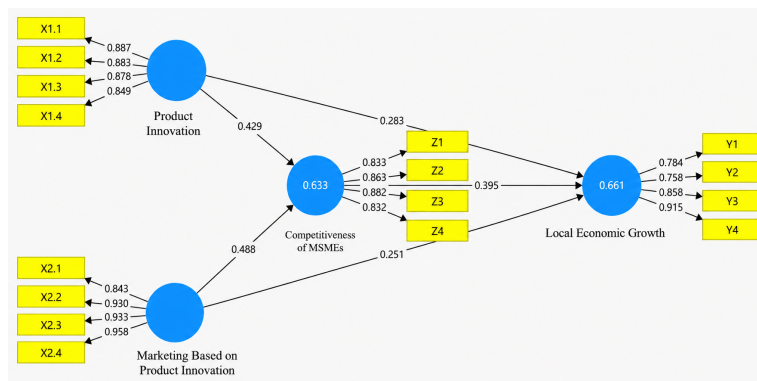


Figure 1. PLS Model Diagram Showing the Relationship Between Latent Variables and Indicators

3.3. Model Validity

Model validity is tested through convergent and discriminant validity. Convergent validity measures the extent to which indicators of a construct measure the same concept, with indicators being valid if outer loading > 0.7. All X1, X2, and Z indicators are valid [31], except X1.5 (0.429) which is recommended to be improved or removed. Discriminant validity is measured by Average Variance Extracted (AVE) [32], which shows a value greater than 0.5 for each construct, indicating the constructs can be clearly distinguished without overlapping [33].

3.4. Analysis of External Loading and Validity of Indicators

As shown in Table 2, the outer loading results confirm indicator reliability, where values above 0.70 indicate valid indicators, while those below this threshold reflect weaker measurement accuracy.

Table 2. Outer Loading Value for Each Indicator and Latent Constructor

	Competitiveness of MSMEs (Z)	Product Innovation (X1)	Marketing Based on Product Innovation (X2)	Local Economic Growth (Y)
X1.1		0.887		
X1.2		0.883		
X1.3		0.878		
X1.4		0.849		
X2.1			0.843	
X2.2			0.930	
X2.3			0.933	
X2.4			0.958	
Y1				0.784
Y2				0.758
Y3				0.858
Y4				0.915
Z1	0.833			
Z2	0.863			
Z3	0.882			
Z4	0.832			

Based on the table, all indicators for Product Innovation (X1), Marketing Based on Product Innovation (X2), Local Economic Growth (Y), and Competitiveness of MSMEs (Z) have an outer loading value > 0.7 which indicates convergent validity. This value indicates that the construct can explain more than 50% of the indicator variance, so the constructs in this model are valid and reliable.

3.5. Multicollinearity Analysis of The Inner Model

Multicollinearity between exogenous constructs is evaluated using the Variance Inflation Factor (VIF). VIF values below 5 are considered normal, while higher values indicate potential multicollinearity problems that may interfere with model predictions.

Table 3. VIF Value for Inner Model

	Brand Image (X4)	Customer Loyalty (Y)	Customer Satisfaction (Z1)	Price Perception (X2)	Perceived Value (X1)	Service Quality (X3)	Trust (Z2)
Brand Image (X4)	-	2.630	2.452	-	-	-	2.595
Customer Loyalty (Y)	-	-	-	-	-	-	-
Customer Satisfaction (Z1)	-	2.845	-	-	-	-	2.736
Price Perception (X2)	-	2.286	2.018	-	-	-	2.119
Perceived Value (X1)	-	3.218	2.693	-	-	-	3.200
Service Quality (X3)	-	1.978	1.804	-	-	-	1.811
Trust (Z2)	-	2.508	-	-	-	-	-

Based on Table 3, none of the VIF values for the Inner Model exceeds 5, which indicates that there is no multicollinearity problem between exogenous constructs. Constructs such as Brand Image (X4), Customer Satisfaction (Z1), and Perceived Value (X1) have acceptable VIF values, which indicates the relationship between constructs is independent and does not interfere with model predictions.

3.6. Model Outside Multicollinearity

As shown in Table 4, all VIF values fall below the threshold of 10, indicating that multicollinearity is not a concern. Each indicator contributes uniquely to its construct, reinforcing the reliability of the measurement model and ensuring unbiased structural model estimation.

Table 4. VIF Values for the Outer Model

	VIF
X1.1	2.719
X1.2	2.814
X1.3	2.737
X1.4	2.295
X2.1	2.391
X2.2	4.370
X2.3	5.403
X2.4	7.545
Y1	1.895
Y2	1.937
Y3	2.057
Y4	3.205
Z1	2.122
Z2	2.427
Z3	2.560
Z4	2.133

All VIF values are below 10, indicating no significant multicollinearity in the outer model. The highest VIF, 7.545 (X2.4), remains acceptable. Both inner and outer models show stable relationships, confirming reliability for further structural analysis [34].

3.7. Construct Reliability Analysis

The next stage is Construct Reliability testing to evaluate the consistency of latent variables. Cronbach's Alpha, rho_A, and Composite Reliability must exceed 0.7, while an AVE above 0.5 indicates that indicators explain more than half of the construct's variance [35]. The results show that all constructs meet these reliability criteria, with all values satisfying the required thresholds, as presented in Table 5 [36].

Table 5. Results of Construct Reliability Analysis

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Competitiveness of MSMEs (Z)	0.875	0.877	0.914	0.728
Product Innovation (X1)	0.897	0.900	0.928	0.764
Marketing Based on Product Innovation (X2)	0.937	0.948	0.955	0.841
Local Economic Growth (Y)	0.849	0.864	0.899	0.691

The table shows that all constructs have Composite Reliability values above 0.7, indicating good reliability. For instance, Marketing Based on Product Innovation (X2) demonstrates excellent reliability and validity with a Composite Reliability of 0.955 and AVE of 0.841. Similarly, Product Innovation (X1), MSME Competitiveness (Z), and Regional Economic Growth (Y) also meet the recommended reliability standards [37].

3.8. Internal Consistency Reliability

Internal Consistency Reliability assesses how well indicators measure their latent constructs. The results show that all constructs meet reliability criteria, with Cronbach's alpha above 0.6 variable Y = 0.849 and composite reliability above 0.7 variable Y = 0.899, indicating good reliability and unidimensionality [38].

3.9. Convergent Validity

Convergent validity measures the extent to which construct measures are highly correlated, with an AVE value > 0.5 indicating the construct can explain more than 50% of the variance of its items. Based on the table, all constructs meet the requirements of convergent validity because the AVE value is > 0.5 , as in variable Y with an AVE of 0.691.

3.10. Discriminant Validity

Discriminant validity assesses whether each reflective indicator uniquely measures its intended construct without excessive correlation with others. It is evaluated using cross-loadings, the Fornell–Larcker Criterion, and HTMT. Valid discriminant validity is achieved when the square root of a construct's AVE exceeds its correlations with other constructs, indicating that the construct is unique and well-distinguished.

3.11. Discriminant Validity Analysis Based on The Fornell-Larcker Criterion

As shown in Table 6, the discriminant validity assessment using the Fornell–Larcker criteria confirms that each construct has adequate discriminant validity, as the square root of AVE exceeds the correlations with other constructs.

Table 6. Results of Discriminant Validity Analysis Based on Fornell-Larcker Criteria

	Competitiveness of MSMEs (Z)	Product Innovation (X1)	Marketing Based on Product Innovation (X2)	Local Economic Growth (Y)
Competitiveness of MSMEs (Z)	0,853			
Product Innovation (X1)	0,674	0,874		
Marketing Based on Product Innovation (X2)	0,703	0,503	0,917	
Local Economic Growth (Y)	0,763	0,676	0,671	0,831

Discriminant analysis based on the Fornell-Larcker Criterion shows that the root AVE for each construct is greater than the correlation with other constructs. For example, for construct Z, the Fornell-Larcker Criterion value is 0.853. Thus, the requirements for discriminant validity in this model have been met, as shown in the table.

3.12. Cross Loading

The cross loading value is evaluated to ensure that the construct correlation with the measurement items is greater than other constructs. The expected cross loading value is more than 0.7. This method is

used to assess discriminant validity, where items must have a greater loading on their constructs than other constructs. The following is a cross loading table 7.

Table 7. Cross-loading

	Competitiveness of MSMEs (Z)	Product Innovation (X1)	Marketing Based on Product Innovation (X2)	Local Economic Growth (Y)
X1.1	0.627	0.887	0.417	0.650
X1.2	0.565	0.883	0.461	0.615
X1.3	0.581	0.878	0.384	0.514
X1.4	0.581	0.849	0.496	0.575
X2.1	0.490	0.331	0.843	0.540
X2.2	0.666	0.551	0.930	0.615
X2.3	0.705	0.457	0.933	0.655
X2.4	0.693	0.485	0.958	0.644
Y1	0.678	0.432	0.527	0.784
Y2	0.468	0.574	0.395	0.758
Y3	0.722	0.574	0.630	0.858
Y4	0.642	0.663	0.643	0.915
Z1	0.833	0.626	0.560	0.626
Z2	0.863	0.608	0.541	0.622
Z3	0.882	0.592	0.685	0.690
Z4	0.832	0.474	0.607	0.661

Table 7 shows that each indicator loads higher on its own construct than on others for example, X1.1 loads 0.887 compared to 0.627 on Z. This confirms strong discriminant validity, indicating that all indicators are valid, reliable, and free from multicollinearity, thereby ensuring the model's measurement accuracy and allowing the analysis to proceed confidently to the inner model stage.

3.13. Interpretation of Results (Inner Model)

Path coefficients were examined to determine the strength and significance of relationships among constructs. Values range from -1 to $+1$, indicating negative or positive effects. Significance is assessed using T-values and P-values, with a path considered significant when $T < 1.96$ and $P < 0.05$ at the 5% level. Bootstrapping was conducted to evaluate the significance of structural relationships. Figure 2 shows the T-value diagram, where higher T-values indicate stronger and significant paths. The results confirm the model's robustness and alignment between the theoretical framework and empirical data.

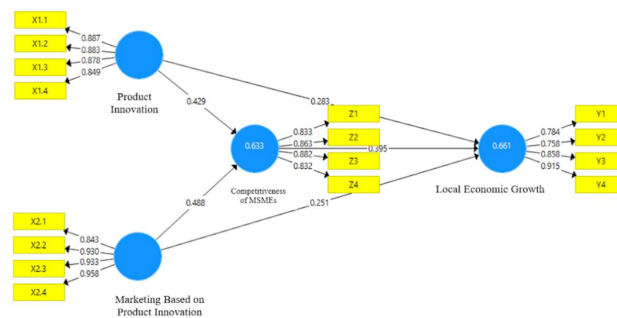


Figure 2. Bootstrapping Model Diagram T Value

Figure 3 presents the bootstrapped P-value diagram to complement the T-value results. Paths with P-values below 0.05 are statistically significant, confirming supported hypotheses and strengthening the reliability of the model's predictive relationships.

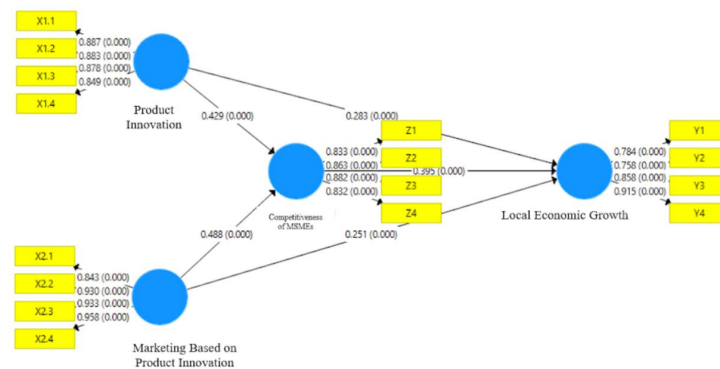


Figure 3. Bootstrapping Model Diagram P Value of Direct Effect Path Coefficient

3.14. Direct Effect Analysis: Path Coefficients and Hypothesis Testing

Below shows the direct effect of each construct of exogenous variables on endogenous variables:

Table 8. Results of Direct Effect Analysis (Path Coefficient)

-	Original Sample (O)	Sample Average (M)	Standard Deviation (STDEV)	T statistic (—O/STDEV—)	P-Value	Conclusion
Competitiveness of MSMEs (Z) → Regional Economic Growth (Y)	0.395	0.398	0.056	7.111	0.000	Accept H1 (Significant)
Product Innovation (X1) → Competitiveness of MSMEs (Z)	0.429	0.432	0.040	10.625	0.000	Accept H1 (Significant)
Product Innovation (X1) → Local Economic Growth (Y)	0.283	0.282	0.055	5.123	0.000	Accept H1 (Significant)
Marketing Based on Product Innovation (X2) → Competitiveness of MSMEs (Z)	0.488	0.486	0.049	9.923	0.000	Accept H1 (Significant)
Marketing Based on Product Innovation (X2) → Local Economic Growth (Y)	0.251	0.249	0.040	6.250	0.000	Accept H1 (Significant)

Table 8 shows that all paths are significant ($p < 0.05$). MSME Competitiveness (Z) strongly boosts Regional Economic Growth (Y) ($\beta = 0.395$). Product Innovation (X1) increases both Z and Y, while Product Innovation-Based Marketing (X2) likewise strengthens Z and positively affects Y. Overall, X1 and X2 contribute to Y directly and through Z.

3.15. Indirect Effect Analysis: Indirect Effects

Indirect effect analysis is used to measure the influence of exogenous variables on endogenous variables through mediating variables within the structural model. Significance testing is conducted using the T-statistic (greater than 1.96) and P-value (less than 0.05), indicating a statistically significant and meaningful mediating effect that strengthens the overall explanatory power of the model.

Table 9. Results of Indirect Effect Analysis

-	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T-Statistic (—O/STDEV—)	P-Value
Product Innovation (X1) → UMKM Competitiveness (Z) → Local Economic Growth (Y)	0.170	0.172	0.031	5.456	0.000
Marketing Based on Product Innovation (X2) → UMKM Competitiveness (Z) → Local Economic Growth (Y)	0.193	0.194	0.035	5.556	0.000

As shown in Table 9, both Product Innovation (X1) and Product Innovation-Based Marketing (X2) significantly influence Regional Economic Growth (Y) through MSME Competitiveness (Z). X1 has an indirect effect of $\beta = 0.170$ ($T = 5.456, p = 0.000$), while X2 shows $\beta = 0.193$ ($T = 5.556, p = 0.000$), confirming that both variables positively contribute to Y via Z.

3.16. Total Effect Analysis: Direct and Indirect Effects

As shown in Table 10, the Total Effects analysis evaluates the influence of exogenous variables on endogenous variables, both directly and indirectly. The Total Effects value is obtained by combining direct and indirect paths, with significance determined through bootstrapping using T-statistics and P-values, where effects are considered significant at P-value < 0.05 .

Table 10. Results of Total Effect Analysis

	Original Sample (O)	Sample Average (M)	Standard Deviation (STDEV)	T statistic (—O/STDEV—)	P-value
Competitiveness of MSMEs (Z) → Regional Economic Growth (Y)	0.395	0.398	0.056	7.111	0.000
Product Innovation (X1) → Competitiveness of MSMEs (Z)	0.429	0.432	0.040	10.625	0.000
Product Innovation (X1) → Local Economic Growth (Y)	0.453	0.454	0.048	9.390	0.000
Marketing Based on Product Innovation (X2) → Competitiveness of MSMEs (Z)	0.488	0.486	0.049	9.923	0.000
Marketing Based on Product Innovation (X2) → Local Economic Growth (Y)	0.444	0.443	0.048	9.219	0.000

The Total Effect analysis shows that all relationships are significant ($P < 0.05$). MSME Competitiveness (Z) positively affects Regional Economic Growth (Y) (0.395). Product Innovation (X1) positively influences both Z (0.429) and Y (0.453), while Product Innovation-Based Marketing (X2) also strengthens Z (0.488) and Y (0.444). Overall, all paths show significant positive effects, highlighting the key role of innovation and innovation-based marketing in improving MSME competitiveness and regional economic growth [39, 40].

3.17. Coefficient of Determination: R-Square and Adjusted R-Square

As shown in Table 11, the R^2 and Adjusted R^2 values demonstrate how strongly the exogenous variables explain the endogenous constructs, based on established thresholds from prior literature [41].

Table 11. Results of the Analysis of the Coefficient of Determination (R-Square and Adjusted R-Square)

	R Square	R Square Adjusted
Competitiveness of MSMEs (Z)	0.633	0.629
Local Economic Growth (Y)	0.661	0.656

The R^2 for MSME Competitiveness (Z) is 0.633 (Adjusted $R^2 = 0.629$), indicating that approximately 63% of its variance is explained by the model. Regional Economic Growth (Y) has an R^2 of 0.661 (Adjusted $R^2 = 0.656$), meaning about 66% of its variance is accounted for. Overall, these values reflect a moderate yet strong explanatory power [42].

3.18. F Square

As shown in Table 12, the F-square values indicate the effect size of each exogenous construct on the endogenous variables, with thresholds of 0.02, 0.15, and 0.35 representing small, medium, and large effects.

Table 12. F-Square Analysis Results (Effect Size)

	Competitiveness of MSMEs (Z)	Product Innovation (X1)	Marketing Based on Product Innovation (X2)	Local Economic Growth (Y)
Competitiveness of MSMEs (Z)	-	-	-	0.170
Product Innovation (X1)	0,375	-	-	0.129
Marketing Based on Product Innovation (X2)	0.484	-	-	0.094
Local Economic Growth (Y)	-	-	-	-

The results of the f^2 analysis show: Product Innovation (X1) has a moderate effect on Regional Economic Growth (Y) with f^2 of 0.129. Marketing Based on Product Innovation (X2) has a small effect on Y with f^2 of 0.094. On MSME Competitiveness (Z), X1 has a large influence (f^2 0.375), as well as X2 with f^2 0.484, which shows a significant contribution to increasing competitiveness.

3.19. Predictive Relevance: Q-Square (Q^2) and Model Accuracy Evaluation

As shown in Table 13, the Q-square (Q^2) results confirm the model's predictive relevance, where Q^2 values greater than zero indicate acceptable predictive accuracy for each endogenous construct.

Table 13. Results of Predictive Relevance Analysis (Q^2)

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Competitiveness of MSMEs (Z)	800.000	437.104	0.454
Product Innovation (X1)	800.000	800.000	-
Marketing Based on Product Innovation (X2)	800.000	800,000	-
Local Economic Growth (Y)	800.000	443.917	0.445

The Q^2 values of 0.454 for MSME Competitiveness (Z) and 0.445 for Regional Economic Growth (Y) indicate strong predictive relevance. Q^2 is not computed for Product Innovation (X1) and Product Innovation-Based Marketing (X2) because they are exogenous variables. Overall, $Q^2 > 0$ confirms that the model's exogenous variables effectively explain the endogenous constructs.

3.20. Model Fit: Evaluating The Fit of The Model To The Data

Model fit in SEM assesses the extent to which the model explains the relationship between variables. Key indicators include SRMR, RMS Theta, NFI, and Chi-Square. A good SRMR < 0.05 , while according to SMARTPLS: RMS Theta < 0.079 , SRMR < 0.10 or < 0.08 , and NFI > 0.9 . The following are the results of the model fit analysis based on these indicators.

Table 14. Model fit results

Suitability Criteria	Saturated Model	Model Estimation
SRMR	0.075	0.075
d_uls	0.773	0.773
d_g	0.683	0.683
Chi-Square	7.6,780	716.780
NFI	0.766	0.766
Theta rms	0.223	-

As shown in Table 14, the SRMR value of 0.075 meets the good-fit criterion, while RMS Theta (0.223) and NFI (0.766) remain below ideal levels. Although the Chi-Square value offers no clear benchmark, the model fit is acceptable overall but still requires improvement in RMS Theta and NFI.

3.21. Product Innovation as a Pillar of Startuppreneurship in Improving the Competitive Advantage of MSMEs

The results show that product innovation significantly boosts MSME competitiveness in West Java. This supports differentiation theory and aligns with, who notes that innovation improves product quality and market appeal. Innovation in this context also includes adapting products to local needs, not only using advanced technology. In contrast, found no significant effect in South Korea due to different market priorities. A key strength of this study is its integration of product and marketing innovation within a locally relevant startuppreneurship model.

3.22. Innovative Marketing Strategy in the Startuppreneurship Model and its Implications for Competitive Advantage

Innovation-based marketing boosts MSME competitiveness and supports creative startuppreneurship. This study shows that product and marketing innovation jointly enhance competitive advantage and regional growth. SEM-PLS results from West Java confirm strong direct and indirect effects on business performance. Digital marketing innovation works well in Indonesia but is less effective in Vietnam due to weaker digital infrastructure.

3.23. MSMEs' Competitive Advantage as a Catalyst for Regional Economic Growth from a Startuppreneurship Perspective

MSME competitiveness is a key driver of regional economic growth. This study demonstrates that innovation and digital marketing strengthen MSME performance, supporting Schumpeterian views in constrained ecosystems [43]. These innovations also align with SDG 8 by boosting productivity and jobs, and with SDG 9 through enhanced digital infrastructure. Overall, innovation-driven MSME development accelerates sustainable regional growth.

4. MANAGERIAL IMPLICATIONS

4.1. Fostering Innovation for Competitive Advantage

MSME managers should make product and marketing innovation a core strategy to differentiate their businesses. The study shows that product innovation strongly enhances competitiveness by attracting customers and strengthening brand loyalty. Managers can invest in new product development, customization, and emerging technologies to improve offerings. At the same time, innovative marketing such as digital marketing, personalized promotions, and social media engagement should be applied to effectively reach broader markets.

4.2. Leveraging Digital Marketing for Growth

As digital marketing becomes a key driver of competitiveness, entrepreneurs should maximize digital channels to expand market reach. The findings show that digital marketing improves customer experience and market penetration. MSMEs need to build a strong online presence, leverage social media, and use data-driven tools to understand customer behavior. Collaborating with digital platforms can also boost product visibility and broaden their customer base.

4.3. Creating a Culture of Continuous Innovation

Entrepreneurs and MSME managers should build a culture of continuous innovation across all business levels. The study shows that sustained competitive advantage comes from ongoing product and marketing improvements. Managers can encourage idea generation, invest in R&D, and empower employees to innovate, while incentives and training in creative thinking further reinforce a sustainable innovation culture.

4.4. Policy Recommendations for MSME Support

Policymakers can enhance MSME competitiveness by encouraging innovation and expanding access to technology. Support through tax incentives, R&D grants, and digital platforms is essential, alongside private-sector collaboration to provide training on innovation and digital tools. These efforts will strengthen MSME capabilities and drive regional economic growth.

5. CONCLUSION

This study examines the crucial roles of product and marketing innovations in enhancing MSME competitiveness, showing that both forms of innovation are key drivers of productivity, job creation, and market expansion. By integrating these innovations within a unified startupreneurship framework, MSMEs are better equipped to build sustainable competitive advantages in dynamic markets. The study contributes theoretically by linking product and marketing innovations with business performance and regional economic growth, offering new insights into how MSMEs can leverage innovation for long-term competitiveness. It also enriches the innovation management literature with empirical evidence on the interconnectedness between innovation, performance, and economic development in the MSME sector.

From a managerial and policy perspective, the findings guide MSME managers and policymakers to prioritize continuous product and marketing innovation, particularly through digital strategies that strengthen differentiation and profitability. Policymakers should also expand access to digital tools and foster innovation-friendly ecosystems. The study's implications align with SDG 8 and SDG 9 by improving productivity, employment, and digital transformation, supporting sustainable regional development. Overall, the findings advance academic understanding and reinforce global efforts to build resilient, innovation-driven economic systems.

6. DECLARATIONS

6.1. About Authors

Syaifuddin (SS)  <https://orcid.org/0009-0004-3629-1679>

Suca Rusdian (SR)  <https://orcid.org/0009-0008-4805-1524>

Noor Aimi Mohamad Puad (NA)  <https://orcid.org/0000-0001-9245-3231>

6.2. Author Contributions

Conceptualization: SS; Methodology: SS and SR; Software: SS and SR; Validation: SS and SR; Formal Analysis: SS and NA; Investigation: SS and NA; Resources: SR; Data Curation: NA; Writing Original Draft Preparation: SS; Writing Review and Editing: SS and NA; Visualization: NA; All authors, SS, NA and SR, have read and agreed to the published version of the manuscript.

6.3. Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon request.

6.4. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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