SUPPLY CHAIN MANAGEMENT PRACTICES AND THE PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) IN NASARAWA STATE, NIGERIA

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Abstract

The number of rival companies expanding both locally and globally, companies not only have to reestablish themselves to produce higher-quality products and services, decrease waste and are able to respond to the market but also to handle their supply chain management efficiently. The main objective of this paper is to examine the relationship between supply chain management practices and the performance MSMEs in Nasarawa State, Nigeria. The study adopted survey research design in order to collect relevant data from respondents in the field comprising the target respondents who are employees of MSMEs in Nasarawa State, Nigeria. The population of this study comprised of 1,120 MSMEs in Nasarawa State and sample size of 354 MSMEs. Purposive sampling technique was utilized to administer the questionnaire to the respondents. 354 structured questionnaires were distributed but 321 were returned representing 91% retrieval rate. This study adopted multiple linear regression analysis facilitated SmartPLS version (v) 4.1.1.6. The results of this study revealed that strategic supplier partnership had a significant effect on the performance of MSMEs. The findings showed that customer relationship management has a significant effect on the performance of MSMEs. MSMEs should identify their top 3-5 critical suppliers and establish formal partnership agreements that include quarterly joint planning sessions, shared performance metrics, collaborative cost reduction initiatives, and joint innovation projects. MSMEs should invest in an affordable CRM platform (such as HubSpot, Zoho, or Salesforce Essentials) and establish systematic customer engagement practices including monthly check-in calls with key accounts, quarterly satisfaction surveys, personalized communication based on purchase history, and a formal customer feedback loop that informs product/service improvements.

Keywords: ***Supply chain management practices, strategic supplier partnership, customer relationship, performance of MSMEs***

1. Introduction

The global business environment is so turbulent that products` life cycle shrinks easily and new ones are introduced. This makes flexibility and responsiveness to customers` demand inevitable. Micro, Small and Meduim Enterprises (MSMEs) keep trying different business strategies to remain competitive. According to Rasib *et al.* (2021), the growing competition in the market place has urged firms to increase and improve their operational activities and processes. In addition, MSMEs have felt the need to integrate their operations and dominant activities with those of their key suppliers and distributors within the supply chain. Supply chain management has become essential for organizational competitiveness in today's global economy, particularly as MSMEs navigate challenges like market volatility, pandemics, and digital transformation while meeting sustainability demands (Bag et al., 2021; Chowdhury *et al.*, 2022). Organizations increasingly use digital technologies and collaborative partnerships to optimize their supply chains from suppliers to customers (Ardolino et al., 2022; Kumar *et al.*, 2022).

In developing economies, supply chain management faces unique challenges including poor infrastructure, regulatory inconsistencies, and limited technology access, yet offers opportunities for innovation through adaptive business models (Polas et al., 2022; Rodríguez-Espíndola et al., 2022). Strategic practices like supplier partnerships, logistics optimization, and sustainability integration are becoming critical for competitive success (Bag et al., 2022; Brix-Asala et al., 2021). Strategic supplier partnerships represent collaborative, long-term relationships where MSMEs and their suppliers work interdependently to achieve mutual benefits through shared resources, information exchange, and joint problem-solving (Bag et al., 2021). These partnerships enable MSMEs to overcome resource limitations by accessing supplier capabilities, technologies, and expertise that would otherwise be unavailable (Kumar et al., 2022). Customer relationship management (CRM) in MSMEs focuses on building strong, personalized connections with customers to enhance loyalty, satisfaction, and lifetime value (Charoensukmongkol & Suthatorn, 2022).

Unlike large corporations, MSMEs leverage their agility and personalized service capabilities to develop intimate customer knowledge and responsive relationships (Fraccastoro *et al.*, 2021). Small and medium enterprises (MSMEs), which are vital to economic growth and employment, encounter particular supply chain challenges including limited resources, constrained expertise, and weak bargaining power (Civelek et al., 2021; Fraccastoro et al., 2021). Nevertheless, effective supply chain practices such as strategic supplier partnerships, and customer relationship management enable MSMEs to overcome these limitations and build competitive advantages (Charoensukmongkol & Suthatorn, 2022; Diffley & McCole, 2021). Despite the contribution of MSMEs, the performance of MSMEs in Nasarawa State remains below optimal. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS) estimate that over 60% of MSMEs in North-Central Nigeria, including Nasarawa State, operate at micro or subsistence levels, with limited growth, low productivity, and high mortality rates within the first five years of operation (SMEDAN & NBS, 2021). Critical gaps remain regarding which practices most impact MSME performance, how contextual factors influence adoption, and what barriers prevent effective implementation. This study is motivated by the increasing recognition that effective supply chain management (SCM) practices are critical to the survival, competitiveness, and growth of MSMEs, particularly in developing economies such as Nigeria. This study determined the effect of supply chain management practices on the performance of MSMEs in Nasarawa State, Nigeria

The main objective of this study is to determine the effect of supply chain management practices on the performance of MSMEs in Nasarawa State, Nigeria. The specific objectives are to:

i. assess the effect of strategic supplier partnership on the performance of MSMEs in Nasarawa State, Nigeria.
ii. examine the effect of customer relationship management on the performance of MSMEs in Nasarawa State, Nigeria.

Statement of Hypotheses

In line with the above objectives of the study, the following null hypotheses were formulated to be tested in the study:

$H0_1$: Strategic supplier partnership has no significant effect on the performance of MSMEs in Nasarawa State, Nigeria.

$H0_2$: Customer relationship has no significant effect on the performance of MSMEs in Nasarawa State, Nigeria.

2. Literature Review

2.1 Supply Chain Management Practices

Supply chain management practices is a combination of activities undertaken within the organizations to provide the products at the agreed delivery time, suitable quality, and competitive price to the customers, and that is reflected by the customer's satisfaction and the overall organizational performance (Cuthbertson & Piotrowicz, 2018). Supply chain management practices coordinated set of activities, strategies, and processes that SMEs employ to manage the flow of materials, information, and finances from suppliers through production to end customers, aimed at optimizing efficiency, reducing costs, and enhancing overall business performance.

2.2 Strategic Supplier Partnership (SSP)

Strategic supplier partnerships involve long-term collaborative arrangements characterized by trust, information sharing, and mutual commitment to creating value (Subramaniam *et al.*, 2021), enabling SMEs to access complementary resources and capabilities for competitive advantage (Brix-Asala *et al.*, 2021; Kumar *et al.*, 2022). Strategic supplier partnership is a long-term collaborative relationship between an SME and its key suppliers characterized by mutual trust, shared risks and rewards, joint problem-solving, integrated planning, and coordinated efforts to achieve common goals such as cost reduction, quality improvement, and innovation.

2.3 Customer Relationship Management

Customer relationship management (CRM) is a practice which is being adopted by many industries because businesses are shifting from being profit oriented to customer oriented. Customer relationship management capabilities are back bone of the organizational performance and if the customer relationship management capabilities are strengthened, then automatically business performance will be increased. Organizations had realized this fact and they are moving from traditional business to customer oriented (Amegavie *et al.*, 2019). The ongoing interactions, connections, and engagement activities between an MSMEs and its customers, involving understanding customer needs, maintaining regular communication, providing personalized service, building loyalty, and creating value through responsive and customer-centric approaches.

2.4 Performance of MSMEs

Performance is a characteristic of entrepreneurs, namely an attitude of being responsible for their actions and not depending on others (Lestari *et al.*, 2020). Performance is measured using diverse parameters by different organisations. Wattoo *et al.* (2020) argued that a superior level of job performance improves operational efficiency and productivity, leading to higher overall results in an organization. Performance of SMEs is the measurable outcomes and achievements of MSMEs across multiple dimensions including financial results (profitability, sales growth, return on investment), operational efficiency (productivity, quality, delivery), market position (market share, customer satisfaction), and overall organizational effectiveness in achieving business objectives.

2.5 Growth

A major performance indicator in the organization is growth. According to Eze et al. (2020) growth is defined as the organization's recorded increase in the raw material used in the production of goods and services. Growth is an important phenomenon in small enterprises.

2.6 Empirical Review

Clemence (2023) examined the relationship between supply chain management practices and operational performance of firms in the Cape Coast Metropolitan area. Using simple random and convenience sampling techniques to select a sample of 100 respondents, the study administered questionnaire for data gathering, and a response rate of 75% was obtained. The study was built on descriptive survey design, based on quantitative strategy. Field data collected was analysed using descriptive and inferential statistics, applying mean scores, standard deviations and correlation estimates. The models developed were tested using multivariate linear and hierarchical regressions. The ordinary least squares estimation procedure was applied for generating and reporting the results. The findings show a positive significant relationship between all dimensions of supply chain management practices (top management support, customer focus and supplier management) and operational performance. Top management support emerged as the dimension with the strongest effect on operational performance. Further, the study found that customer focus management and supplier management practices have positive significant relationship with firms' business process controls and improvements, and that process control and improvement fully mediates the relationship between supplier management practices and operational performance. The study recommends that managers should continue to provide supportive directions, guidance and resources for the design and implementation of strategic supply chain management activities.

Alam (2022) evaluated the impact of supply chain management practices on the organizational performance in manufacturing firms. The methodology included a quantitative approach and explanatory type with convenience sampling and linear regression analysis using a sample of 200 respondents working at various manufacturing firms in Karachi-Pakistan. The study found that strategic supplier partnership, knowledge management capability, and customer relationship significantly influence organizational performance. Since there were only limited observations, the revalidation of variables was not done in this study. Secondly, a complex supply chain management concept includes companies' networks to produce and deliver the final output. Thus, the overall domain was not studied in this research. Future research could be done on the higher-order model using the same constructs to find the in-depth relationship between independent variables and the dependent variable using a complex statistical technique.

Mumtaz et al. (2023) examined the impact of supplier strategic partnership in supply chain on organizational performance: an empirical study chain management in an emerging economy. A quantitative research approach was adopted, in which a multi-item scale Web-based survey using a structured online questionnaire was utilized to collect the primary data. A total of 232 questionnaires were collected from a sample of Karachi-based FMCG companies in Pakistan. Confirmatory Factor analysis and internal consistency were used to test the reliability and fitness of the measurement model, and structural equation modeling-SEM was employed to test the proposed hypotheses. Findings revealed that there is a significant positive relationship between SCM practices and firm performance. However, the results of the individual-level analysis of SCM practices appear to vary from practice to practice. Of various SCM practices, supplier strategic partnership SSC with the highest beta value was found to have the greatest impact on firm performance, followed by information sharing customer relationship, and finally the outsourcing.

Faruquee et al. (2021) examined strategic supplier relationships and supply chain resilience: is digital transformation that precludes trust beneficial. A survey instrument was developed and administrated to manufacturing firms within the United Kingdom and the United States. Based on data collected from 291 senior managers, multiple linear regressions were conducted through a customized process model to test the proposed hypotheses. The results point to the actual impact of digital transformation being far more complicated than the initial benefits that it appears to bring within a supply chain. Thus, technology is only effective when applied within the right context. The authors showcase that the trio of digital transformation, trust and joint problem-solving can be highly valuable to establish supply chain resilience and that further investigation on the interrelationships between these concepts is warranted.

Baiyewu (2022) examined the impact of customer relationship management on organizational performance, a case study of Dangote Flour Mill, Kano State. The population of this study is 13.3 million people residing in Kano State. A primary and secondary source was used to gather data from the sample size of fifty (50) employees of Dangote Flour Mill, Kano State. Sampling was done using a systematic random sampling technique to select the participating employee from Dangote flour mill, Kano branch. Data was collected in form of both primary and secondary data. Percentage and correlation were used to analyse the data collected from the respondents. Findings showed that customer relationship management has a positive impact on Dangote flour mill's organizational performance. As a result, the study recommended that organisations should invest in training and developments aimed at fostering long-term customer relationships. However, the use of 50 employees as sample size out of 1.33 million populations is too small to generalize the findings in the study. Also, the use of percentage and correlation to analyse the data collected in this study in grossly inadequate for a study like this.

Elmubasher and Alaraki (2020) examined the effect of customer relationship management dimensions on the organizational performance in telecommunication sectors in Sudan. The data collection utilized quantitative methods. Questionnaires were distributed to 286 customers. ANOVA, regression analysis were used to analyze the data collected. The result of this research showed that the implementation of CRM dimensions is more likely to improve organizational performance. In multiple regression analysis, H2: There is positive significant statistical relationship between CRM organization and organizational performance and H3: There is positive significant statistical relationship between knowledge management and organizational performance were accepted, while H1: There is positive significant statistical relationship between Customer orientation and organizational performance and H4: There is positive significant statistical relationship between technology based CRM and organizational performance were rejected. Organizational performance will be affected by CRM dimensions.

2.7 Theoretical Framework

This section discussed the theory related to this study. This study is underpinned by Resource-Based theory.

2.8 The Resource-Based View of the Firm

The foundations of the resource-based view (RBV) of the firm can be found in the work by Penrose in the middle of the XX century (1959) that conceived the firm as an administrative organization and a collection of productive resources, both physical and human. Material resources, as well as human resources, can provide the firm a variety of services. The same resources can be put to use in different ways, according to the ideas of the firms on how to apply them. In this sense, there is a close relationship between the knowledge that people in the organization detain and the services obtained from the resources, so that firms are really repositories of knowledge. The Resource Based View (RBV) analyzes and interprets internal resources of the organizations and emphasizes resources and capabilities in formulating strategy to achieve sustainable competitive advantages.

Internal resources and capabilities determine strategic choices made by firms while competing in their external business environment. The RBV of the firm focuses specially on the inside of the firm, its resources and capabilities, to explain the profit and value of the organization (Penrose, 1980; Wernerfelt, 1984; Barney, 1991; Grant, 1991; Peteraf, 1993; Makhija, 2003). This theory is applied to explain differences in performance within an industry (Hoopes *et al*., 2003). The RBV of the firm states that differences in performance happen when well succeeded organizations possess valuable resources that others do not have, allowing them to obtain a rent in its quasi-monopolist form (Wernerfelt, 1984). According to RBV, not all the resources of firm will be strategic and hence, sources of competitive advantage. Competitive advantage occurs only when there is a situation of resource heterogeneity and resource immobility.

3 Methodology

The study adopted survey research design in order to collect relevant data from respondents in the field comprising the target respondents who are MSMEs employees in Nasarawa State, Nigeria. The population of this study comprised of all the SMEs in Nasarawa State. According to SMEDAN 2021, MSMEs Survey Report, there are total 1,120 MSMEs in Nasarawa State. The MSMEs include manufacturing; accommodation & food services; transport & storage; information and communication; education; administration & support service activities; wholesale & retail trade; real estate activities; human health & social works; arts, entertainment & recreation; human health & social works; and professional, scientific & technical works. Since the population is too large to be entirely covered in this research, the researcher determined the sample size with the aid of Taro Yamane (1967) sample technique which is as follows:

$$n = \frac{N}{1 + N(e)^2} \qquad \text{---(1)}$$

Margin error = 5%
Where;
N = population size (1120)
1 = is constant
e = is the Margin of error (5%)

$$n = \frac{1120}{1 + 1120(0.0025)}$$

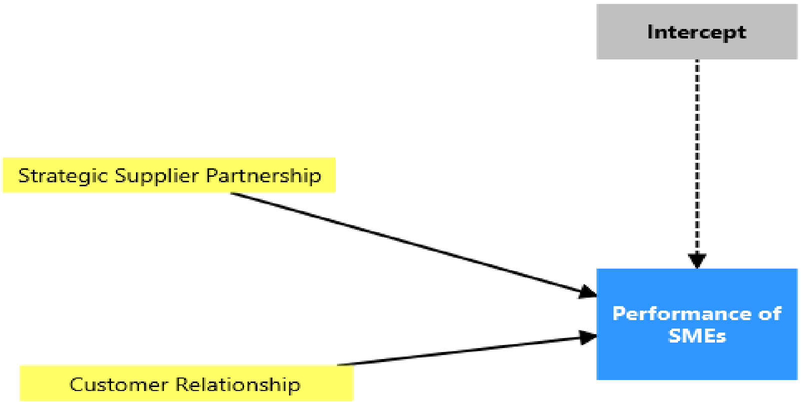
$$n = \frac{1120}{1 + 2.8}$$

$$n = \frac{1120}{3.8} \qquad = 295$$

According to Taro Yamane formula (1967) the calculated sample size is 295. According to Israel (2013) 20% of the sample size should be added to the determined sample size to ensure successful return of the questionnaire. Therefore, the researcher added 59 (which is 20% of the sample size), which brings the total sample size of this study to 354. The study used purposive sampling to administer the questionnaire to the respondents.

The study employed primary data because it is considered as appropriate in capturing effect of supply chain management on performance of MSMEs in Nasarawa State, Nigeria from the respondents. The study used structured questionnaire to collect data from the respondents. The questionnaire was close-ended designed using an ordinal measurement scale via-a-via the 5-point Likert scale ranging from 1(strongly disagree) to 5 (strongly agree). This study adopted multiple linear regression analysis facilitated SmartPLS version (v) 4.1.1.6. The regression is used to estimate the cause and effect relationship between the dependent and independent variables.

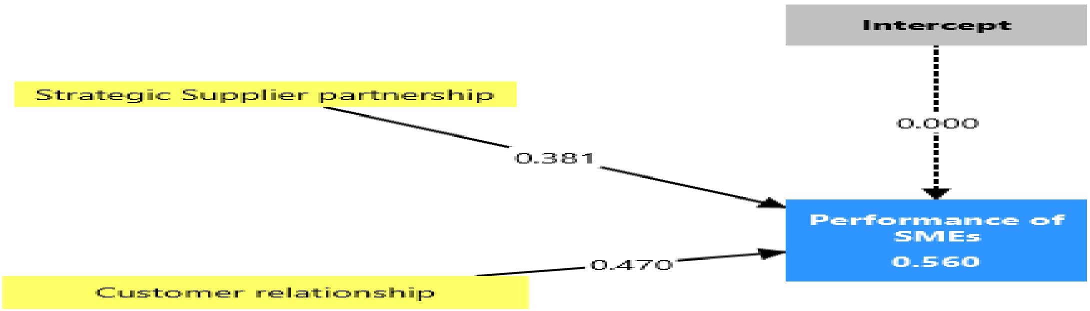
Figure 2: Model Specification



Source: ***SmartPLS v. 4.1.1.7 (2026)***

This model specification in Figure 1 illustrates the simultaneous effects of two independent variables (predictors) such as supply chain management practices such as strategic supplier partnership and customer relationship management and the dependent variable is performance of MSMEs measured by growth.

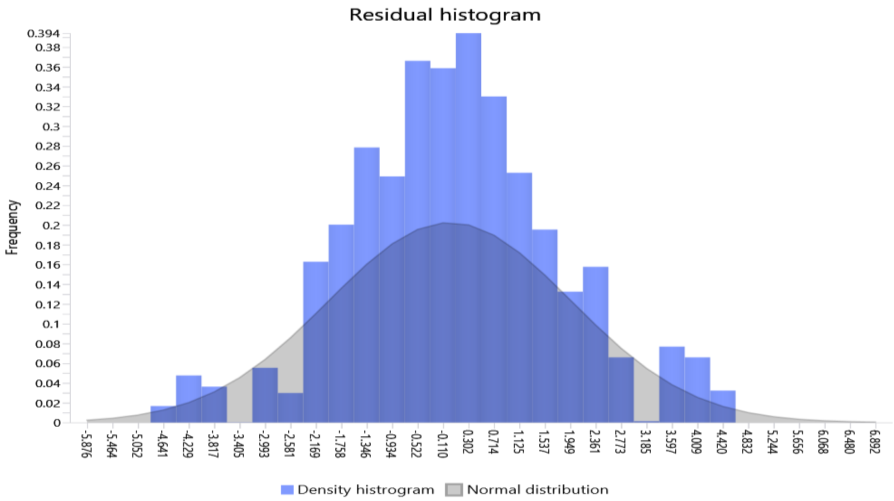
Figure 3: Structural Model



Source: ***SmartPLS v. 4.1.1.7 (2026)***

The path diagram in Figure 3 shows that both strategic supplier partnership and customer relationship have positive and meaningful effects on performance of MSMEs. Specifically, customer relationship has the stronger influence (β = 0.470), followed by strategic supplier partnership (β = 0.381), indicating that improvements in customer-related practices contributed more to performance than supplier partnerships, although both are important. The model explains 56.0% of the variance in performance of SMEs ($R^2 = 0.560$), which reflects strong explanatory power. The intercept is zero, suggesting that performance is fully explained by the included predictors within the model.

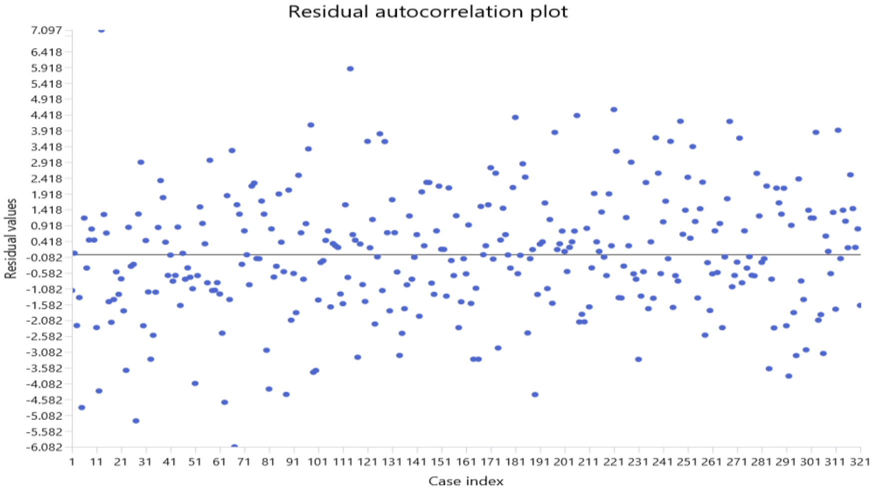
Figure 4: Histogram with Normal Curve



Source: ***SmartPLS v. 4.1.1.7 (2026)***

The residual histogram in Figure 4 shows that the residuals are approximately normally distributed, as the bars closely follow the overlaid normal curve. The distribution appears symmetrical around zero with no strong skewness or extreme outliers. This indicates that the normality assumption of the regression model is satisfied, supporting the validity of the estimated coefficients and statistical inferences drawn from the model.

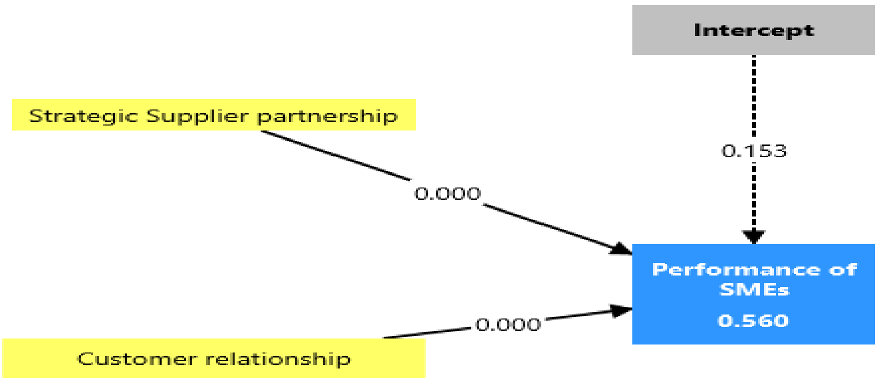
Figure 5: Autocorrelation



Source: ***SmartPLS v. 4.1.1.7 (2026)***

The residual autocorrelation plot in Figure 5 shows residuals randomly scattered around zero with no clear pattern. This indicates that the assumptions of independence and constant variance are likely satisfied, suggesting the regression model fits the data adequately. A few outliers may require further investigation.

Figure 6: Bootstrapping Model



Source: ***SmartPLS v. 4.1.1.7 (2026)***

The bootstrapping structural model in Figure 6 shows that strategic supplier partnership and customer relationship both have positive and statistically significant effects on the performance of SMEs ($p = 0.000$). This implies that MSMEs with strong supplier collaborations and effective customer relationship management tend to perform better. The model explains 56% of the variation in MSME performance ($R^2 = 0.560$)**,** indicating a moderate to strong explanatory power. The intercept value (0.153) suggests that, beyond these two factors, other variables also contribute to MSME performance.

Table 1: Descriptive

ables	Mean	Median	Observed min	Observed max	Number of observations used	Standard deviation	Excess kurtosis	Skewness	Missing values
omer onship	14.676	15	6	24	321	2.957	0.092	0.004	0.000
cept	0	0	0	0	321	0	n/a	n/a	0.000
ormance MEs	14.097	14	5	25	321	2.967	0.824	0.032	0.000
egic lier ership	14.988	15	6	25	321	2.764	0.416	0.006	0.000

Source: ***SmartPLS v. 4.1.1.7 (2026)***

The descriptive statistics in Table 1 indicate that all key variables have relatively high average scores, suggesting a generally positive perception among respondents. Strategic Supplier Partnership recorded the highest mean (M = 14.99, SD = 2.76), followed by Customer Relationship Management (M = 14.68, SD = 2.96), while performance of SMEs had a slightly lower but still substantial mean (M = 14.10, SD = 2.97). The closeness of the means and medians across variables indicates a fairly symmetrical distribution of responses. The observed minimum and maximum values show adequate variability without extreme outliers. Skewness values for all constructs are close to zero, indicating near-normal distributions, while excess kurtosis values are within acceptable thresholds (±1), suggesting no serious peakedness or flatness issues. Additionally, the absence of missing values (N = 321 for all variables) confirms data completeness and reliability for subsequent analyses.

Table 2: Coefficient of Determination (R^2)

Statistics	Dependent Variable
R-square	0.560
R-square adjusted	0.558
Durbin-Watson test	1.968

Source: ***SmartPLS v. 4.1.1.7 (2026)***

The model in Table 2 explains a substantial proportion of the variance in the dependent variable, as indicated by an R-square value of 0.560, meaning that 56.0% of the variation in the dependent variable is accounted for by the independent variables. The adjusted R-square (0.558) is very close to the R-square, suggesting that the model is well-specified and not inflated by unnecessary predictors. The Durbin–Watson statistic of 1.968 is approximately equal to 2, indicating no serious autocorrelation in the residuals. Overall, these statistics suggest that the regression model has good explanatory power and meets key assumptions required for reliable inference.

Table 3: ANOVA

Statistics	Sum square	Df	Mean square	F	P value
Total	2826.01	320	0	0	0.000
Error	1242.06	318	3.906	0	0.000
Regression	1583.95	2	791.975	202.767	0.000

Source: ***SmartPLS v. 4.1.1.7 (2026)***

The ANOVA in Table 3 results indicate that the regression model is statistically significant. The regression sum of squares (1583.95) is substantially larger than the error sum of squares (1242.06), showing that the independent variables explain a meaningful portion of the variation in the dependent variable. The model's F-statistic ($F = 202.77$, $df = 2, 318$) is very large and statistically significant ($p < 0.001$), indicating that the predictors jointly have a significant effect on the dependent variable. Overall, this confirms that the regression model provides a good fit and is appropriate for explaining variations in the dependent variable.

Table 4: Path Coefficient

Research Hypotheses	Path Relationship	B	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
HO1	Strategic Supplier partnership	0.381	0.38	0.042	9.119	0.000	Reject the Hyp.
HO2	Customer relationship	0.47	0.469	0.042	11.097	0.000	Reject the Hyp.

Source: ***SmartPLS v. 4.1.1.7 (2026)***

The hypothesis testing results in Table 4 show that both predictors have positive and statistically significant effects on the dependent variable. Strategic supplier partnership has a moderate positive effect ($\beta = 0.381$, $T = 9.119$, $p < 0.001$), indicating that improvements in supplier partnerships significantly enhance performance. This study is consistent with the study conducted by Mumtaz et al. (2023). Findings revealed that there is a significant positive relationship between SCM practices and MSME performance. However, the results of the individual-level analysis of SCM practices appear to vary from practice to practice. Of various SCM practices, supplier strategic partnership SSC with the highest beta value was found to have the greatest impact on MSME performance, followed by information sharing customer relationship, and finally the outsourcing. Similarly, customer relationship management exhibits a stronger positive effect ($\beta = 0.470$, $T = 11.097$, $p < 0.001$), suggesting it is a more influential predictor of performance. This study is in tandem with the study of Baiyewu (2022). Findings showed that customer relationship management has a positive impact on MSMEs performance. Since the T-statistics exceed the critical threshold and the p-values are below 0.05, both null hypotheses (H_{01} and H_{02}) are rejected.

4. Conclusion and Recommendations

Strategic supplier partnerships emerge as the most critical determinant of MSME performance, demonstrating that MSMEs that cultivate collaborative, long-term relationships with their suppliers gain substantial competitive advantages through improved reliability, quality, cost efficiencies, and innovation capabilities compared to those maintaining transactional supplier interactions. Customer relationship management significantly drives MSME success, confirming that MSMEs investing in understanding customer needs, maintaining consistent communication, and building loyalty achieve measurably better performance outcomes, highlighting the vital importance of customer-centric strategies in the competitive MSME landscape.

The following recommendations were made:

i. MSMEs should identify their top 3-5 critical suppliers and establish formal partnership agreements that include quarterly joint planning sessions, shared performance metrics, collaborative cost reduction initiatives, and joint innovation projects.
ii. MSMEs should invest in an affordable CRM platform (such as HubSpot, Zoho, or Salesforce Essentials) and establish systematic customer engagement practices including monthly check-in calls with key accounts, quarterly satisfaction surveys, personalized communication based on purchase history, and a formal customer feedback loop that informs product/service improvements.

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