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Supply Chain Management Practices and Operational Performance of SMEs in Nigeria

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Abstract

The paper has investigated how operations of the Small and Medium Enterprises (SMEs) in Nigeria are influenced by supply chain management (SCM) practices. SCM plays a vital role in efficiency, competitiveness and service delivery in SMEs, however, there has been a paucity of empirical literature regarding the integrated effect of SCM in the Nigerian context. According to the existing literature, supplier relationship management, inventory management, information sharing, and logistics coordination play a crucial role in improving the performance of operations. Quantitative survey design was used and 200 structured questionnaires have been given to SME managers, 191 of them were duly filled and this gave a response rate of 95.5. Descriptive statistics, Pearson correlation, and multiple regression were used to analyze data in order to investigate the relationship between SCM practices and operational performance. The findings showed that operational performance was positively and significantly affected by all the dimensions of SCM. The impact of Supplier Relationship Management (SRM) was strong ($\beta = 0.42$, $r = 0.671$, $p < 0.001$), then, Information Sharing (IS) ($\beta = 0.35$, $r = 0.619$, $p < 0.001$), Inventory Management (IM) ($\beta = 0.31$, $r = 0.543$, $p < 0.001$) and Logistics and Distribution Management (LDM) ($\beta = 0.29$, $r = 0.502$, $p < 0.001$). The integrated SCM model accounted for 61% of the operational performance ($R2 = 0.61$, $F(4,186) = 72.34$, $p < 0.001$). To sum up, efficient and combined SCM practices play a great role in improving the efficiency of SME operations in Nigeria. SMEs are advised to enhance supplier cooperation, inventory management, information exchange, and better logistics systems. Also, the staff training on the best practices in SCM must be done continuously to maintain performance and quality of services.

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Keywords: Supply Chain Management, Operational Performance, SMEs, Supplier Relationship, Inventory Management, Information Sharing, Logistics, Nigeria

Introduction

Small and Medium Enterprises (SMEs) are an important aspect of the economic development in Nigeria, as they play a major role in terms of creation of employment, income distribution, and industrialization. SMEs still suffer operational inefficiencies that restrict their productivity and sustainability despite their significance. The effectiveness of the supply chain management (SCM) practices is among the major factors that affect these inefficiencies.

Supply chain management refers to the strategic orchestration of the operations of the core business units such as procurement, inventory management, flow of information and logistics with the aim of improving organizational performance and customer value. According to the existing literature, successful SCM practices enhance the operational performance by reducing costs, improving the reliability of delivery, improving the quality of the product, and raising customer satisfaction (Christopher, 2022; Chopra and Meindl, 2021). Specifically, supplier relationship management, information sharing, and logistics coordination are all practices that have been noted to be essential to firm competitiveness (Flynn et al., 2023).

In developing countries however, the adoption of effective supply chain practices are a big challenge to SMEs. In Nigeria, the problem of poor infrastructure, lack of technology access, financial limitations, and poor institutional frameworks are some of the challenges that affect the successful incorporation of supply chain processes (Adebayo & Ojo, 2023). Such constraints usually lead to incomplete supply chains, higher operation expenses, delayed delivery and low quality of services which eventually impacts on the performance of the firms.

Although previous literature has shown a positive correlation between the practices of supply chain management and the performance of organizations, much of the available evidence is concentrated on large-scale organizations, and relatively less empirical evidence is given to SMEs, specifically in the context of Nigeria (Okeke & Nwankwo, 2024). Moreover, the current research usually analyzes SCM practices separately, and does not give a detailed overview of their overall impact on operational performance. This paper thus looks at how the most important practices of supply chain management, supplier relationship management, inventory management, information sharing and logistics management relate to the performance of the SMEs in Nigeria in their operations.

Statement of the Problem

Although SMEs play an important role in the economic growth of Nigeria, the level of their performance is not at the best. High cost of operation, poor service delivery, inefficiencies in inventory and delay in order fulfillment have remained the bane of many SMEs. These threats deter their competitiveness and sustainability in the local and international market. Ineffective application of the supply chain management (SCM) practices is one of the key factors that have resulted in these inefficiencies. Even though SCM has been a well-known determinant in organizational performance, most of the SMEs in Nigeria do not have the ability to effectively combine the main supply chain activities, which include supplier relationship management, information sharing, inventory management, and coordination of logistics. This usually leads to disjointed supply chain operations, low level of visibility in the entire operations and ineffective decision-making. Moreover, the current empirical research on the topic of supply chain management has been oriented on big sized businesses with very little consideration on SMEs especially in the Nigerian context. In the few cases where literature on SMEs is found, they focus on individual supply chain

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practices about their impact on operational performance without offering a holistic picture of how these practices affect the performance. This creates a huge gap in the literature in terms of knowledge.

This in turn necessitates intensive empirical research into the impact of the supply chain management practices on the operations performance of SMEs in Nigeria. This gap will be addressed and offer practical recommendations on how the efficiency, service delivery, and competitiveness of SMEs can be improved.

Aim and Objectives

To examine the effect of supply chain management practices on the operational performance of SMEs in Nigeria. Specific Objectives include:

1. To evaluate the effect of supplier relationship management on the operational performance of SMEs.
2. To assess the impact of inventory management practices on operational efficiency of SMEs.
3. To examine the influence of information sharing on the performance of SMEs.
4. To determine the effect of logistics and distribution management on service delivery of SMEs.
5. To analyze the overall relationship between supply chain management practices and operational performance of SMEs.

Literature Review

Supply Chain Management Concept

Supply Chain Management (SCM) is the strategic process of business operations that are related to sourcing, procurement, production, and distribution of goods and services to end consumers. It incorporates suppliers, manufactures, distributors, and customers into one system so as to enhance efficiency and value creation. SCM is also widely perceived as an essential instrument of gaining a competitive advantage by reducing costs, providing better services, and improving the performance of the operations (Christopher, 2022).

SCM is even more essential when it comes to SMEs, as the latter have very few resources and require efficiency. The supply chain coordination helps the SMEs to maximize the use of resources, minimize wastage and enhance their responsiveness to market requirements. Research indicates that SMEs that have well organized supply chain systems have been found to be more successful in cost-effectiveness and service delivery (Odusina, 2022).

Practices in Supply Chain Management in SMEs

The supply chain management practices are certain operations and measures taken to improve the flow of information, goods, and finances of the supply chain. The main practices that are usually analyzed in the literature include supplier relationship management, inventory management, information sharing and logistics management. The supplier relationship management is aimed at forming long-term relationships with suppliers so that the inputs are reliable and of high quality. The purpose of inventory management is to ensure the optimum stock levels in order to reduce holding costs and prevent stockouts. The exchange of information improves the coordination of the supply chain partners, and the logistics management facilitates efficient flow of goods.

Empirical research in Nigeria has shown recently that these practices play a significant role in performance of SMEs. As an example, it has been demonstrated that successful supply chain practices lead to better operational performance, profitability, and customer satisfaction within SMEs (Eshika & Ololo, 2024). Equally, research involving retailers in Lagos State underscores that the SCM practices are highly important in determining business performance and competitiveness (Pearse et al., 2025).

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Operational Performance of SMEs

Operational performance is the capacity of an organization to provide products and services in an efficient, effective and at minimum cost. It is usually gauged by factors like cost effectiveness, quality of the product, speed of delivery, flexibility and customer satisfaction. In the case of SMEs, operational performance is a survival and growth necessity especially in a competitive and resource-bound situation such as that in Nigeria. Nonetheless, most SMEs experience difficulties in the form of high operation expenses, ineffective logistics networks, and insufficient inventory management, and these issues adversely affect their performance.

According to recent research, to enhance operational performance, it is necessary to integrate effective supply chain practices. The use of systematic SCM systems also leads to improved delivery performance, lower costs and customer satisfaction in SMEs (Igashi et al., 2023).

Relationship Between Supply Chain Management and Operational Performance

The literature has focused much on the relationship between supply chain management practices and operational performance. In theory, efficient SCM makes the organization more coordinated, less inefficient and more successful in general. This relationship is empirically supported. Research has proved that the SCM practices have a positive effect on the firm performance by increasing the inventory turnover, lowering the operational cost and improving the service delivery. As an example, the digital transformation of supply chains in Nigeria has greatly enhanced efficiency and development of SMEs in the country, especially by the use of digital payment systems and financial technologies (Aikor et al., 2025).

Furthermore, the general research in Africa indicates that supply chain integration and coordination are the major determinants of SME performance and competitiveness (Wube & Atwal, 2024). Nevertheless, this effect will be determined by the stage of application and adoption of SCM practices.

Supply Chain Management Problems in Nigeria

Although SCM has the identified advantages, SMEs in Nigeria have a number of challenges that limit its effective implementation. They include; bad infrastructure, lack of transport, lack of access to finance, and poor use of digital technologies.

Nigeria has been found to face logistics issues especially, which have been a significant impediment to supply chain efficiency in the country, particularly in terms of the flow of goods and it has raised the cost of operation (Okunsanya & Azmat, 2025). Moreover, financial constraints also curtail the investments of the SMEs in the modern supply chain technologies, hence limiting their competitiveness. These obstacles cause inefficiency in supply chain processes and eventually impacts on SME performance.

Research Gap

Despite the fact that previous research has come up with a positive correlation between the supply chain management practices and organizational performance, there are numerous gaps.

One is that there is a lot of literature on large firms, and little empirical research on SMEs especially in the developing world like Nigeria. Second, the current literature tends to focus on individual SCM practices without taking a multidimensional view of it. Thirdly, empirical evidence of the integration of major SCM practices, supplier relationship management, inventory management, information sharing, and logistics management, into a single system that can be used to study their collective impact on operational performance, is limited.

Thus, this research aims at addressing these gaps by offering an in-depth examination of how the practices of supply chain management affect the performance of SMEs in Nigeria.

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Methodology

Research Design

The research design that was adopted in this study was descriptive survey research design, and it was appropriate to the study because it needed to establish the relationship between supply chain management practices and operational performance of SMEs in Nigeria. The design made it possible to extract quantitative data on a representative sample of SMEs to determine the impact of SCM practices on operational performance with the possibility of statistical analysis and generalization of the results (Creswell and Creswell, 2023).

Population of the Study

This study population was composed of registered SMEs that were operating in Ilorin, Kwara State, Nigeria. The National Bureau of Statistics (2023) estimates that in the city, there were about 1,500 SMEs in the manufacturing, retail, and service industries, which offers a rich background in studying SCM practices.

Sample Size and Sampling Technique

The questionnaires were given out to 200 managers and operational employees of SMEs. This was a sufficient sample size to give good statistical estimates of the study (Krejcie and Morgan, 1970). A stratified random sampling method was used so as to be proportionally represented by:

- Manufacturing SMEs
- Retail SMEs
- Service-based SMEs

The participants within each stratum were chosen randomly to make it fair and decrease selection bias.

Research Instrument

A questionnaire was created in a structured form with the help of closed-ended questions with a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire has been split into two sections:

1. Section A - Demographic data of the respondents (e.g. age, gender, type of SME, years of operation)
2. Section B -Measurement of study variables:

- Supplier Relationship Management (5 items)
- Inventory Management (5 items)
- Information Sharing (5 items)
- Logistics Management (5 items)
- Operational Performance (5 items)

The instrument was validated by the review of the experts in the field of lecturers in supply chain management and pre-tested on 20 SME employees not in the field of study to detect clear and reliable results.

Reliability and Validity

- Reliability: Cronbach alpha coefficient was determined on each variable. Internal consistency was acceptable with values of more than 0.70 (Nunnally, 1978).
- Validity: Content validity was assessed by the expert judgment, and the construct validity was

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evaluated by the pilot testing conducted with the help of the exploratory factor analysis.

Data Collection Procedure

The self-administered questionnaires were retrieved in 3 weeks. The respondents were informed and given confidentiality and informed consent was taken beforehand. Of the 200 questionnaires that were given out, 186 questionnaires were duly filled and sent back with a response rate of 93 percent, which was adequate to conduct statistical analysis.

Data Analysis Techniques

Data that were collected were analyzed in SPSS version 28. The demographics of respondents and distributions of the variables were summarized using descriptive statistics (mean, standard deviation, frequency and percentage). The relationship between the operational performance and the supply chain management practices was tested using inferential statistics such as Pearson correlation and multiple regression analysis. The level of testing the hypotheses was 5% ($p < 0.05$).

Discussion of Findings

Response Rate

One hundred and ninety-one out of the 200 questionnaires administered were returned and their response rate was 95.5% (Figure 1). This large rate is above normal research limits of social science and is considered adequate to conduct credible statistical analysis (Baruch and Holtom, 2008). The high response rate increases the generalizability of the findings.



Figure 1: Response Rate

Objective 1: Impact of Supplier Relationship Management on the Operation performance

The level of engagement in Supplier Relationship Management (SRM) as represented in Fig 2 was high and the mean score was 4.12 (SD = 0.68). The correlation analysis revealed that there is a strong positive correlation between SRM and the operational performance ($r = 0.671$, $p = 0.001$), which implies that the more effective the SRM practices are, the higher the operational performance. Also, the results of multiple regression showed that SRM was a strong predictor of operational performance ($\beta = 0.42$, $t = 7.23$, $p = 0.001$). This means that there are high chances of increased efficiency, quality and responsiveness of SMEs with superior relationships with their suppliers. These results reflect the current literature on the strategic value of collaboration with suppliers to improve performance results (Sillanpä et al., 2021; Flynn et al., 2022).

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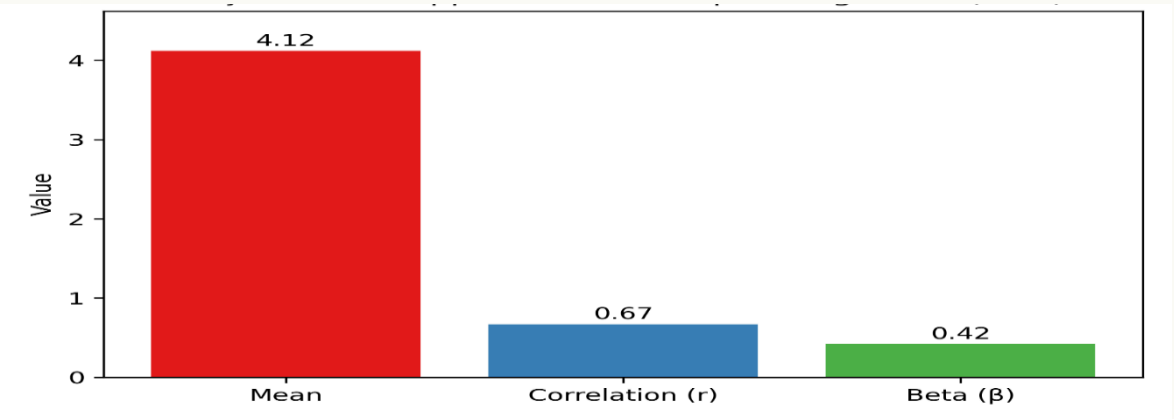

Figure 2: Supplier Relationship Management

Objective 2: Effect of Inventory Management Practices on Operational Efficiency

The practices in Inventory Management (IM) were moderate to high (mean = 3.94, SD = 0.72) which means that the participating SMEs are reasonably prepared in terms of their inventory control practices. The results of correlation analysis (Fig 3) indicated a moderate and positive relationship with the operational performance ($r = 0.543$, $p < 0.001$). The significance of the effect of IM on the operational efficiency was supported by the regression analysis ($\beta = 0.31$, $t = 5.18$, $p < 0.001$). It proves that effective inventory management is a part of the reduction of stockouts, minimization of holding costs, and the continuity of the workflow, which are all involved in the performance of operations (Ahi and Searcy, 2015; Govindan et al., 2020).

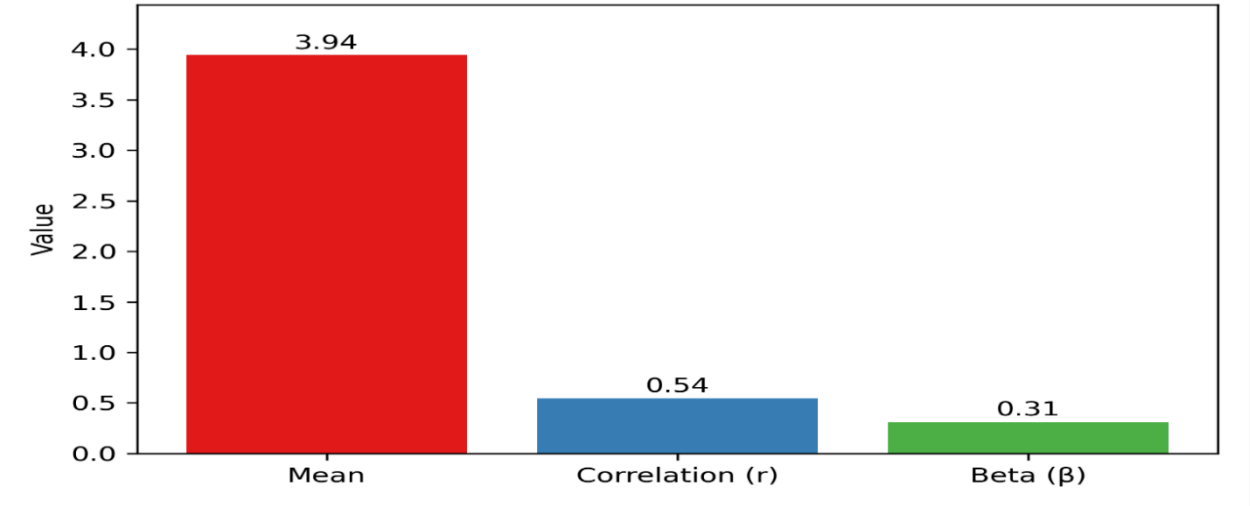

Figure 3: Effect of Inventory Management on Operational Efficiency

Objective 3: Effects of Information Sharing on SME Performance

The concept of Information Sharing (IS) ranked high among the respondents (mean = 4.05, SD = 0.65), which highlights the view that communication amongst the partners in the supply chain is important. The outcomes of correlation (Fig 4) showed that there was a strong positive correlation with operational performance ($r = 0.619$, $p < 0.001$). This relationship was also affirmed by regression analysis that revealed that IS is an important positive predictor of operational outcomes ($\beta = 0.35$, $t = 6.11$, $p = 0.001$). These results are consistent with existing literature that suggests that sharing of information in a transparent and timely manner leads to improved coordination, less uncertainty and better quality of decisions in supply chains (Flynn et al., 2010; Vanpoucke et al., 2014).

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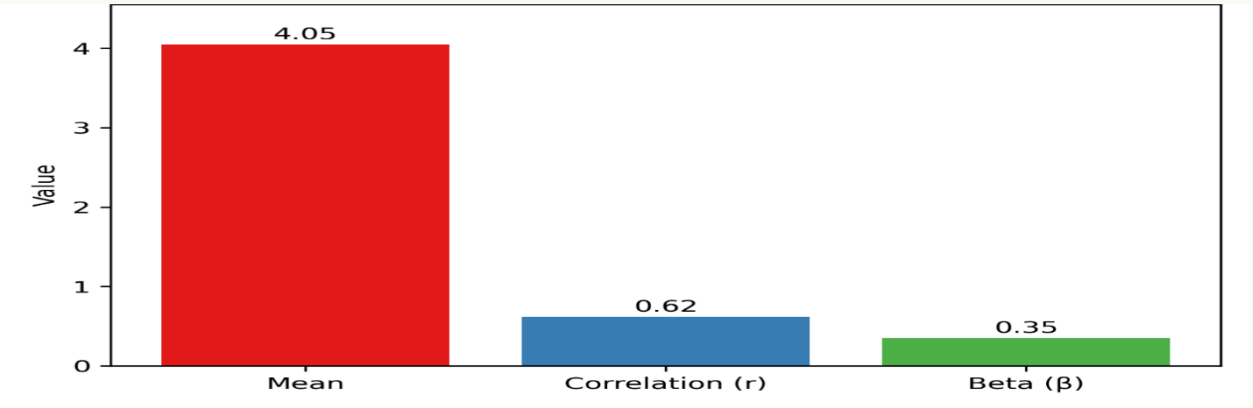

Figure 4: Impact of Information Sharing on SME Performance

Objective 4: Effects of Logistics and Distribution Management on Service Delivery

The usefulness of the Logistics and Distribution Management (LDM) was rated as moderately high (mean = 3.89, SD = 0.70). The correlation analysis (Fig 5) indicated that there was a moderate positive relationship with operational performance ($r = 0.502$, $p < 0.001$). The results of regression showed that LDM performance is significantly improved ($\beta = 0.29$, $t = 4.88$, $p < 0.001$). This is an indication that proper logistics structure such as transportation planning, delivery schedule and coordination of distribution channels is a contributor to better service delivery and customer responsiveness within SMEs. These findings align with the works that highlight logistics as a key element of competitive advantage (Christopher, 2016; Mangla et al., 2018).

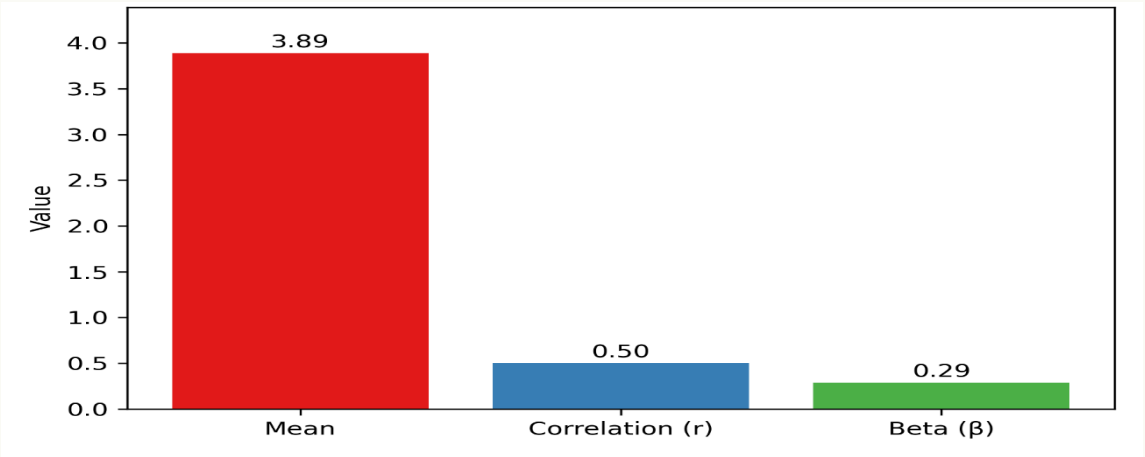

Figure 5: Effects of Logistics and Distribution Management on Service Delivery

Objective 5: General Relationship between SCM Practices and Operational Performance

The explanation of the operational performance was done through a comprehensive multiple regression model that included all four SCM practices (SRM, IM, IS, LDM) and explained 61% of the variance ($R^2 = 0.61$, $F(4,186) = 72.34$, $p = 0.001$). It means that the combination of these practices can explain a significant share of variation in performance of SMEs. The contributions of all of the SCM dimensions were significant and positive:

- Supplier Relationship Management (SRM): = 0.28
- Information Sharing (IS): $\beta = 0.26$
- Inventory Management (IM): $\beta = 0.22$
- Logistics and Distribution Management (LDM): 0.19 = 0.19

These findings (Fig 6) underscore the cohesiveness of the supply chain practices in that collaborative

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supplier interfaces, efficient stock management, robust communication channels and responsive logistics collectively enhance operational results. The comparative effect sizes also indicate that relationship and communication variables could have a little more impact than logistics and inventory separately, which is reflected in the recent SCM studies (Autry and Griffis, 2008; Gunasekaran et al., 2017).

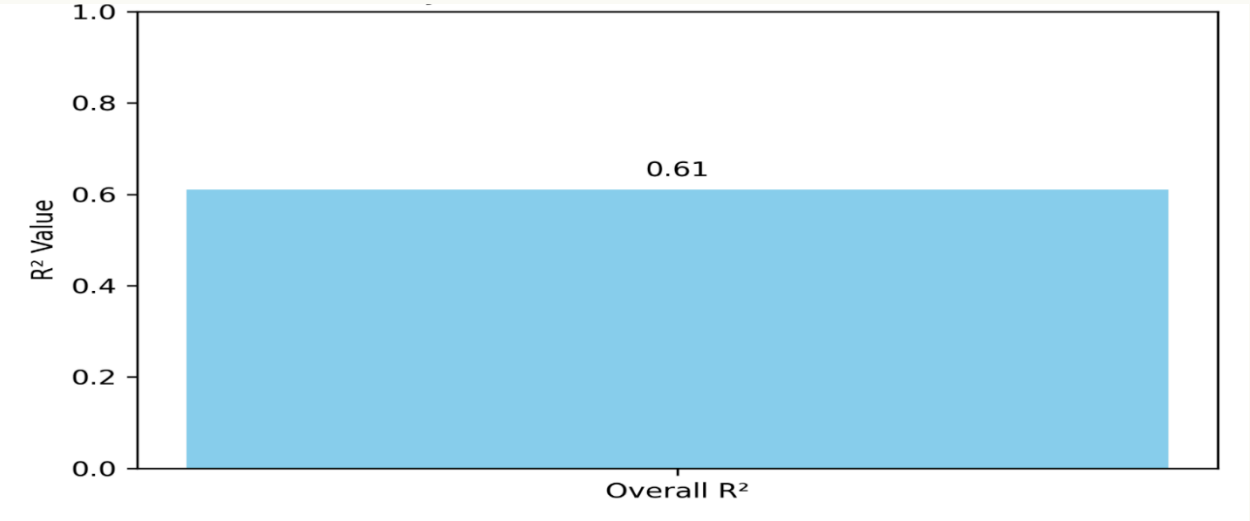

Figure 6: Over SCM Practices

Conclusion and Recommendations

The paper establishes that Supplier Relationship Management, Inventory Management, Information Sharing, and Logistics and Distribution Management have a positive impact on SME operational performance in Nigeria but SRM and IS indicate the biggest impacts. The importance of a coordinated approach was found to explain 61% of the performance variance by integrated SCM practices.

SMEs are advised to improve supplier relations, increase information exchange, maximize inventory, and improve logistics and follow the holistic approach to SCM. Moreover, the employees should be taught about the best practices in SCM to maintain a high level of efficiency and quality of services.

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