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EFFECT OF PRODUCT INNOVATION ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES (SMEs) IN NASARAWA STATE

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Abstract

Despite the contribution of small-scale enterprises to employment generation, income creation, and economic development, the performance of many small-scale enterprises remains unsatisfactory. This study examined the effect of Product Marketing Strategies on the performance of small-scale enterprises in Nasarawa State, Nigeria. A survey research design was adopted. The population comprised 1,816 registered small-scale enterprises across the 13 Local Government Areas of Nasarawa State. A sample size of 426 small-scale enterprises was determined, and data were collected using a structured questionnaire. The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings revealed that Product Design has a positive and significant effect on SMEs Performance. The study also found that Product Quality has a positive and significant effect on SMEs Performance. The study recommended that small-scale enterprise owners and managers should continuously improve product designs to meet customer needs and strengthen product quality practices to enhance customer satisfaction, competitiveness, and overall enterprise performance.

Keywords: Product Marketing Strategies, Product Design, Product Quality, SMEs Performance.

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Introduction

Small and Medium-sized Enterprises (SMEs) play an important role in economic development through employment creation, income generation, production of goods and services, and contribution to national output. Their ability to remain competitive depends partly on how well they respond to changes in customer preferences and market conditions. Product innovation provides SMEs with an opportunity to introduce new products and improve existing ones in ways that can enhance customer satisfaction and business performance. Kanire et al. (2024) noted that SMEs constitute a large proportion of businesses and employment globally, making their continued performance important to economic development.

In Nigeria, SMEs represent a significant part of the business sector. The National Bureau of Statistics (NBS) and Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) reported 39,654,385 Micro, Small and Medium Enterprises (MSMEs) in Nigeria as of 2020. These enterprises contributed 46.31% of the country's Gross Domestic Product (GDP), showing their importance to economic activities and national development (NBS & SMEDAN, 2021). The size and contribution of the sector also make the performance of individual SMEs important to employment and income generation.

The SME sector is also relevant to the economy of Nasarawa State. NBS and SMEDAN (2021) reported 21,456 formal enterprises in Nasarawa State, comprising 2,823 nano enterprises, 7,905 micro enterprises, 10,163 small enterprises, and 565 medium enterprises. These enterprises operate in different areas of economic activity and provide opportunities for employment and income generation. Improving the performance of these businesses is therefore important to the economic development of the state.

One approach through which SMEs can improve their performance is product innovation. Product innovation involves introducing new products or making significant improvements to existing products in terms of their features, components, materials, design, functionality, and ease of use (Adegoriola, 2021). Hadi (2023) explained that product innovation enables SMEs to create new or improved products and can contribute to better business performance. Similarly, Wahab et al. (2020) found that product innovation has a positive and significant influence on firm performance. In this study, product design and product quality are considered dimensions of product innovation. Product design focuses on the development or modification of a product's appearance, features, functionality, and usability to meet customer needs. Adegoriola (2021) noted that changes in product design, features, components, materials, and user-friendliness can represent product innovation. Product quality focuses on the reliability, durability, performance, and ability of a product to meet customers' expectations. Improvements in product quality can increase customer satisfaction and contribute to sales and profitability (Xiao et al., 2022; Kanire et al., 2024).

The performance of SMEs can be reflected in outcomes such as sales growth, profitability, customer satisfaction, market share, and business growth. Product innovation can support these outcomes by enabling SMEs to offer products that are attractive, functional, reliable, and responsive to customer needs. Kanire et al. (2024) found that new product development, product improvement, and product line extension significantly improve SME performance, while Hadi (2023) reported a positive relationship between product innovation and SME performance.

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Therefore, considering the importance of SMEs to Nigeria's economy and the presence of a substantial number of enterprises in Nasarawa State, examining the role of product innovation is relevant. This study examines the effect of product innovation, measured through product design and product quality, on the performance of SMEs in Nasarawa State, Nigeria.

Statement of the Problem

Small and Medium-sized Enterprises (SMEs) are important to the economic development of Nasarawa State because they provide employment, generate income, support household livelihoods and contribute to local economic activities. However, many SMEs in the state experience poor business performance, reflected in limited business growth, low sales, difficulties in expanding operations and problems sustaining their businesses over time. This situation is important because the SME sector represents a substantial part of business activity in the state. Gokir (2017) reported 1,027 SMEs in Nasarawa State within the North Central Nigerian SME population, while the National Bureau of Statistics (NBS) and Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) recorded 21,456 formal enterprises in Nasarawa State in 2020, comprising 7,905 micro, 10,163 small and 565 medium enterprises. These enterprises provided employment for 157,533 persons (NBS & SMEDAN, 2021). At the national level, the number of MSMEs also declined from 41,543,028 in 2017 to 39,654,385 in 2020, representing about a 4.5% decline (NBS & SMEDAN, 2021). The continued existence of these performance and survival concerns means that improving the ability of SMEs in Nasarawa State to achieve better sales, profitability, growth and market competitiveness remains an important issue.

One possible way of addressing these problems is through product innovation, particularly through product design and product quality. Product design can enable SMEs to improve the appearance, functionality, usefulness and attractiveness of their products in response to changing customer preferences, while product quality can help firms provide products that meet expected standards and encourage customer satisfaction and repeat purchases. Ahmad et al. (2018) explained that product design considers issues such as product function, use, manufacture and communication, and that effective design can differentiate products and create competitive advantage. Similarly, Bagshaw and Didia (2018) reported a strong positive relationship between product quality and product turnover, indicating that the quality of products can influence their market performance. Kanire et al. (2024) also found that product innovation dimensions such as new product development and product improvement positively influenced different aspects of SME performance. These positions suggest that improving product design and product quality may provide SMEs in Nasarawa State with opportunities to improve their sales, attract and retain customers, expand their markets and achieve better overall performance.

In the cause of reviewing previous studies, several gaps were identified. Gokir (2017) examined innovation and SME performance across North Central Nigeria, but the study covered innovation more broadly. Adegoriola (2021) examined innovation and SME performance in Abuja Municipal Area Council, while Hadi (2023) examined product innovation and SME performance among SMEs in DKI Jakarta, Indonesia. Kanire et al. (2024) examined product innovation and SME performance in Tanzania using dimensions such as new product development, product improvement and product line extension. Ahmad et al. (2018), on the other hand, examined product design in relation

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to new product performance in the manufacturing industry. These studies provide useful evidence on the relationship between innovation and business performance, but they differ in geographical location, sector, variables and dimensions from the present study.

The study seeks to address these geographical, conceptual, sectoral, variable, methodological and time gaps by examining the effect of product innovation on the performance of Small and Medium-sized Enterprises (SMEs) in Nasarawa State, Nigeria. To achieve the general objective of this study, the following specific objectives were formulated:

i. To examine the effect of product design on the performance of SMEs in Nasarawa State, Nigeria.
ii. To assess the effect of product quality on the performance of SMEs in Nasarawa State, Nigeria.

In line with these objectives, the following null hypotheses were formulated for testing:

H_{01}: Product design has no significant effect on the performance of SMEs in Nasarawa State, Nigeria.

H_{02}: Product quality has no significant effect on the performance of SMEs in Nasarawa State, Nigeria.

Performance of Small and Medium-sized Enterprises (SMEs)

Performance of Small and Medium-sized Enterprises (SMEs) refers to the extent to which an enterprise achieves its desired business goals and objectives through improved financial and operational outcomes. It reflects the results achieved by a business in areas such as sales growth, profitability, market share, business expansion, customer satisfaction, and productivity. Ismanu et al. (2021) explained business performance as the results achieved by a company in accordance with its desired goals and noted that revenue from sales, profitability, and market share can be used to measure business performance. Similarly, Gokir (2017) assessed SME performance using sales growth, business expansion, and employment generation, while Kanire et al. (2024) measured SME performance through sales growth, customer satisfaction, profitability, return on equity, production quality, and delivery speed. These views indicate that SME performance represents the ability of an enterprise to achieve improved business results and sustain its position in a competitive market.

As a working definition, the definition by Ismanu et al. (2021) is adopted because it directly relates business performance to the achievement of desired business goals and provides measurable indicators relevant to this study. Therefore, SME performance refers to the extent to which Small and Medium-sized Enterprises in Nasarawa State achieve improved sales growth, profitability, market share, customer satisfaction, and business growth through effective business operations and product innovation.

Product Innovation

Product innovation refers to the introduction of new products or the significant improvement of existing products to meet changing customer needs and improve business outcomes. Hadi (2023) explained product innovation as the process through which organisations create new products or

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services or improve existing ones. The author further noted that product innovation strengthens SMEs' ability to compete and contributes to improved business performance.

Product innovation can involve changes in product design, features, quality and functionality, as well as the development of new products. Nyanjagha et al. (2025) found from their review that product innovation improves product quality, attracts customers, increases sales and profitability, and strengthens firms' competitive advantage. Similarly, Kanire et al. (2024) identified new product development, product improvement and product line extension as important forms of product innovation and found that they positively influence SME performance.

As a working definition, the definition by Hadi (2023) is adopted because it directly relates product innovation to the creation and improvement of products and is consistent with the focus of this study. Therefore, product innovation refers to the introduction of new products and the improvement of existing products through changes in their design, features, quality and functionality to meet customer needs and improve the performance of SMEs in Nasarawa State.

Product Design

Product design refers to the process of developing or modifying a product by considering its features, appearance, functionality, usability, and customer needs. Ahmad et al. (2018) explained that product design considers product function, use, manufacture, and communication, while good design can attract consumers, differentiate products, and create competitive advantage. Uwera (2022) also found that product design can influence customers' purchase decisions.

As a working definition, Ahmad et al. (2018) is adopted because the definition captures the functional and customer-oriented aspects relevant to this study. Therefore, product design refers to the development or modification of product features, appearance, functionality, and usability to meet customer needs and improve the performance of SMEs in Nasarawa State.

Product Quality

Product quality refers to the extent to which a product meets or satisfies customers' needs and expectations. Sambo et al. (2022) explained that product quality is reflected in the extent to which products attain customers' needs and desires, noting that improved product quality can increase customer satisfaction, repeat purchases, sales, and profitability.

As a working definition, the definition by Sambo et al. (2022) is adopted because it directly relates product quality to customer needs and business outcomes. Therefore, product quality refers to the extent to which the performance, reliability, durability, conformance, serviceability, and appearance of products meet customers' expectations and contribute to the performance of SMEs in Nasarawa State.

Product Design and SME Performance

Kanire et al. (2024) examined the effect of product innovation on the performance of SMEs in the food-processing sector in Tanzania. The study focused on product innovation through new product development, product improvement and product line extension and assessed how these activities affected SME performance. Data were collected from owners and managers of SMEs and analysed using ordered logistic regression. The findings showed that new product development significantly

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enhanced SME performance, particularly sales growth and customer satisfaction. Product improvement also had a significant and positive effect on profitability, return on equity, production quality and delivery speed. Similarly, product line extension was significantly related to sales growth, profitability and customer satisfaction. The study concluded that product innovation provides SMEs with opportunities to improve their competitiveness and business performance. However, the study examined product innovation broadly rather than product design specifically. Also, it was conducted among food-processing SMEs in Tanzania, creating a contextual gap which the present study seeks to address by focusing specifically on product design and SME performance.

Uwera (2022) examined product design and its impact on consumer purchase decisions in Tanzania, using selected companies including TBL, Azam, Coca-Cola, MeTL and Tanga Fresh Milk. The study investigated the extent to which consumers were attracted to product design and packaging when making purchasing decisions. Data were collected through questionnaires and interviews and analysed using percentage distribution tables and graphical illustrations. The findings indicated that product design had an important influence on consumer behaviour, with a large proportion of respondents agreeing that product design influenced brand choice and purchase intentions. The study concluded that product design can help firms attract and retain customers by making their products more appealing in the market. The study therefore demonstrated the importance of product design in influencing market-related outcomes. However, the study concentrated on consumers' purchase decisions rather than the overall performance of SMEs. It was also conducted in Tanzania and covered selected established companies, leaving a contextual and methodological gap for the present study.

2.3.2 Product Quality and SME Performance

Adesanya et al. (2024) examined the impact of product quality on organisational performance in Nigeria, with particular attention to the market share of International Breweries. The study adopted a survey research design and used a questionnaire to collect data from the 125 staff members of the marketing department of the organisation. Since the population was relatively small, a census approach was adopted. Descriptive and inferential statistics were used, while the hypotheses were tested using linear regression at a 0.05 level of significance. The findings showed that market share was a function of product quality and product performance, indicating that product quality had a significant influence on the performance of International Breweries. The study recommended continuous improvement in product quality, innovation, creativity and investment in technology to enhance competitive advantage and market share. However, the study focused on a large brewery rather than SMEs, and market share was used as the major performance outcome. This leaves a contextual gap concerning the effect of product quality on the broader performance of SMEs.

Osifo and Osa-Izeko (2023) assessed the influence of perceived product quality on subscriber retention among pay-TV operators. The study adopted a descriptive survey design and focused on 23,400 GOtv subscribers in Benin City. A sample of 386 respondents was determined using the Taro Yamane formula, while data were collected through questionnaires and analysed using regression analysis. The findings revealed that customer service and product packages had positive and

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significant effects on subscriber retention. Product appeal had a positive but non-significant effect, while product reliability had a negative and significant influence on subscriber retention. The study concluded that pay-TV operators need to pay attention to product packages, reliability, product appeal and customer service and recommended improvements in bouquet enrichment, reliability and customer service strategies to enhance subscriber retention. The study provides evidence that different aspects of perceived product quality can produce different outcomes. However, its focus was on pay-TV subscribers and retention rather than SMEs and their overall performance, creating both sectoral and outcome gaps for the study.

Schumpeterian Theory of Innovation

The Schumpeterian Theory of Innovation, developed by Joseph Schumpeter (1934), explains the role of innovation and entrepreneurship in promoting business growth, competitiveness and profitability. Schumpeter argued that innovation involves introducing new products, improving existing products, adopting new production methods, opening new markets and finding new ways of combining resources. The theory therefore suggests that firms can improve their performance by continuously developing and improving their products.

The theory is built around the concept of creative destruction, whereby new or improved products and methods replace existing ones. Innovation does not necessarily require creating an entirely new product; it may involve modifying an existing product, improving its quality or adapting available resources and technology to meet changing market needs. This is relevant to the present study because SMEs can use product design and product quality to differentiate their products, satisfy customers and improve their competitive position.

The theory is supported by empirical evidence showing that product innovation can improve firm performance. The attached literature indicates that modifying product design and improving existing products can enhance product quality, attract customers and strengthen customer loyalty. Similarly, a 2024 study found that new product development significantly improved sales growth and customer satisfaction, while product improvement significantly enhanced profitability, return on equity, production quality and delivery speed among SMEs.

However, the theory has limitations because innovation can require substantial financial and other resources, particularly in the short term. Also, innovation does not always produce positive performance outcomes. For example, Ahmad et al. (2018) found that product design had no significant relationship with new product performance, although process design had a significant positive relationship with performance.

This study adopts the Schumpeterian Theory of Innovation as its underpinning theory because it provides a suitable explanation of how SMEs can use product-related strategies, particularly product design and product quality, to create value, satisfy customers, compete effectively and improve their performance. The theory therefore provides an appropriate foundation for examining the effect of product marketing strategies on SME performance.

METHODOLOGY

This study adopts a survey research design to examine the effect of product marketing strategies on the performance of small-scale enterprises in Nasarawa State, Nigeria. The population of the

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study comprises all registered small-scale enterprises across the thirteen (13) Local Government Areas of Nasarawa State. These enterprises operate in different sectors, including food processing, manufacturing, agriculture, retail trade, and service provision, and contribute significantly to economic activities within the state. According to records obtained from the Nasarawa State Ministry of Trade, Industry and Investment (2021), the total number of registered small-scale enterprises across the thirteen LGAs is 1,816. Therefore, the population of the study consists of 1,816 registered small-scale enterprises.

Table 1: Distribution of Registered Small-Scale Enterprises by LGA

S/N	Local Government	Number of Small-Scale Enterprises
1	Akwanga	173
2	Awe	46
3	Doma	57
4	Keffi	266
5	Keana	37
6	Toto	142
7	Kokona	50
8	Lafia	291
9	Nasarawa	129
10	Nasarawa Eggon	34
11	Obi	16
12	Karu	544
13	Wamba	31
Total		**1,816**

Source: Nasarawa State Ministry of Trade, Industry and Investment (2021)

To determine an appropriate sample size for the study, the Smith (1984) sample size determination formula was applied. The formula is stated as follows:

$n = N / [1 + N(e^2)]$

Where:

n = required sample size

N = population size

e = margin of error (5% or 0.05)

Given that:

N = 1,816

e = 0.05

Substituting the values into the formula:

$n = 1,816 / [1 + 1,816(0.05^2)]$

$n = 1,816 / [1 + 1,816(0.0025)]$

$n = 1,816 / [1 + 4.54]$

$n = 1,816 / 5.54$

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n = 327.80
Therefore:
n ≈ 328

Thus, the calculated minimum sample size for the study is 328 small-scale enterprises.
To cater for possible non-response, incomplete questionnaires, or improperly completed instruments, the study follows the recommendation of Israel (2013) by adding 30% to the calculated sample size as an allowance for attrition/non-response. The adjustment is calculated as follows:
30% of 328 = 0.30 × 328
= 98.4
≈ 98
Therefore, the adjusted sample size is:
328 + 98 = 426

Consequently, the final sample size for the study is 426 small-scale enterprises. The additional 30% provides an allowance for possible non-response and unusable questionnaires while ensuring that the study retains the required minimum sample size.
To ensure adequate and fair representation of all thirteen (13) Local Government Areas of Nasarawa State, the proportional allocation technique is adopted. This technique distributes the final sample size of 426 SMEs according to the proportion of registered SMEs in each LGA relative to the total population of 1,816.
The formula used is:
Sample for each LGA = (LGA Population / Total Population) × Total Sample Size
Therefore:
Sample for each LGA = (LGA Population / 1,816) × 426

Table 2: Proportional Distribution of Sample Across 13 LGAs

S/N	Local Government	SME Population	Sample Size
1	Akwanga	173	41
2	Awe	46	11
3	Doma	57	13
4	Keffi	266	62
5	Keana	37	9
6	Toto	142	33
7	Kokona	50	12
8	Lafia	291	68
9	Nasarawa	129	30
10	Nasarawa Eggon	34	8
11	Obi	16	4
12	Karu	544	128
13	Wamba	31	7
Total		**1,816**	**426**

Source: Field Computation (2026)

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The proportional allocation technique ensures that LGAs with higher concentrations of small-scale enterprises, particularly Karu, Lafia and Keffi, receive higher representation in the sample, while LGAs with smaller SME populations, such as Obi, Wamba and Nasarawa Eggon, are also represented according to their population sizes. This approach promotes fairness in sample distribution, improves representativeness and reduces the possibility of sampling bias across the thirteen LGAs.

Data are collected using a structured questionnaire designed specifically for the study. The questionnaire is measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The instrument focuses on the dimensions of product marketing strategies, particularly product design and product quality, while small-scale enterprise performance constitutes the dependent variable. The questionnaire is structured into sections covering the demographic characteristics of respondents and the study variables. The validity of the research instrument is established through expert and supervisor review. The questionnaire is given to experts in the relevant field of study to assess the relevance, clarity, adequacy and appropriateness of the items in measuring product design, product quality and enterprise performance. Their observations and recommendations are incorporated into the final version of the questionnaire before its administration. Prior to the main survey, a pilot study is conducted to assess the clarity, consistency and reliability of the research instrument. The pilot study involves 10% of the study population. Thus, 182 small-scale enterprises are selected for the pilot study. The pilot study is conducted among small-scale enterprises outside those included in the main sample to avoid influencing the responses of participants in the main study. The pilot testing helps to identify ambiguous, unclear or unsuitable questionnaire items and provides an opportunity to improve the instrument before the main data collection.

The reliability of the questionnaire is assessed using Cronbach's Alpha coefficient. A Cronbach's Alpha value of 0.70 or above is considered acceptable for establishing the internal consistency of the constructs. The reliability test covers the items measuring product design, product quality and small-scale enterprise performance. The results of the pilot study are expected to demonstrate that the instrument has adequate internal consistency and is suitable for the main study.

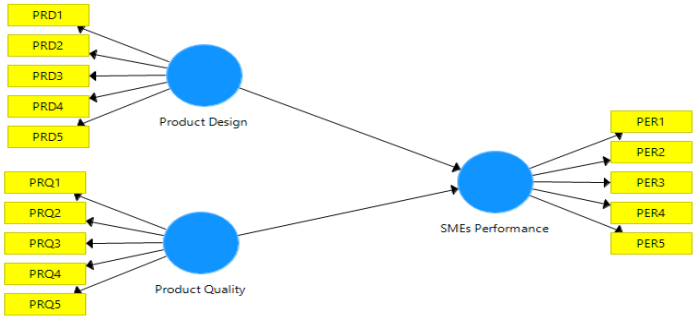
Table 3: Pilot Study Reliability Results

Construct	Number of Items	Cronbach's Alpha	Decision
Product Design	5	0.824	Reliable
Product Quality	5	0.856	Reliable
Enterprise Performance	5	0.879	Reliable
Total	15	0.853	Reliable

Source: Pilot Survey, 2026

Convergent validity is assessed using an Average Variance Extracted value of 0.50 or higher. Data analysis is conducted using Partial Least Squares Structural Equation Modelling in two stages to evaluate both the measurement and structural models.

Figure 1 Specified Model for the Study



Source: SmartPLS Output, 2026

Table 4: Measurement of Variables

Variable		Dimensions	Scale of Measurement	Source of Items
Product Strategies	**Marketing**	Product Design	Ordinal (5-point Likert)	Ahmad et al. (2018); Abereola & Ogundele (2024)
		Product Quality	Ordinal (5-point Likert)	Bagshaw & Didia (2018); Adesanya et al. (2024)
Small-Scale Performance	**Enterprise**		Ordinal (5-point Likert)	Abdilahi & Hassan (2017); Young et al. (2017); Matekanya & Moyo (2022)

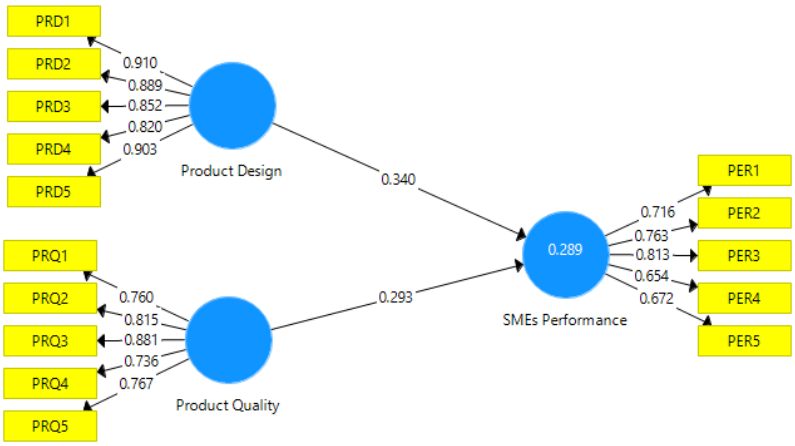
Source: Field Survey, 2026

Response Rate and Usable Questionnaires

Out of the 426 questionnaires distributed to selected small-scale enterprises across the thirteen (13) Local Government Areas of Nasarawa State, a total of 398 questionnaires were returned after the data collection period. Following careful screening to ensure the completeness, consistency, and accuracy of the responses, 386 questionnaires were found suitable for analysis. This represents a usable response rate of 90.61%, which was considered adequate for the analysis of the study.

Measurement Model

Figure 2: Measurement Model



Source: SmartPLS Output, 2026

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The measurement model was assessed using the Partial Least Squares Structural Equation Modelling (PLS-SEM) approach. The assessment focused on the reliability and validity of the reflective measurement models for the three constructs in the study, namely Product Design, Product Quality and SMEs Performance. Hair et al. (2022) explain that the assessment of reflective measurement models involves examining indicator reliability, internal consistency reliability, convergent validity and discriminant validity. The measurement model is assessed before the structural model to ensure that the constructs are reliably and validly measured.

Table 5: Factor Loadings of Measurement Model Indicators

Indicator	Product Design	Product Quality	SMEs Performance
PER1			0.716
PER2			0.763
PER3			0.813
PER4			0.654
PER5			0.672
PRD1	0.910		
PRD2	0.889		
PRD3	0.852		
PRD4	0.820		
PRD5	0.903		
PRQ1		0.760	
PRQ2		0.815	
PRQ3		0.881	
PRQ4		0.736	
PRQ5		0.767	

Source: SmartPLS Output, 2026.

Table 5 presents the factor loadings of the indicators used to measure Product Design, Product Quality and SMEs Performance. Factor loading represents the relationship between an indicator and its underlying construct and provides an indication of individual indicator reliability. Hair et al. (2022) recommend indicator loadings of 0.708 or higher, as this indicates that the construct explains more than 50 percent of the indicator's variance. However, Hair et al. (2022) caution that indicators with loadings below 0.70 should not be automatically eliminated. Indicators with loadings between 0.40 and 0.708 should only be considered for removal when deleting them improves internal consistency reliability or convergent validity, while also taking into consideration the content validity of the construct. Indicators below 0.40 should be eliminated.

Product Design, which addresses the first objective of the study, recorded factor loadings ranging from 0.820 to 0.910. PRD1 recorded the highest loading of 0.910, followed by PRD5 (0.903), PRD2 (0.889), PRD3 (0.852) and PRD4 (0.820). All five indicators recorded loadings above the recommended threshold of 0.708, indicating satisfactory indicator reliability. The results

demonstrate that the indicators adequately represent the Product Design construct. Consequently, PRD1, PRD2, PRD3, PRD4 and PRD5 were retained in the measurement model.

Product Quality, which addresses the second objective of the study, recorded factor loadings ranging from 0.736 to 0.881. PRQ3 recorded the highest loading of 0.881, followed by PRQ2 (0.815), PRQ5 (0.767), PRQ1 (0.760) and PRQ4 (0.736). All five indicators exceeded the recommended loading of 0.708. This indicates that each indicator makes a satisfactory contribution to measuring Product Quality. Consequently, PRQ1, PRQ2, PRQ3, PRQ4 and PRQ5 were retained in the measurement model.

SMEs Performance, which represents the dependent variable of the study, recorded loadings of 0.716, 0.763, 0.813, 0.654 and 0.672 for PER1, PER2, PER3, PER4 and PER5, respectively. PER3 recorded the highest loading of 0.813, followed by PER2 (0.763) and PER1 (0.716). PER4 and PER5 recorded relatively lower loadings of 0.654 and 0.672, respectively. Although these two indicators are below the recommended 0.708 threshold, PER4 and PER5 were retained in the measurement model.

The retention of PER4 and PER5 is supported by Hair et al. (2022), who caution against automatically deleting indicators simply because their loadings fall below 0.70. According to the authors, indicators with loadings between 0.40 and 0.708 should be considered for removal only when their deletion results in an improvement in internal consistency reliability or convergent validity and when such deletion does not negatively affect the content validity of the construct. The loading of 0.654 for PER4 and 0.672 for PER5 therefore falls within the range in which retention is permissible. Both indicators are also considerably above the 0.40 threshold below which indicators should be eliminated. Their retention is consequently methodologically justifiable within the PLS-SEM measurement assessment framework.

Table 6: Reliability and Convergent Validity Results

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Product Design	0.923	0.925	0.942	0.766
Product Quality	0.851	0.859	0.894	0.629
SMEs Performance	0.773	0.783	0.847	0.527

Source: SmartPLS Output (2026).

The results of the convergent validity assessment indicate that all the constructs satisfied the recommended Average Variance Extracted (AVE) threshold of 0.50. Product Design recorded an AVE value of 0.766, Product Quality recorded an AVE value of 0.629, while SMEs Performance recorded an AVE value of 0.527. These values indicate that each construct explained more than 50 percent of the variation in its respective measurement indicators, confirming that the indicators adequately measured the intended constructs. According to Hair et al. (2022), an AVE value of 0.50 or above indicates that a construct has achieved adequate convergent validity.

The reliability assessment also revealed satisfactory levels of internal consistency for all the constructs. Product Design recorded a Cronbach's Alpha value of 0.923 and a Composite Reliability

value of 0.942, indicating that its measurement items were highly reliable and internally consistent. Product Quality recorded a Cronbach's Alpha of 0.851 and a Composite Reliability of 0.894, demonstrating strong consistency among its measurement indicators. Likewise, SMEs Performance recorded a Cronbach's Alpha value of 0.773 and a Composite Reliability of 0.847, indicating good internal consistency among its measurement items. Furthermore, the rho_A values ranged from 0.783 to 0.925, all of which exceeded the recommended minimum threshold of 0.70, providing additional evidence that the constructs are reliable. Hair et al. (2022) indicate that reliability values of 0.70 or above are generally considered satisfactory for internal consistency reliability.

According to Hair et al. (2022), Cronbach's Alpha, rho_A, and Composite Reliability values of 0.70 or above indicate satisfactory internal consistency reliability, while an AVE value of 0.50 or above confirms adequate convergent validity. Since all the constructs exceeded these recommended thresholds, the measurement model was considered reliable and valid. Therefore, Product Design, Product Quality, and SMEs Performance were deemed suitable for subsequent structural model assessment and hypothesis testing.

Table 7: Discriminant Validity Results Using HTMT

Heterotrait-Monotrait Ratio (HTMT)	Product Design	Product Quality	SMEs Performance
Product Design			
Product Quality	0.497		
SMEs Performance	0.548	0.539	

Source: SmartPLS Output (2026).

The results of the discriminant validity assessment using the Heterotrait-Monotrait Ratio (HTMT) indicate that discriminant validity was established among all the constructs in the measurement model. The HTMT value between Product Design and Product Quality was 0.497, while the value between Product Design and SMEs Performance was 0.548. Similarly, the HTMT value between Product Quality and SMEs Performance was 0.539. All the HTMT values are below the recommended threshold of 0.90, indicating that the constructs are empirically distinct from one another.

According to Hair et al. (2022), the HTMT criterion is used to assess discriminant validity, with values below 0.90 generally indicating that two constructs are sufficiently distinct. The values obtained in this study, ranging from 0.497 to 0.548, are substantially below the recommended threshold, providing evidence that Product Design, Product Quality, and SMEs Performance measure distinct concepts rather than overlapping constructs.

The results therefore confirm that the measurement model achieved satisfactory discriminant validity. This implies that Product Design and Product Quality represent distinct dimensions of Product Marketing Strategies and are sufficiently differentiated from SMEs Performance. Consequently, the constructs are considered appropriate for proceeding to the assessment of the structural model and testing of the study hypotheses.

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Table 8: Variance Inflation Factor (VIF) Statistics for the Study

Construct	VIF
Product Design	1.244
Product Quality	1.244
SMEs Performance	

Source: SmartPLS Output (2026).

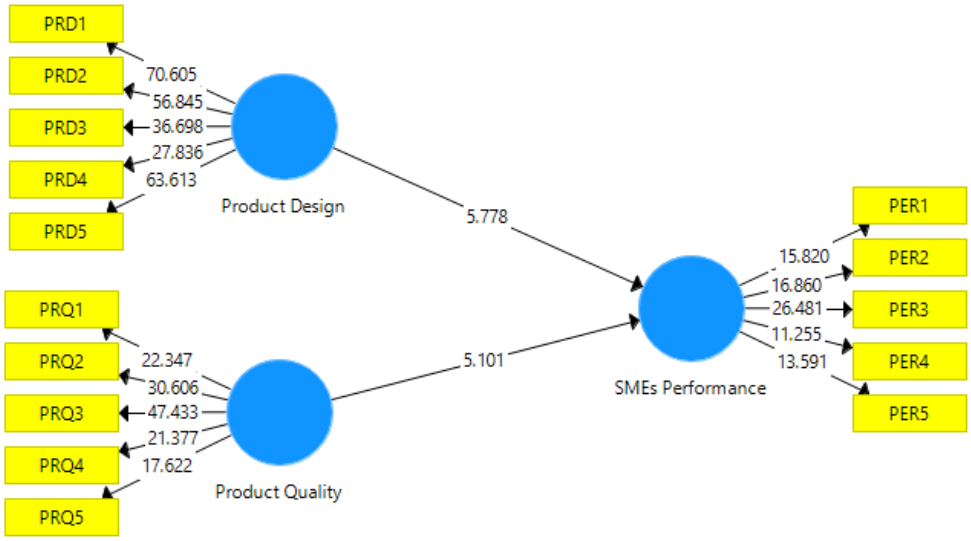
Table 8 presents the Variance Inflation Factor (VIF) results for Product Design and Product Quality, which are the independent variables in this study. Both constructs recorded a VIF value of 1.244. These values are well below the maximum acceptable threshold of 5.0 recommended by Hair et al. (2022), indicating that multicollinearity is not a concern in the structural model.

The findings suggest that Product Design and Product Quality are not highly correlated with one another and that each construct contributes independently to explaining SMEs Performance. Product Design reflects the extent to which small-scale enterprises develop, modify, and improve the design of their products, whereas Product Quality reflects the ability of enterprises to provide products that meet expected standards and customer requirements. The low VIF values indicate that both constructs provide unique explanatory information without creating problematic overlap or redundancy in the structural model.

According to Hair et al. (2022), VIF values below 5.0 indicate that multicollinearity is not a problem in a structural model. Since both independent variables recorded VIF values of 1.244, the structural model satisfies the multicollinearity requirement and is therefore suitable for subsequent structural model assessment and hypothesis testing.

Structural Model Results

Figure 3: Estimated Path Model of the Study



Source: SmartPLS, 2026

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Table 9: Estimated Path Coefficients with t-values and p-values

Path	β (Original Sample)	Mean (M)	Std. Dev. (STDEV)	t-value	p-value	Decision
Product Design -> SMEs Performance	0.340	0.344	0.059	5.778	0.000	Rejected
Product Quality -> SMEs Performance	0.293	0.293	0.057	5.101	0.000	Rejected

Source: SmartPLS Output (2026).

Table 9 presents the structural model results showing the effects of Product Design and Product Quality on SMEs Performance among small-scale enterprises in Nasarawa State. The findings reveal that Product Design has a positive and significant effect on SMEs Performance, with a path coefficient (Beta) of 0.340, a t-value of 5.778, and a p-value of 0.000. Since the p-value is less than the 0.05 level of significance, the relationship is statistically significant. The positive path coefficient indicates that an improvement in product design contributes to an improvement in the performance of small-scale enterprises. This implies that enterprises that pay attention to product design through product modification, improvement, attractiveness, functionality, and suitability to customer needs are more likely to achieve better business performance. Therefore, the null hypothesis stating that Product Design has no significant effect on SMEs Performance in Nasarawa State was rejected.

Similarly, Product Quality has a positive and significant effect on SMEs Performance, with a path coefficient (Beta) of 0.293, a t-value of 5.101, and a p-value of 0.000. Since the p-value is less than the 0.05 level of significance, the relationship is statistically significant. The positive path coefficient indicates that an improvement in product quality contributes to improved performance of small-scale enterprises. This suggests that SMEs that consistently provide products that meet customer expectations, maintain acceptable quality standards, and reduce defects are more likely to experience improved sales, customer satisfaction, competitiveness, and overall enterprise performance. Therefore, the null hypothesis stating that Product Quality has no significant effect on SMEs Performance in Nasarawa State was rejected.

Table 10: Coefficient of Determination (R^2)

Endogenous Construct	R Square	R Square Adjusted
SMEs Performance	0.289	0.285

Source: SmartPLS Output (2026).

Table 10 presents the Coefficient of Determination (R^2) for the endogenous construct, SMEs Performance. The results show that SMEs Performance recorded an R Square (R^2) value of 0.289 and an Adjusted R Square value of 0.285. The R^2 value indicates the proportion of the variance in SMEs Performance that is jointly explained by the independent variables, namely Product Design and Product Quality.

The findings reveal that Product Design and Product Quality jointly explain 28.9 percent of the variation in SMEs Performance among small-scale enterprises in Nasarawa State. This implies that

the remaining 71.1 percent of the variation in SMEs Performance is explained by other factors that were not included in the present model, such as pricing strategies, promotional activities, financial resources, managerial capability, market competition, customer relationships, and other enterprise-related factors.

The Adjusted R Square value of 0.285 indicates that after adjusting for the number of predictor variables included in the model, approximately 28.5 percent of the variation in SMEs Performance is explained by Product Design and Product Quality. The small difference between the R Square and Adjusted R Square values (0.004) suggests that the model is relatively stable and that its explanatory power is not substantially affected by the number of predictor variables included in the model.

According to Hair et al. (2022), R^2 values of 0.25, 0.50, and 0.75 may be regarded as weak, moderate, and substantial, respectively, in PLS-SEM. The R^2 value of 0.289 therefore indicates a weak but meaningful explanatory power, as it is above the 0.25 threshold. This suggests that Product Design and Product Quality jointly provide a meaningful explanation of SMEs Performance, although a considerable proportion of the variation in enterprise performance is attributable to other factors outside the present model.

DISCUSSION OF FINDINGS

The findings revealed that Product Design has a positive and significant effect on SMEs Performance in Nasarawa State. This implies that enterprises that improve product design, attractiveness, functionality, and responsiveness to customer needs are more likely to achieve better performance. The finding agrees with Uwera (2022), who established that product design influences consumer brand choice and purchase intention, and Abereola and Ogundele (2024), who identified product design modification as an aspect of product innovation that can enhance competitive advantage. However, the finding differs from Ahmad et al. (2018), who found no significant relationship between product design and new product performance. The finding is supported by Schumpeterian Theory of Innovation, which suggests that product improvements and innovation enable enterprises to enhance competitiveness, growth, and profitability.

The findings also revealed that Product Quality has a positive and significant effect on SMEs Performance in Nasarawa State. This indicates that enterprises that maintain quality standards, meet customer expectations, and minimise product defects are more likely to achieve improved performance. The finding is consistent with Bagshaw and Didia (2018), who found a strong positive relationship between product quality and product turnover, and Adesanya et al. (2024), who established that product quality contributes to organisational performance. It also agrees with Sambo et al. (2022), who found product quality to be an important determinant of customer satisfaction and loyalty. The finding supports Schumpeterian Theory of Innovation, which emphasises continuous product improvement as a means of achieving competitiveness and enterprise growth.

Conclusion

The study concluded that Product Design has a positive and significant effect on SMEs Performance in Nasarawa State. This indicates that improvements in product design contribute to

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better performance among small-scale enterprises. Enterprises that pay attention to product attractiveness, functionality, modification, and responsiveness to customer needs are more likely to improve customer acceptance, competitiveness, sales, and overall business performance. The study therefore concludes that product design is an important product marketing strategy for enhancing the performance of small-scale enterprises in Nasarawa State.

The study also concluded that Product Quality has a positive and significant effect on SMEs Performance in Nasarawa State. This implies that maintaining consistent product quality, meeting customer expectations, and reducing product defects contribute to improved enterprise performance. Small-scale enterprises that consistently provide quality products are more likely to achieve greater customer satisfaction, loyalty, competitiveness, product turnover, and sustainable business performance. Product quality is therefore an important strategy for improving the performance of small-scale enterprises in Nasarawa State.

Recommendations

Based on the finding that Product Design has a positive and significant effect on SMEs Performance, it is recommended that owners and managers of small-scale enterprises in Nasarawa State should continuously improve their product designs by making their products attractive, functional, and responsive to customer needs. They should regularly assess customer preferences and modify existing product designs where necessary. This will enable enterprises to improve customer acceptance, competitiveness, sales, and overall performance.

Based on the finding that Product Quality has a positive and significant effect on SMEs Performance, it is recommended that owners and managers of small-scale enterprises in Nasarawa State should strengthen their product quality practices by maintaining consistent quality standards, reducing defects, and ensuring that products meet customer expectations. Regular quality checks and continuous product improvement should be adopted to enhance customer satisfaction, loyalty, competitiveness, and overall enterprise performance.

Furthermore, based on the significant effects of both Product Design and Product Quality on SMEs Performance, relevant SME development agencies and other stakeholders in Nasarawa State should provide practical training and technical support in product design and quality management. Such programmes should equip small-scale enterprise owners and managers with the skills required to improve product design and maintain consistent product quality. This will strengthen the product marketing strategies identified by the study as significant contributors to SMEs Performance.

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APPENDIX
QUESTIONNAIRE
Instruction: Tick (✓) the option that best represents your opinion.
SA = Strongly Agree | A = Agree | UD = Undecided | D = Disagree | SD = Strongly Disagree
Section A: Product Marketing Strategies
Product Design Dimension

SN	Statement	SA	A	UD	D	SD
1	Our enterprise regularly improves the design of its products to meet changing customer needs.					
2	The design of our products is attractive to our target customers.					
3	Our enterprise modifies existing product designs to improve their market appeal.					
4	The design of our products enhances their functionality and ease of use.					
5	Our enterprise considers customer preferences when developing or improving product designs.					

Product Quality Dimension

SN	Statement	SA	A	UD	D	SD
6	Our products consistently meet the quality expectations of customers.					
7	Our enterprise maintains consistent quality standards in the products we offer.					
8	Our products perform effectively according to their intended purpose.					
9	Our enterprise takes measures to minimise defects and poor-quality products.					
10	Our enterprise continuously improves product quality in response to customer feedback.					

Section B: SMEs Performance

SN	Statement	SA	A	UD	D	SD
11	Our enterprise has experienced growth in sales over the past few years.					
12	Our enterprise has experienced improvement in profitability over the past few years.					
13	Our enterprise has increased its number of customers over the past few years.					
14	Our enterprise has maintained a strong competitive position in its market.					
15	The performance of our enterprise has improved over the past few years.					

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